Statistically Modified Farming:  
The Spatial Politics in Scottish Farming Statistics

A Thesis in Geography by Alistair Geddes

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Abstract

This study is concerned with some of the statistical developments that have occurred in Scotland since the late eighteenth century, with a particular emphasis on developments related to Scottish agriculture. There are two main purposes to the study: (1) to add understanding of how both historical and contemporary developments in national statistics can be used to study Scottish farming changes; and (2), to show that those developments have involved a variety of “spatial politics”—some ongoing, others changeable—concerning why, how, when, and by whom and for whom national-scale statistics about Scottish farming have been created. Hence, the latter purpose supports the former. Discussion of a conceptual framework forms the first part of the study, centered on reviewing other relatively recent geographical studies of national statistics, particularly those that have attempted to apply and extend concepts from poststructuralist theorizing on governmentality. The second part of the analysis draws on the first and involves empirical analyses primarily of three statistical projects, all of which include statistics about Scottish farming conditions. One development is the Statistical Account of Scotland, conducted between 1790 and 1798, and significant as the first-ever geographically organized statistical survey of the modern nation. Examined next is a sequence of national agricultural surveys performed in the mid-1850s, these surveys being the first specifically about Scottish farming. The third development encompasses the consolidation of state data systems, focusing on the agricultural censuses conducted since 1866. More recent data systems have included those required in relation to the workings of European Community’s Common Agricultural Policy. These three
developments are first analyzed individually, each providing a perspective on the spatial politics of statistical observation and their connections to knowledge and regulation. Finally, continuities and changes over the three developments are assessed and then discussed in relation to current data developments.
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My gratitude goes to others who provided assistance in consulting the archives and libraries that were visited during the course of this research. Astonished and somewhat alarmed at finding a complete copy of Statistical Account of Scotland on the open shelf of Penn State’s Paterno Library, I would like to thank the Rare Books and
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during the last two years. But the last word is reserved for Faye and Jim’s daughter, who is now my fiancée. Morgana, your forbearance and encouragement have been vital ingredients; I love you with everything.
Chapter 1

INTRODUCTION

1.1 Introduction to the spatial politics of Scottish farming statistics

In 1786, in a satire of the Sabbath airs and attire affected by his fellow Scots, Robert Burns wrote the lines “O wad some Power the giftie gie us, To see oursels as ither see us!”¹ Another eminent native, Sir John Sinclair, began his *Statistical Account of Scotland* four years later, and since then statistics have remained an important means for “seeing” the modern nation. This study is concerned with some of the statistical developments that have occurred in Scotland since the time of *Statistical Account*, with a particular emphasis on developments related to Scottish agriculture. There are, in consequence, two main purposes to the study: (1) to add understanding of how both historical and contemporary developments in national statistics can be used to study Scottish farming changes; and (2), to show that those developments have involved a variety of “spatial politics”—some ongoing, others changeable—concerning why, how, when, and by whom and for whom national-scale statistics about Scottish farming have been created.

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¹ R. Burns, *To a Louse* (1786).
In consequence of these two overarching purposes, the aims for this introductory chapter are also twofold. The first aim is to elaborate further on what is meant by the use of the term the “spatial politics of statistics”, and why investigating those politics stands to inform our understanding of farming changes. This is the goal of the next section beneath. Thereafter, the second aim of the chapter is to describe how the study has been carried out, with reference to analyses made of particular empirical records. This is the focus for the remaining two sections in the chapter. In one, the Statistical Account is described alongside two later survey projects which, like the Account, can be regarded as being key developments in Scottish national statistics. The other section then gives a summary of Scottish “parish geography”—important in its own right because of the long-standing use of the parishes as a form of statistical geography.

1.2 Geographical research with agricultural statistics

To be clear from the outset, this is not a “statistical analysis” in the conventional meaning of the term; the focus on the spatial politics referred to above means that less emphasis has been placed on analyzing available statistical data themselves. Thus, the study is essentially not about using quantified differences to reconstruct changes and trends in Scottish agriculture, and nor is it about mapping spatial variations in agricultural statistics. The translation of farms into statistical representations is, however, a central theme.
In addition, it is also important to note the departures from other research in which the processes of producing national agricultural statistics have been considered. In Britain, such work was spearheaded by Coppock’s analyses commenced over a half century ago. Coppock focused his analyses on the official agricultural censuses which have now been conducted annually for over a century. His account of the history of these census exercises traces their origins from surveys attempted earlier in the nineteenth century, identifying three crucial preconditions—“the government had first to be convinced of the usefulness of such information, a satisfactory means of collection then had to be found, and finally opposition on the part of the landlords and farmers had to be overcome.” Such considerations are helpful in thinking about developments in national statistics as the product of both political and social relationships. They are also fundamentally geographical relationships—a point Coppock draws some attention to, in so far as noting that the earlier collection attempts generally were much more successful in Scotland (and Ireland) than in England. Why the farmers in Scotland should have been supportive of statistics than those in England has however not yet been sufficiently addressed, and correspondingly it forms an important point of departure for the present study.

Furthermore, although Coppock’s history of census-taking is quite a detailed one, his greater concern lay in analyzing sets of the parish-level statistics which continue to be generated from the annual censuses. These “parish summaries” are so named owing to

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their creation from returns for individual farm holdings that are then summed to totals for parishes. Generally speaking there are several holdings in each parish, while the parishes are relatively small geographic areas that collectively (and exhaustively) divide the entire country, in the case of Scotland including the many groups of small islands lying off the northern and western coasts. These are the primary reasons the parishes have been used as a statistical geography. Having said this, the creation of the parish summaries has been quite a different process from the production of “small area statistics” from the better-known population censuses. In the case of the population censuses, the publication of area-based statistics has become an important end result in itself, and census geographers have played an active role in designing and testing methods for creating those localized statistics; furthermore, the use of “census geography” as an index for accessing the data has also received increasing emphasis.³ In contrast, the preparation of the parish summaries from the agricultural censuses has remained, as Coppock himself was to note, much more of an administrative convenience and an historical legacy.⁴ In other words the summaries are not considered an end-product themselves, and instead their preparation is merely a stage towards totaling figures for counties, “regions” and Scotland as a whole.

In effect the thrust of Coppock’s research was to try to change this perception of the summaries. His ground-breaking use of computerized data processing (several years


in advance of the popularization of GIS) was an important part of his argument that
instead that local area-based statistics ought to be seen as a valuable source of local data
for land use studies, as well as for investigating the spatial patterning in agricultural
production activity. Granted, at the scale of the parish, summaries can reveal some
important changes and relationships in both of these regards, as Coppock himself went on
to show. Yet a question left hanging by his research is why—i.e., if the summaries are
really but a by-product of other census data processing, then why were the parishes even
used in the first place? How was it they became linked up to the purpose of enumerating
farming? In addition, here again there are some sufficient differences between Scotland
and elsewhere in Britain. Collectively such questions and differences suggested that
developments prior to the inauguration of official census-taking merited further
consideration.

In any event, subsequent geographical perspectives on “statistics” were to leave
Coppock’s approach in a more awkward position. Quantification became objectionable
in British human geographical scholarship for reasons that were similar (not surprisingly)
to those which Levitas and Guy identified within the “bordering” discipline of
sociology. On one hand, objections of a philosophical kind resulted from the perceived
attempts to treat quantitative measurements about the social world as unproblematic
“facts;” epistemologically too, behavioral measurements were held as being a quite
inappropriate basis for understanding the meanings informing individual and social life.

Meanwhile, on a different level, political objections to statistical research have also arisen, especially in relation to the growth and control of official statistics. The latter are by definition produced by government for government, and a question therefore is whether and how far they can serve the needs and perspectives of others working for social change. In Britain, several geographers have been members of the left-wing “radical statistics” group that has arguably done the most to maintain the impetus of this latter line of criticism.⁶

Aspects of both of these objections were rehearsed in British agricultural geography from the late 1980s onwards. For instance, the philosophical objection was evident in the call by Bowler and Ilbery, to “redefine” agricultural geography.⁷ Although not critical of Coppock’s own work, Bowler and Ilbery argued that studies which continued to concentrate on describing regional patterns in agricultural production were part of the “traditional” foci that showed “signs of diminishing returns, which could eventually render the field moribund.”⁸ Five years later, the political objection was discernable in the complaints made by Lowe et al. in a symposium paper reviewing social research on the role played by farmers in land use change. On the one hand, because of the availability of official sources as the agricultural censuses and the Farm Business Survey (mentioned again in Chapter 2) they noted that “In certain respects,

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⁸ Bowler and Ilbery, ‘Redefining agricultural geography’, p. 331.
there is plenty of information about agriculture.” On the other hand, limitations of these established sources were also forcefully put:

They have not helped, however, to answer questions regarding the changing social character of the industry to any great extent. For example, they have not directly addressed the social relations of production, the distribution of wealth as opposed to income, the extent and nature of pluriactivity, and the impact of farming on the environment. … Unfortunately, they have been resistant to change in content and organisation, and have tended to monopolise the resources available for survey work.⁹

The greatest shortcoming was the lack of official social survey data that could help to understand why many British farms remained essentially family businesses, in spite of decades of increasingly industrialized agricultural production. Nearly fifteen years on, there is still no regular official social survey of farmers.

These criticisms by no means led to a wholesale rejection of statistics, however, even among those pushing for a revised agenda. “Critical” statistical investigations are still possible where data support them, one recent example being the use of newer market survey trends to illuminate signs of a increased “farm-gate price-squeeze” facing the UK’s organic food growers.¹⁰ At the same time, attempts to extend theoretical basis of research in agricultural geography by drawing on perspectives from political economy has had its own critics (although many would agree that considerable advances beyond traditional foci have been made).

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A decade or so after Bowler’s and Ilbery’s call, one particular area in which newer political economy perspectives were seen as remaining quite weak was in regard to understanding the changing role of the state. A number of papers by agricultural and/or rural researchers have testified to this. According to Herbert-Cheshire and Lawrence, for example, “ontological questions of what we mean by ‘the state’ have remained unaddressed,” even though “the state” is no longer seen simply as the representative of property-owning class interests.\(^\text{11}\) In addition, objections have been raised against the application of political economic tenets in “subsumption thesis” accounts that have attempted to explain the continuation of family farming “under” capitalism. John Gray has been one such critic, arguing that a main limitation of subsumption thesis explanations is their tendency not to include farmers’ dependence on state subsidies and grants among farming’s external relations, even though such grants and subsidies have funded the important technological inputs.\(^\text{12}\) Marsden, like Herbert-Cheshire and Lawrence, also drew attention to a shifting role of the state, intensified by pressures both for less agricultural protectionism and for more integrated rural policy-making. His suggestion was that “Policy change, and more generally the role of the state in the rural

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\(^{12}\) See J. Gray, ‘Cultivating farm life on the Borders: Scottish hill sheep farms and the European Community’, *Sociologia Ruralis* 36 (1996), pp. 27-50. The target for Gray’s criticisms were the attempts made to use “subsumption” so as to account for ongoing family basis of British farming while at the same time accommodating farming’s progressive penetration by capitalist relations. Two of the papers Gray attacks are: S. Whatmore, R. Munton, J. Little and T. Marsden, ‘Towards a typology of farm businesses in contemporary British agriculture’, *Sociologia Ruralis* 27 (1987), pp. 21-37; and Whatmore, Munton, Marsden and Little, ‘Interpreting a relational typology of farm businesses in southern England’, *Sociologia Ruralis* 27 (1987), pp. 103-122.
sphere, needs to be examined in terms of the extent to which it draws upon competing realities of the rural world and the ways these are documented and articulated.”¹³

The important point in all of this is that statistics would seem to have been very much part of how the realities of farming have been “documented and articulated” by “the state.” Ongoing official statistics are not designed to cater to researchers’ needs, and this applies both to older ongoing statistics like the agricultural censuses as well as more recent statistical and “administrative” data systems. However, rejecting uses of them altogether would involve ignoring the part that they have played in governing developments in farming, and, in the process, it would also ignore the fact that the production of statistics on farming has changed considerably over time. If anything, then, the part that statistics on farming have played in agricultural governance is a challenge for further research; paraphrasing Marsden, it is a challenge which moreover means pulling theories of governance and research on state activity and policy change more closely together.

Indeed as Herbert-Cheshire and Lawrence pointed out, some of the more promising insights thus far into this relationship between statistics and governance are being derived not from political economy but from branches of poststructuralist theorizing rather than from political economy writings. Some of those theoretical insights have already been applied to the case of British agricultural statistics, and Chapter 2 is therefore given over to reviewing them. In the meantime the issues

rehearsed in this section should indicate how and why the present study is different from older and more conventional studies of agricultural statistics. Discussion of the ways in which the study instead sets out to add to newer ways of thinking about and researching agricultural statistics are continued in the following section, in which the structure of the empirical research is outlined in some depth.

1.3 Structure of the work

The work for this dissertation effectively consists of two parts: (a) setting out a conceptual frame for investigations; and (b) an empirical analysis of national statistical survey developments related to Scottish farming. In what follows, part (a) is entirely contained within Chapter 2, in which a literature review is provided. As mentioned above, the challenge tackled by poststructuralist theorizing is, in essence, how to approach an analysis of “the state” and therefore of “state involvement” in social and economic life. In Chapter 2 this is explained firstly with reference to the fusion of ideas occurring in the quite recent literature on governmentality theory, in tandem with some other ideas from actor-network theory.\(^{14}\) The attempt of Jonathon Murdoch and Neil Ward to apply those ideas to British agricultural statistics is also reviewed at this stage.\(^{15}\) Subsequent sections then assess where Murdoch’s and Ward’s analysis is relatively weak

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and stands to be extended. In addition, reference is made to Coppock’s research on developments in official agricultural censuses, and (more importantly) to Matthew Hannah’s formulation of the spatial politics of statistical knowledge that can be identified with census-taking.\textsuperscript{16} In addition, connections are also made to Charles Withers’s analysis of the historical geography of Scottish geographical knowledge.\textsuperscript{17}

The structure of part (b), the empirical analysis, is summarized by the diagram in Figure 1.1. As the diagram shows, three different statistical developments relating to Scottish farming have been investigated, all of which are regarded as being key developments in Scottish statistics. The \textit{Statistical Account of Scotland} is one of those developments, and as Figure 1.1 indicates it was the first \textit{national} statistical survey of modern Scotland. Chronologically speaking at the other end of the spectrum from the \textit{Account} are the developments in the state’s national scale data collection system. The inauguration of annual agricultural census exercises in the 1860s are the primary focus here, these being the first \textit{official} national agricultural statistics, where “official” means “collected directly by government.” Between the \textit{Account} and these censuses is, thirdly, the short sequence of national agricultural statistical surveys conducted by the Highland and Agricultural Society in the mid-1850s. These (henceforth known) “Society surveys” were the first \textit{agricultural} surveys (i.e., dedicated specifically to enumerating farming). These surveys were only “semi-official,” since although carried out \textit{for} the then Board of Trade of the British government they were not performed by the government \textit{itself}. Their

\textsuperscript{17} C. W. J. Withers, \textit{Geography, Science and National Identity: Scotland Since 1520} (2001).
conduct (and indeed their design) owed much to the agency of one particular individual—namely John Hall Maxwell, the Society’s then secretary, who appears to have been as indefatigable as Sinclair was in his determination to carry matters to completion. The diagram in Figure 1.1 thus helps convey the structure of the study in a concise way, although it is not intended to imply that the progression from “pre-state” forms of survey into state data gathering activity has been an inevitable or seamless one. The gaps in the sequence of dates shown provide one indication that this was not the case.

The first of these three statistical surveys to come under consideration in the following chapters is the *Statistical Account of Scotland*—a project living up to its rather grand title in achieving the first purportedly comprehensive survey of the nation when it was conducted at the end of the eighteenth century. The tangible legacy of the *Account* consists of the descriptions reported for each of the nine hundred or so Church of Scotland parishes covering the entire country, collated and published over a total of twenty separate volumes.\(^{18}\) Sinclair’s tremendous determination to carry his scheme through to fruition was one of the aspects which distinguished the *Account* from earlier survey attempts, and in result it was the first time that the parishes were successfully used as a kind of statistical reporting area. The second distinctive feature of the *Account* concerns the understanding of “statistics” which Sinclair sought to imbue on it. Sinclair

Figure 1.1: Structure of this dissertation. Theory reviewed in Chapter 2 has provided a basis for studying records relating to three developments in Scottish farming statistics over the past two hundred years. The developments are summarized in the gray boxes while the division of the analysis over subsequent chapters is as indicated above the boxes.
was a (perhaps the) most enthusiastic of the eighteenth century Scottish
landowner/improvers, and in the same way that he saw detailed information about land
and its resources as being foundational to any plan for improving an estate and its farms,
so he regarded “statistics” as being essential for planning national improvement and not
merely as tools of the state. Not surprisingly, the improvement of agriculture was the
cornerstone of Sinclair’s view of modern Scottish society, as well as being a mainspring
for national modernization.

For such reasons both Sinclair and the Statistical Account are remarkable and
much has been written about both of them already. Having said this, relatively little
attention has been turned to examine in detail how the Account was achieved. Thus while
it is indisputable that Sinclair relied on the Church’s parish ministers to write the reports
contained in the Account’s volumes, little thought has been given to the ministers’
effectiveness and credibility as local “field observers,” or likewise to how Sinclair sought
to manage both them and their acts of observation from a distance. In Chapter 3 the
framework of census-taking processes Hannah identifies that under four headings
(“abstraction,” “assortment,” “centralization” and “compilation”—as discussed in
Chapter 2) is put to work to explore these issues relating to the conduct of the Account.
Additional questions about the intellectual and political “public” for the Account are also
addressed. To answer them, use has been made not only of the Account itself (parts of

19 Withers, Geography, Science and National Identity, p. 146; A. Broadie, (ed), The Scottish
which give Sinclair’s own view on progress), but also of his later *Analysis of the Statistical Account.*

Parishes remained important as a statistical geography when the Highland and Agricultural Society surveys commenced a half century or so after the *Account* was completed. In other regards, however, the two developments appear more distinct. Gone were the indirect observations of farming made by the parish ministers (and which were only part of the information Sinclair requested for the *Account*); instead farmers themselves were being directly involved in and asked to supply statistics. New relationships, new questions and new understandings of statistics had to be devised, implemented and coordinated, and without having Maxwell acting for the Society to orchestrate affairs it seems likely that much poorer progress would have been made. The paper trail left behind from these surveys, which I examined, includes the annual reports Maxwell wrote for the Board of Trade as well as various other unpublished and published materials held within the Society’s own library. In addition, the lengthy testimony he gave before a House of Lords Select Committee—a committee which was appointed to inquire into the “best mode” for obtaining accurate agricultural statistics—is now part of the archive of British parliamentary papers. What comes through from my scrutiny of these materials is, on the one hand, Maxwell’s quite profound admiration for the production levels that Scotland’s tenant farmers were achieving, and, on the other hand,

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21 British Parliamentary Papers (hereafter BPP), ‘Report From the Select Committee of the House of Lords, Appointed to Inquire into the Best Mode of Obtaining Accurate Agricultural Statistics from all Parts of the United Kingdom’, 1854-1855, VIII.
his equally clear sense that better agricultural statistics were precisely the sorts of information that would help regulate food markets and hence tenant’s profits. How Maxwell identified with Scotland’s tenant farmers and the strategies he devised to enroll their support to gain such information are therefore both key issues to examine forming the main subject matter in Chapter 4.

The Society’s role as agent for the Board of the Trade was abruptly curtailed after 1857. No other comparable statistical surveys of Scottish farming were conducted in the years between 1858 and 1865. Thereafter however, a rinderpest epidemic in cattle prompted the government to provide more support for statistics on farming, and in 1866 the first official agricultural census was successfully conducted. Since then agricultural census exercises have been held annually. During that period the conduct of census-taking has undergone some significant changes. For one thing, it has become a fully mail- and questionnaire-based exercise, thereby obviating the requirement for intermediary field observers. In addition a legal basis has been defined providing for (albeit quite modest) financial penalties against holding occupiers who either fail to make a return or are found to have deliberately falsified their records. Such penalties seem largely unnecessary, however; anecdotal evidence suggests that by far the majority of farmers have come to accept the justification for census-taking and have voluntarily complied with most of the requests made of them. It would be tempting to say therefore that census-taking has become, if anything, de-politicized.

On contemporary census questionnaires it is stated that anyone failing to complete and return their form will may be prosecuted and liable for a fine not exceeding £1,000. Penalties for returning false information are not stated.
To demonstrate that this process of de-politicization has not occurred the analysis for Chapter 5 has made use of a hitherto largely untapped source—namely, the records pertaining to the census categorizations, and which are maintained as part of the “administrative history” of the Department of Agriculture and Fisheries for Scotland. A complete copy of the categorizations from all past censuses was assembled, partly from the questionnaires of relatively recent censuses (archived since the early 1960s), and, for the earlier period before that, from so-called parish summary sheets dating back to 1866. A largely unconsidered spatial politics of census-taking can be gleaned from these documents by examining how, when and why changes in census categories have occurred, and even by considering the wording of the labels of these categories. As a case study, attention is turned to investigate the politics in categorizing Scottish cattle production.23 Both dairy and beef production have been sources for a number of problems that government has addressed itself towards, ranging from productivity increases to the losses owing to the spread of disease. The points at which new questions and categories have been added to census questionnaires provide one means for reading the development of those problematizations. Equally however, their existence as problems also relates to perceptions of how cattle production was meant to be working. In consequence, changes in the census categories can also be read in an additional sense,

23 In terms of revenue generated, the raising of beef cattle has been and remains one of the most important branches of modern Scottish farming over the past two hundred years. The most famous domestic beef breeds are the Galloway and, of course, the Aberdeen Angus. For a view of the historical importance of beef cattle farming in the Highland economy, see M. Gray, ‘The consolidation of the crofting system’, Agricultural History Review 5 (1957), p. 37. Specialization into dairy farming has also occurred around urban centers, notably in the south west of the country around Glasgow.
namely, as a means by which cattle farming was drawn closer towards governing perceptions of its “proper” workings.

These politics, of census categorizations and collecting farming data more generally, are all part and parcel of the broader processes of liberal democratic governance. Moreover, as Hannah put it, they have continuously engaged governmental authorities in trying to decide “how much prying and regulating they should do.”\(^{24}\) In Chapter 6, an attempt is made to assay these broader connections between statistics and governing activity, notably as they developed during the post-war period. Departmental files from the earlier part of this period are now part of an archive of “administrative history,” and some of those files were used for Chapter 6 to explore the creation of economic typologies of Scottish farming. Defined by the state’s agricultural economists and statisticians these typologies were meant for summarizing large bodies of agricultural census data into a much smaller number of categories that could be better absorbed by the political system. Of course the categories of census-taking did not organize themselves into these types, and nor were dividing lines between them always obvious; such types as “Dairy with hill sheep,” “Cropping farms with feeding livestock” and “Cropping farms with livestock” all are cases in point.\(^{25}\) These examples indicate that the technical competence of state intermediaries was by itself insufficient to resolve large questions about how the data from census-taking should be organized into types. A case study is

\(^{24}\) Hannah, *Governmentality and the Mastery of Territory*, p. 11.

\(^{25}\) These examples are drawn from a note entitled ‘Economic Classification (1947), Description of Farming Types’, in National Archive of Scotland (hereafter NAS), AF80/14 Hill Lands (North of Scotland) Commission and Advisory Panel on Highlands and Islands: Statistics, 1947-1968. A copy of the full range of types in this note is contained in Chapter 6 of this study.
developed, focusing on the efforts to define and confine sheep production as a distinct type category. The UK became a member of the European Economic Community (the forerunner to the European Union) in the early 1970s, at which point British farming came under the administration of the European Common Agricultural Policy (CAP). The problematic relationship between statistical observations and making statistically-based judgments did not vanish, however and the problems arising are also discussed in Chapter 6, again drawing on evidence from archived administrative documents as well as from other published reports. In the final section of that chapter, the difficulties linking observing, judging and regulating—three key phases in governing activity—are addressed. This is done with reference to the CAP’s sheep production “regime” prior to the onset of the 2001 Foot and Mouth Disease epidemic.

The study is brought to a close in Chapter 7. The first half of the chapter opens with an attempt to draw out the main findings from the analyses of the *Statistical Account*, the Society surveys, and of the official agricultural censuses. A specific set of questions is developed to aid this summary. The second part of the chapter then turns to the possibilities for future research. Scope for such possibilities is outlined with one eye on further work on the same three developments in statistics. Attention is also turned to the spatial politics in contemporary data developments, using the relatively recent devolution reforms within the UK as a starting point. In Scotland, devolution has

26 With the Scotland Act 1998, a Scottish Parliament was re-established as a devolved legislature, holding its first session in 1999. With devolution (“home rule”), responsibilities for several affairs were transferred from the UK to this new Scottish Parliament. These affairs include (and are not limited to):
helped to raise rural and farming interests up political agendas across the UK. At the same time, however, the European Community’s Common Agricultural Policy (CAP) and other “harmonized” European systems and frameworks act as a brake on the extent to which devolved policy-making may proceed, including making changes to the production and provision of statistics and other official databases.\textsuperscript{27} Thus while developments in official spatial “data infrastructures” are being advocated in some quarters—partly reflecting the ongoing popularization of ideas about geographically targeted and more integrated forms of policy delivery—often they are ideals that fail to gauge how scope for change is actually circumscribed by differences between the aforementioned tiers of governing. Positing the agricultural censuses as part of a putatively broader “rural data infrastructure” nevertheless serves the current study; in so doing, issues of control over the categories and relationships in contemporary census-taking can be both studied \textit{and} linked to a more critical examination of the scope for change.

\section*{1.4 Parishes: a two centuries old statistical geography}

Because the parish is a unit that has been mentioned several times already, and because it will continue to feature prominently, the map in Figure 1.2 at the end of this chapter is provided as one representation of what their boundaries look like. The map illustrates not only the considerable variations in the sizes and shapes of the parishes but agriculture fisheries and forestry; planning; economic development; the environment; natural and built heritage; and statistics, public registers and records.

\textsuperscript{27} For this point I am grateful to Professor Neil Ward, who forwarded a copy of his co-written paper with Phillip Lowe, entitled ‘Devolution and the governance of rural affairs in the UK.’
in so doing also serves to pick out major physical characteristics, notably the direction of
glens and the border areas where low and high grounds meet. The boundaries shown in
fact are the set of almost 900 “agricultural parishes” maintained by the Scottish
government primarily for the purposes of geo-coding farm holdings in the agricultural
census (hence also the reason why parishes in Edinburgh, Glasgow and other cities and
towns have been amalgamated). These agricultural parishes are in effect “frozen”
versions of civil parish boundaries, having not been updated in decades. Civil parishes
have themselves long been defunct as a unit of local government—in fact since the first
comprehensive reform of Scottish local government was undertaken in 1929.

In addition to these differences between agricultural and civil parishes, account
must also be taken of what the parish was originally set up as—namely, as a mode of
local ecclesiastical governing, dating back to early medieval times. In this guise they
afforded religious authority not only a means by which a watch could be kept on its flock,
but also a means to extract payments (or “teinds”) from local inhabitants, as a sign of
their allegiance. Matters changed somewhat with the Reformation, but the parishes
remained significant as the bottom tier within the Protestant Church of Scotland’s
Presbyterian structure. With the subsequent creation of local government powers,
“ecclesiastical” and “civil” definitions have overlapped, meaning that there are
essentially three variants in existence: quod civilia, quod sacra and quad omnia parishes.
These multiple meanings can be confusing—yet, at the same time, they also afford just a
taste of the messy ways in which government has become linked up to methods for
dividing and bounding national territories.
As a further pointer to Scotland’s geography the second map in Figure 1.3 is provided to give a general indication of what Scottish society was like when the *Statistical Account* was being produced. At the turn of the eighteenth century, the country was also in the midst of the industrial revolution that was changing the character of life and livelihoods forever. The development of heavy industry still lay largely in the offing, but mining, a textiles industry based on linen and increasingly on cotton, and the expansion of trade through Scottish ports were all major drivers for the dramatic changes affecting urban and rural Scotland and the relations between the two.

### 1.5 Chapter summary

The motivation for this study grew out of a personal background in farming in combination with previous research not only on national censuses but also on land surveys and national mapping. All of the latter projects are, as Hannah noted, spatially organized epistemological tools having political implications, yet those political implications cannot be dealt alone under the rather bland term “policy making.” Ray Thomas has noted that considerable confusion surrounds the role played by national scale statistics, partly because *making* policy is not the same as *supporting* it (a point elaborated on in the final chapter of this study). Moreover, the entrenchment of data systems in particular practices and ways of working can make it difficult to alter them, in

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Figure 1.2: Map of the 891 “frozen” parishes used for agricultural census purposes. (Data source: Scottish Executive GIS Unit.)
Figure 1.3: Map of Scottish industrial and urban development about two hundred years ago. The map also illustrates the division between the Highlands and Lowland Scotland. Note the omission of the Shetland Isles; although Scotland is a narrow country, a display of it at relatively small scales does lend itself readily to the modest dimensions of A4 or smaller paper sizes. (Source: Smout, *A History of the Scottish People, 1560-1830* (1969), p. 553.)
turn obstructing the prospects for making policy changes. Both this and Thomas’s own thoughts are revisited in the final chapter of this study. For now, the important points the reader might take into the following chapter are as follows. First, the concepts used to measure farms and farming as statistics and numbers do not arise naturally from the world itself; as such, the latter are no less social constructions than are other forms of “social statistics.” Second and more specifically, statistical developments on Scottish farming have changed and grown in parallel with the (ongoing) transformation of Scottish farming itself (this is discussed more at the end of Chapter 2). Third, the production of those statistics did not begin with the activities and policies of the nation-state; indeed both “the state” and “regulating farming” are categories that need analyzing, and not assumed as having self-evident meanings. Fourth, ultimately the question of how statistics and data collection systems work worked can be boiled down to issues concerning why, how, where and when data have been sought, and also about who has been involved in their production and usage. While these issues run throughout this dissertation, it is the connections between them which are most important. Only by understanding the connections will it be possible to understand the full extent of complexities involved in making the aforementioned statistics and systems work effectively.

Finally, what of the changes in Scottish farming itself? While they have been enormous, it would be quite wrong to imply that they began at the outset of the current

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study period, or that the transformation of the Scottish countryside was confined to agriculture. Change had been underway for a good century before the *Statistical Account*. In 1690, the Scottish population was small, but it was also distributed much more evenly across the country. In consequence, when it came to the occupation and use of land, however small a plot, almost everyone participated. The most frequent unit of communal settlement at that time was a “farm toun,” the cultivated area of which was often no more than that which two or three horse- or oxen-drawn ploughs could keep tilled up into raised strips or “rigs.” “Pastoral” land often consisted simply of the moorland and bog that lay beyond these rigs. A hundred years later much clearer divisions were becoming apparent on many of these fronts. By then Scottish agrarian society had formed into two distinct social classes: a larger class of “landless laborers,” consisting of the many peasants who had been dispossessed of their former tenure rights, and the other consisting of the smaller number of new tenant farmers occupying recently enclosed land holdings. Rents paid by members of the latter class could be high, partly because of buoyant food markets and partly in view of the heightened levels of productivity they were attaining themselves. In many guises, such as the digging of drainage channels, the removal of stones, applications of lime, sturdier ploughs and other implements, increased use of horsepower, and new crops and breeds of cattle and sheep,

\[30\] Smout estimates that as many as eight or nine out of every ten persons lived outside of the (small) towns that existed then. Overall, the population was around a million—barely a fifth of current numbers. T. C. Smout, *A History of the Scottish People 1560-1830* (1969), p. 119.

\[31\] Correspondingly, Smout suggests that several such farms within a single parish were not uncommon. In the Lowlands they were known frequently as a kirkton, milltoun or cot-toun, or as a clachan in the Highlands. The point of working the land into rigs was to provide a rudimentary assistance to natural drainage. Smout, *A History of the Scottish People*, p. 121.
radically changed methods of agriculture production were found everywhere. Correspondingly, levels of productivity were certainly far greater than they had ever been.\[32\]

It was this combination of increasing rents, growing markets and the heightening productivity which was the main driver of social and economic change in the late eighteenth century. In contrast, anything that would be familiar today as “agricultural policy” was largely absent. There were even complaints that government was being “unfair” towards agriculture, notably as made by Sinclair and fellow leading agricultural improvers like Arthur Young.\[33\] How things have changed since then. In a variety of ways including subsidies and other grant schemes, protectionist trade policies, and an increasing amount of environmentally-related regulation, state interventions in contemporary Scottish farming have reached a massive and wide-ranging scale. Providing just one illustration are the sums received through from the European Community through the CAP, estimated at around £500 million for the 2004 “scheme year” alone.\[34\] Having said this, questions about who, and what, this funding actually supports are increasingly contentious. Just 21,000 farm businesses are reckoned to have received subsidies from the CAP’s main support schemes in 2004, while in the same year

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32 Smout, *A History of the Scottish People*, pp. 247-257. Smout even suggests that, in the 1790s, the production of Scottish farms was then well over fifty percent above the corresponding total from just two decades previously.


34 Scottish Executive, *The Administration of Common Agricultural Policy Schemes in Scotland, Annual Report 2004* (2005), p. 3. In addition, the table on p. 17 in that report shows that around £460.1 million was spent in direct subsidy payments and a further £34.8 million in supporting a variety of agri-environment and forestry projects.
the number of farm occupiers classed as either full-time or part-time farmers stood at just over 28.2 thousand.\textsuperscript{35} The overall numbers of farm employees was estimated to be even lower, at 25.4 thousand being only about a fifth of the size of agricultural workforce ninety years earlier.\textsuperscript{36} Further comparisons between past and present could be drawn, but the basic point is clear that immense changes have occurred (and continue) in Scottish farming. How growths in statistical knowledge have related to these changes—how they have contributed towards “modifying” farming—is a central issue for the present study.


Chapter 2

CONCEPTUAL CONSIDERATIONS

2.1 Introduction: the state, farming, and statistics

The discussion in this chapter forms the first part, part (a), of the overall study, and consists of a review of developments and applications in recent poststructuralist theorizing. There are two broad reasons for establishing the conceptual frame for the study from a discussion of these contributions—one, because of their utility in understanding the relationship between (national) statistics and governance, and two, because they serve to turn analytical attention towards the role of “the state” and the meaning of “state power” in research on agricultural governance.

Conceptions of farming made and supported by the state are crucial to consider in light of the dependence of many farmers on the state for subsidies and grants, in combination with the effects of other regulations on farming activity. The situation was not always so, however, and in consequence part of the argument in the current study is that statistical representations have been elemental to development of the relationship between the state and farming (and farmers). Understanding this relationship has been given added importance by the ascendancy of neoliberal political ideology on either side of the Atlantic over the last two or three decades. The ambition to reduce overt state “interference” in economic and social affairs which is encompassed within this ideology
has drawn further attention the requirement to embed ideas about state power within more precise (and critical) conceptions of how power operates in governing populations and territories. Geographic perspectives have had a role to in developing these conceptions, stemming from the acknowledgement that the production of power over populations and territories is conditional on the availability of “knowledge” about them. In turn, the creation of such knowledge hinges on the production and arrangement of a variety conditions which serve to make populations and territories more open to scrutiny.

Michel Foucault was among the poststructuralist scholars who remained critical of (Marxian) political economy theorizing, in part because of the relative lack of attention to what the state is and how state power works. Foucault’s own configurations of developments in surveillance-control and knowledge-power relationships in liberal democracies (as distinct from the state-market-civil society trinity respected by political economists) have been increasingly influential, especially following the publication of his essay “On governmentality.” A larger literature on governmentality stimulated by Foucault’s essay has exhibited a capacity to enhance critical thinking about the constitution of modern power. To illustrate this capacity a small sample of key writings within the literature is drawn on in the following section; overlaps to the literature on actor-network theory are also noted.
2.2 Governmentality theory: political rationalities and governing techniques

As just mentioned, one of the most formative of threads in the governmentality literature has been to reject the idea that “government” is simply “what the state does,” and therefore to critique more conventional views of the state as being a coherent and monopoly locus of rule. Attention is instead brought to the operation and effects of diverse programmes and practices in equally diverse, localized settings, “including those ‘within’ the [human] subject” itself. With conceptions of governing thus considerably broadened, the ensuing theoretical strategy involves decomposing investigations of power into a number of overlapping elements. Generally speaking, two such sets of elements are recognized, one consisting of “political rationalities” and their “associated governmental programmes,” the other of the “technologies” and “techniques” of government.

The first of these elements, political rationalities, reflects a concern with the discursive foundations of government, or in other words with how particular ways and forms of exercising power are being thought out and morally justified. The emphasis here is on how practitioners of rule have continuously posed themselves questions about how and how much to govern, and in addition, on how government is constantly reforming itself in light of its evaluations and failures. In consequence, attempts to signify government in terms of institutional size and funding, or likewise by analyzing its

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mission statements, are all eschewed by governmentality writers. Their preferred approach is instead based in interpreting other documented records, the intention being to reveal how “mentalities” of governing develop around problematizations of social and economic organization that government addresses itself towards and attempts to deal with. The translation of abstract political rationalities into more concrete practices is therefore also a concern, and has been traced through the emergence of “governmental programs” focused on entire populations. In this way, familiar problems such as unemployment and poverty have been explored as characteristics of population “deficiencies.”

Finally, taking all of the above elements together, another objective has been to formulate a “genealogy” of key political rationalities and the particular programmatic schema associated with each of them. The spread of neoliberalism is regarded as one such key rationality, some of the main points of research in governmentality theory having emerged around disputing conventional assumptions about neoliberal views of de-regulation. In the governmentality view, neoliberalism is seen as involving more than merely the retrenchment of regulation. As the point was put elsewhere, “laissez faire is a way of acting, as well as not acting”—in other words drawing attention to the fact that neoliberalism is both an attempt to limit political sovereignty and a positive justification for market and civil freedoms. A good deal of

attention has been paid to understanding what the latter “freedoms” consist of, and how they are brought into being and maintained.

An allied area of research focuses on analyzing the technologies and techniques of government—an umbrella term for a variety of practices, materials, subjects and agents that co-exist, that may be linked in changeable ways, and that form a means through which political rationalities and programmes are given effect in everyday lives. Much of the interest in these mundane and routine ways in which power is exercised focuses on technologies of “self-regulation” as vested in individual-scale concepts such as personal “entrepreneurship” or “empowerment,” in similar articulations of “community empowerment,” and, within institutions, which are embedded in managerial practices such as audit and targeting. Additionally, the emphasis on governmental technologies also connects to thinking about how entire populations, territories and their respective problematizations are rendered “visible” as categories for government intervention. In this respect official statistics and national-scale survey and mapping projects are often cited as techniques *par excellence* from which governmentalized forms of knowledge have been produced.

More generally, interpreting “texts” is regarded as a main route

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towards studying the development of these technologies and the representations that they support.43

The notion of a single powerful state is thus sidelined through these interrelated foci on political rationalities and governing technologies; however, it should be made clear the object in so doing usually is not to completely obliterate the idea of state power per se. The goal, rather, is to question how something that can be identified as “state power” is constituted and assembled within specific but variable institutional limits, and as a consequence of the varied means and associations that state actors marshal and exploit to establish their influence.44 No surprisingly such rather convoluted definitions have been criticized, but those criticisms appear not to have checked the governmentality literature’s usage in attempting to understand the “liberal” principles of governing in modern liberal democracies. Characterizations of such democracies involving a distinction drawn between the realm of the state and an alternative realm of civil “freedoms” are seen as being fruitless in so far as that the making of such state/civil society distinction fails to account for how a boundary between the two realms exists.

Analyses of the state/civil society divide are illuminated further by an engagement with literature on actor-network theory. Contoured by the writings of Bruno Latour and collaborators in the field of “science studies,” a main object of actor-network theory has been to attack precepts seen as being central to “modern” ways of thinking that have

contributed to over-simplistic beliefs and understandings about the world. The separation between state and civil domains is one such case, but only one; another instance concerns the conventional distinction drawn between society (and humankind more generally) and “nature.” Two major problems are identified with these conceptions about the world—one of which concerns the positioning of humans as the only significant actors, and the other concerning the masking of more complex relations and phenomena that actually transgress either side of conventionally drawn dualisms. In consequence, actor-network theory presents an alternative conception of the world consisting of assemblages of large, “heterogeneous” networks of relationships which, rather than dividing, actually bind places, events, humans and non-human things together. Such thinking has by itself had a considerable impact on research in human geography, in the British context having recently been applied to research on the definition and governance of “rural” places and phenomena.45

Actor-network theory and governmentality parallel one another in the view that the formation and effects of diverse networks of relations permit “action at a distance,”

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45 One example of this recent research is that by Murdoch and Lowe on the politics surrounding the protection of “rural England.” See J. Murdoch and P. Lowe, ‘The preservation paradox: modernism, environmentalism and the politics of spatial division’, Transactions of the Institute of British Geographers 28 (2003), pp. 318-332. Furthermore, in research by Donaldson et al., the Foot and Mouth Disease epidemic in 2001 has been analyzed as something of a “classic” outcome of the artificial separations and cleavages which modernist thinking supports. For a period the official disease control strategy involved closing off areas around farms, as well as issuing warnings for all “non-essential” traffic to “get out and stay out” of the countryside. In effect, farming was seen as being the only significant player whereas other economic connections into rural areas (e.g., through tourism) were overlooked. The damage caused to these latter connections was considerable; it has been estimated that other rural businesses lost revenue worth several millions of pounds. See A. Donaldson, P. Lowe and N. Ward, ‘Virus-crisis-institutional change: the Foot and Mouth actor network and the governance of rural affairs in the UK’, Sociologia Ruralis 42 (2002), pp. 201-214.
whereby certain actors in particular locales are able to exert degrees of influence over other events, places and lives. “Distance” is given a double meaning, with attention paid not only to the ways in which networks support interventions in physically distant places and events, but also to the varied representations which allow those places and events to be brought into being as distant phenomena which can be acted upon.  

Two representational devices referred to as “inscription” and “calculation” are key technologies consistent with the governmentality meaning of the term. Inscription is thus a general term for a variety of modes of representation through which events and phenomena are transformed into information that is made “stable, mobile, comparable and combinable.” Many versions of inscription are held to exist, again including statistics and surveys, as well as, among others, financial accounts, written reports and graphs. The notion of “calculation” is closely related but places emphasis on the processes carried out on inscriptions such that “the domain in question [becomes] susceptible to evaluation, calculation and intervention,” notably through the deployment of mathematical and statistical techniques. Successive cycles are also conceptualized, whereby inscriptions which are accumulated in particular locales in turn become increasingly important “centers of calculation,” having powers to shape and direct other phenomena and their respective problems. Such centers are not limited to actual physical

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47 Rose and Miller, ‘Political power beyond the state’, p. 185.
48 Rose and Miller, ‘Political power beyond the state’, p. 185.
locations, and instead are also identified with, for example, strategically important reviews (see below) and assessment and evaluation exercises.

The overlap between governmentality and actor-network writings has thus yielded an array of new concepts to analyze what governing is, how it is approached and justified, how it is implemented, and the extent to which it is achieved. Applications of these concepts are equally wide-ranging. In the following section I concentrate on what geographers have had to say about the relationships among governmentality, statistics and geography. The section begins by reviewing the main points of the analysis of British agricultural statistics performed by Murdoch and Ward.

2.3 Governmentality, statistics and geography

Issues to do with agricultural and rural governance have themselves provided a catalyst for the interest shown in using governmentality concepts. On the one hand, prior explanations of agrarian change based on the tenets of Marxian political economy are useful, but at the same time quite limiting.\(^\text{49}\) On the other hand, the integration of industrialized food production systems and especially the formation of global supply chains by large food retailers have added impetus for finding ways to interrogate

\(^{49}\) The limitations seen in so-called subsumption thesis accounts (see Chapter 1) are not only to do with their treatment of the state (or lack thereof), but also because of other dualistic and simplifying precepts they are seen as reifying, notably by making the distinction between “capitalist farming” and a “pre” or “non” capitalist mode of production. The issue of why capital has apparently not completely transformed farming according to the tenets of Marxian theory—and thus about whether and why some farms remain “non-capitalist”—has detracted from the utility of the subsumption concept.
farming’s status within contemporary agro-food networks. The pressure to change agricultural subsidy programs—both to reduce levels of spending and to find new ways of regulating and supporting farmers as “custodians” of rural landscapes and environments, in addition to their role as food producers—has been another factor motivating the development of new approaches for researching agricultural regulation. The development of these approaches has also been prompted by developments elsewhere, notably from Australia where a neoliberal-motivated government approach towards farming and rural development has been pursued for a number of years.

Examples are S. Freidberg, *French Beans and Food Scares: Culture and Commerce in an Anxious Age*, (2004), and T. Marsden and E. Smith, ‘Ecological entrepreneurship: sustainable development in local communities through quality food production and local branding’, *Geoforum* 36 (2004), pp. 440-451. Freidberg’s investigation is of how the commercial power of large European supermarket retailers intersects with former colonial relations, as well as both historical and contemporary concerns over food and food quality, resulting in fresh vegetable trade networks between Africa and France and Britain respectively in which issues of regulation play out in quite contrasting ways. In a somewhat different vein, Marsden and Smith have been investigating the growth of networks that are centered on farming, as distinct from retail-led developments, specifically as rooted in organic and “quality foods” production in several European countries. A conclusion being drawn from this work is, that even in spite of a number of obstacles, such alternative networks appear capable of living up to their foreseen potential of diffusing and establishing a more diverse European rural landscape—and thereby underscoring utility of the concept of networks as a basis for researching developments in local and sustainable rural development.

In Scotland alone, Bristow *et al.* identified as many as 43 separate schemes providing public financial assistance to owners and occupiers of rural land were identified. In England and Wales, Ward *et al.* have studied policies for managing water pollution from effluents and pesticides in England and Wales, while Enticott focused on the management practices devised to try to check the spread of tuberculosis among cattle (especially the trial culls of badgers—animals which in some quarters are held to be the primary vector of disease transmission). The references here are: G. Bristow, R. Cowell, A. Franklin and T. Marsden, *Public Assistance to Rural Land in Scotland* (2001), section 1.8; N. Ward, J. Clark, P. Lowe and S. Seymour, ‘Keeping matter in its place: pollution regulation and the reconfiguring of farmers and farming’, *Environment and Planning A* 30 (1998), pp. 1165-1178; and G. Enticott, ‘Calculating nature: the case of badgers, bovine tuberculosis and cattle’, *Journal of Rural Studies* 17 (2001), pp. 149-164.

A good deal of the emphasis placed on political rationalities and governing
technologies in the research approaches just mentioned can be traced to the paper written
by Murdoch and Ward. Their analysis of the part played by official agricultural statistics
in regulating British agricultural production has been recognized more widely as one of
the earliest and clearest expositions of governmentality theory within the geographical
literature. In the argument put by Murdoch and Ward, the formative importance of
statistics as a way of knowing farming is contextualized in the light of growing fears over
food supplies during the Napoleonic Wars at the start of the nineteenth century.
Sinclair’s advocacy of statistics and his success in having Pitt (the Prime Minister) finally
agree to his plans for a Board of Agriculture (to take on the running of agricultural
statistical surveys) are also noted by Murdoch and Ward. However, the prevailing laissez
faire attitude towards farming (which Murdoch and Ward referred to as “real” liberalism)
meant that the notion of such state-sponsored agricultural surveys was widely questioned
by other farmers and landowners, as well as by Sinclair’s political colleagues. The
attitude remained essentially the same though many subsequent decades. It was not until
1866, when, spurred by the needs to contain outbreaks of cattle plague, that the first
official British-wide agricultural census was planned and successfully conducted. With
the repetition of the census in succeeding years, Murdoch and Ward claim, “A new form
of governmentality had effectively been introduced.”

Agricultural statistics grew during subsequent decades, not only as more content was added to the censuses but also through the inauguration of a Farm Management (now Farm Business) Survey of farm accounts between the First and Second World Wars. The latter is regarded as an especially significant development for a number of reasons. First, it is held as an attempt to propagate the idea that all producers should be adopting standardized methods of accounting and business planning into their own respective operations. Second, owing to the basis of the Survey in sampling, only certain farmers were surveyed—the point being that sampling enabled a representation of a farming sector to be created from the information about those more “business-minded” farmers who were then in the habit of keeping reliable accounts (in contrast to the many other British farmers who did not). And third, because the private realm of farming was seen as being opened up to the agricultural economists who collected and analyzed the Survey data. This third reason is consistent with the importance accorded to “expertise” in governmentality theorizing more generally, for the kind of “double alliance” it is seen capable of—on the one hand in identifying and finding solutions to the problems of political authorities, and on the other hand in educating citizens about those problems and in ways in which to conduct their own economic and social activities.

It was not, however, until the national emergency circumstances precipitated by the Second World War that these and other statistical technologies were seen as being

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55 Rose and Miller, ‘Political power beyond the state’, pp. 187-189.
“utilized to the full,” and in a manner in which was to set the tone for most of the following post-war years. Spurred by the problems and debates over securing adequate food supplies during the First World War, a comprehensive national agricultural policy was fashioned to ensure adequate home-grown food supplies. This policy was centered on a “plough up campaign” which sought to raise output levels of sanctioned food items by a variety of means, including (as its label suggests) by commandeering more cultivable ground into crop production. Towards this end, a National Farm Survey was inaugurated, incorporating the production of greater amounts of statistical information via the annual agricultural censuses and other surveys, an ambitious effort to complete boundary maps for each and every farm, and all administered by a strengthened framework of county-level Agricultural Committees.

These wartime changes are identified by Murdoch and Ward as amounting to a new phase of “managerial liberalism,” in which state responsibility for farms replaced the previously more distant relationship between the two. The statistical and mapping surveys which were embarked on as part of the National Farm Survey are held as forming a fundamental link translating between aggregated production targets, payments and practical change on the ground. To a significant extent, as Murdoch and Ward therefore argue, farming as a single, programmable economic sector (and industry) was brought into being as a result of the “inscriptions” yielded by these surveys. Moreover the workings of this sector continued to be calculated after the war when, with the

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inauguration of an Annual Price Review exercise “an enormous amount of statistical material [had] to be examined” both by agricultural ministers and farmers’ union representatives before the distribution of prices and production grants for the following year was decided on.\textsuperscript{58} Consequently, the role of statistics and other technologies for monitoring farming is seen as being only increased following the UK’s joining of the European Community (and hence the CAP) in the early 1970s.

The study by Murdoch and Ward illustrates how governmentality theory can be used to help plot “missing” connections among statistics, regulation and conceptions of the state.\textsuperscript{59} Yet in spite of the impact the study has had, the use of governmentality within it also has its shortcomings. One of the study’s shortcomings relates to the general impression given of the inexorable development in state agricultural statistics. It is one thing to make the argument that the growth of the statistics has fed into the state power; there I agree with Murdoch and Ward. Yet it is another thing entirely to conclude that “the more British agriculture hurried down the path of modernization, the more effective the state’s statistical representations of the agricultural territory became.”\textsuperscript{60} To give this impression that a cycle of statistics and governing has been “perfected” makes little sense; moreover, it diminishes the significance of investigating the reasons why statistics on farming continue to change. In effect, the risk here is of separating an analysis of past

\textsuperscript{58} Murdoch and Ward, ‘Governmentality and territoriality’, p. 317.

\textsuperscript{59} A further example of more recent research and which is perhaps the closest yet to the Murdoch and Ward paper in terms of its substantive focus is the book by Short et al, in which the wartime National Farm Survey (see text) has been given a more in depth examination. B. Short, C. Watkins, W. Foot and P. Kinsman, The National Farm Survey, 1941-1943: State Surveillance and the Countryside in England and Wales in the Second World War (2000).

\textsuperscript{60} Murdoch and Ward, ‘Governmentality and territoriality’, p. 321.
developments from the present but without admitting a way for the former to understand the latter.

Another shortcoming with the study by Murdoch and Ward relates to what they mean by “national” and “British” farming or statistics. There is barely a hint of the national differences within the UK (see Chapter 1). More important than this, however, is the view taken on the concept of “territoriality.” What the analysis sets up is a view of how “states occupy territories,” or in other words, of how “the state becomes powerful within its territorial boundaries.”^61 On the one hand, the extension of statistical surveys (understood in terms of the growing number of farms survey) and the convergence of statistical results in institutional centers such as the Annual Price Review is an inherently geographic configuration. As such, it provides some clear indications about how this process of “occupying territory” has progressed. On the other hand, as John Allen worries, the focus on such a centered view of power can also obscure the possibilities for understanding how power is exercised across space through diverse modalities and mediated relationships, and on an ongoing basis; in addition therefore, simplistic views of centralized power may restricting thinking of what kinds of political intervention are possible.^62

Several features which are integral to national statistical surveys are examples of the kind of relationships and modalities operating across space that Allen refers to. Examples of such features include the creation and maintenance of communications

between survey takers and respondents, and the need for means with which to control responses to questions being asked. Matthew Hannah’s study of the spatial politics of population censuses is easily one (if not the) of most detailed attempts yet to assess the effect of these aspects of statistics on the exercise of state power.  

Hannah’s study is set in the context of broader changes affecting the US federal state in the latter years of the nineteenth century—about a decade after the Civil War had ended, but largely in advance of the social reforms now associated with the Progressive Era. In Hannah’s view, the changes taking place in the federal government within that particular time window can be regarded a key stage of development in for the modern national state, being the time when “empirically” (statistically) based decisions about whether to regulate national society started to become much more important in the state activities. This wording—“whether to regulate”—is important for distinguishing the state’s growing capacity to regulate from the processes by which social regulation actually developed and involved increasing recourse to statistical representations of society. In consequence, growth per se of the censuses is not the main issue in Hannah’s analysis; the concern, rather, is with how the censuses of the late nineteenth century began be viewed in a different way from their predecessors (and other statistics), as a potential basis for national regulatory decisions. This difference, he claims, was manifest

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63 Hannah, *Governmentality and the Mastery of Territory*, pp. 113-159.
64 Hannah, *Governmentality and the Mastery of Territory*, p. 37.
65 This provides a contrast to the “official” census history, in which the growth of the censuses is traced to the earlier bill enacted by Congress in 1849, for “the full enumeration of the inhabitants of the United States.” *US Bureau of the Census, Measuring America: The Decennial Censuses From 1790 to 2000* (2002), p. 130.
in a number of highly specific “programs” including the push for more and better census statistics, the regularization of consultations between policy-makers and social scientists; and the campaigning for new institutional arrangements to “insulate” the administration of the censuses from effects of patronage.66

To substantiate these claims, Hannah focuses on analyzing the conduct of the 1870 and 1880 (ninth and tenth) decennial population censuses. Both of these censuses were directed by then census superintendent Francis A. Walker. At the heart of Walker’s census-taking plans—as the title of Hannah’s work indicates—was a spatial politics concerned with how national territory could be “mastered” during census-taking in order to improve census statistics.67 Four main processes associated with the spatial politics of census-taking are discussed in some depth. Three of these processes—labeled “abstraction,” “assortment”, and “centralization”—relate to the “observational,” data collecting phase, while the fourth process—“compilation”—has more to do with additional processing involved with aggregating the many individual censuses statistics into an overall statistical picture of national society.

The spatial politics of “abstraction” are the first to occur in so far as they are raised in the problems of organizing territory and its inhabitants into a nationally comprehensive grid of clearly defined enumeration areas. These problems were therefore as much about epistemological access to local conditions as they were about establishing physical infrastructure for the censuses. Surveying and mapping were essential

66 Hannah, Governmentality and the Mastery of Territory, pp. 36-37.
67 Hannah, Governmentality and the Mastery of Territory, p. 141.
precursors, but at the same time the grids already established over the American landscape and its inhabitants were in places far too coarse for Walker’s enumeration plans. Initially, Walker had little control over how enumeration areas were formed. This changed with the 1880 census, for which a new census law shifted the work of proposing new boundaries from US marshals to census supervisors. Walker’s instructions to the supervisors indicated the importance of following “lines on the landscape” which were both permanent and in plain view, to the extent that this would speed up subsequent access of enumerators to the many areas they would have been unfamiliar with. Other instructions as to how the local counters ought to conduct themselves reveal something of how Walker wrestled with securing access to accurate information.68

In tandem with this phase of territorial organization was the work to define the people forming the objects of observation and enumeration—to “assort” them into countable units, and, in so doing, to fix them to equally well-defined places and locations. In Hannah’s view, the main problems were relayed in terms of departures from what could be regarded as the “ideal assortment”—namely, that of the nuclear family, with each family occupying a single home at a single (fixed) address. Circumstances were somewhat different on the ground of course, as was manifest in the clarifying fiats Walker felt obliged to issue to his staff (for example regarding what, and where, was to signify a family). In Hannah’s view these and other politics of assortment revolved around a tension between “fixity”—fixing people to particular places, so that they could

68 Hannah, Governmentality and the Mastery of Territory, pp. 117-123.
easily located and counted—and personal mobility. On the one hand, mobility via the rapidly growing road and rail system had a vital role in allowing census enumerators to move within and between enumeration areas, and also in communicating information between themselves and Walker. On the other hand, the census fieldworkers were of course not the only ones affected by vast growth in transportation and mobility. The increased mobility in the population (including movements occurring on a daily basis as well as longer-term moves and migrations) effectively meant that Walker’s enumerators had to deal with counting many people whom they were not able to see or contact directly. In this way, movement stood to prolong the enumeration process, (and protracted counts—e.g. involved repeated visits to the same areas—were also undesirable, not least because of the raised chances of double-counting). These problems were factors in Walker’s strenuous lobbying for a new law reducing the time period for census-taking. Furthermore, his response to these problems also revealed a gendered attitude towards mobility, in so far as he took for granted women’s lack of mobility as means for helping to provide information on absent male relatives. According to Hannah, Walker’s view was that ‘Ideally as long as women remained at home with distinct (enumerable) mobile families, men could enjoy the government necessary to help count the population, and to maintain a healthy political economy.”^69

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^69 Hannah, *Governmentality and the Mastery of Territory*, p. 129. Implicit in this excerpt is the other fact that Walker hired only male enumerators—i.e., that the acts of observation and counting could be entrusted only to men. A fuller discussion of the process of assortment is given in pages 124-130 of Hannah’s book.
The processes of centralization concern the “gathering in” of myriad local observations and are obviously no less integral to effective census-taking. The spatial politics of centralization thus relate to the orchestration of control over enumerators and their acts of observation in the field by—and from—the office or authority at the center of operations. In Walker’s case the concern over the potentially “contaminating” effects of patronage was evident in his efforts to change the hiring of census staff prior to the 1880 census. One of his recommendations to Congress was to approve funds for appointing several specialist enumerators of economic and social statistics. More important than specialization however were the other values he identified as being necessary credentials. Those hired for the 1880 census were often school teachers, county clerks and tax assessors—all educated upright members of their local society, and all men (see above). In addition to the appointments he oversaw, the voluminous sets of field instructions which Walker wrote also stand in testimony to the lengths he went to in order to control enumeration procedures and to ensure that they were as standardized as possible. Without standardization, claims about the objectivity of censuses and their results could be seriously undermined.70

In contrast to the centralizing of control, “compilation” refers to processes performed at the centre—in Walker’s census office—in order to turn the local data into results, and these too are suffused with a spatial politics. A subtle yet engaging claim concerns the location of responsibility over the “seat of authority” for the census. The

70 Hannah, Governmentality and the Mastery of Territory, pp. 131-134.
urgency Walker attached to producing census reports as timely, efficiently and accurately as possible served to bolster impressions about the openness and objectivity associated with census-taking. More importantly, they helped give the impression that the main work of the central census office was merely to “tot up” the figures—and, thus, that the main responsibility for the objectivity of the census was “left” with the enumerators and their actions in the field. This perceived division of labor was, in Hannah’s view, crucial, in so far as it diverted attention away from the processes involved with aggregating and re-arranging the census results into an overall national picture and which thus could influence particular ways of understanding the nation. Walker is seen to have gone to lengths to create for himself this “licence to compile,” notably as manifest in his choice of office staff and his attempt to infuse in those staff a a previously unseen culture of record-keeping and accountability. The payback for Walker’s efforts in these regards is seen as being realized in his 1874 *Statistical Atlas of the United States*. The *Atlas* was significant (thus legitimated) as “an internationally acclaimed, prize-winning effort, and the first national atlas based on census results in the western world.”

The crucial point is that the choice of statistical topics developed in the *Atlas* (encompassing the calculation of mapped information, the cartography itself, and the ordering and presentation of maps) was Walker’s alone; by controlling this choice, he was thus able to use the *Atlas* to project his own understanding of what American society was.

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72 Hannah, *Governmentality and the Mastery of Territory*, pp. 135-159.
Individually, in less theoretical studies, several elements of these spatial politics of census-taking have been recognized in other census studies.\footnote{In the former case thinking of M. G. Coombes, ‘Dealing with census geography: principles, practices and possibilities’, in Openshaw (ed), Census Users’ Handbook, pp. 111-132. As discussed earlier sections of Coppock’s work are important as it that by some by his former students. Examples are: J. T. Coppock, ‘The parish as a geographical statistical unit’, Tijdschrift voor Economische en Sociale Geografie 51 (1960), pp. 317-326; J. T. Coppock, ‘The accuracy and comparability of the agricultural returns’, in R. H. Best, and J. T. Coppock (eds), The Changing Use of Land in Britain (1960), pp. 52-71; G. Clark, The Agricultural Census, United Kingdom and United States, (1982); and G. M. Robinson, Agricultural Change: Geographical Studies of British Agriculture, (1988).} Having said this, Hannah’s study appears to be the first clear attempt to set them out on a systematic footing, and to relate them to a broader analysis of the workings of “governmentalized” state power on a national scale.\footnote{Hannah, Governmentality and the Mastery of Territory, p. 40.} In the latter respect the practices of census-taking analyzed in Hannah’s study are identified within an “observational” phase, which itself forms but one of three key phases in an empirically-based governing logic. The two other phases involve using the observations of society’s characteristics and activities to make judgments as to the acceptability of those characteristics and activities; the phase of judging is itself distinguished from “precisely calculated” penalization and correction of irregularities associated with a phase of regulating. Collectively these key phases—observing, judging and regulating—form the foundational elements of what Hannah terms as a “cycle of social control.”\footnote{Initially discussed in Hannah, Governmentality and the Mastery of Territory, pp. 10-11. A summary exposition is also in Hannah, ‘Space and the structuring of disciplinary power: an interpretative review’, Geografiska Annaler 79 B (1997), pp. 171-180.} The conceptualization of this cycle of key phases is also useful in the present study, specifically in Chapter 6 where it provide a basis for analyzing the connections between data gathering systems, normalizing typologies and sector-based policy administrations. In and of itself Hannah’s analysis of the spatial
politics in census-taking helps to organize the analyses of the three Scottish surveys in the following three chapters.

2.4 Work on the historical geography of geographical knowledge

The investigation of spatial politics of census-taking has some similarities with other recent research on the “historical geography of knowledge”. Of particular note is Withers’s recent survey of the shifting historical geography of forms of geographical knowledge in and of Scotland, identified in the work of late Renaissance humanists in the early 16th century and traced until the work on the ‘new geography’ propounded by Vidal de la Blache which was brought over to and interlaced work in Scotland by Patrick Geddes and some of his contemporaries. The objectives of Withers’s synthesis of developments within this period are twofold: one, to contemplate how, through understandings of Scotland as a geographical entity geographical knowledge was contributory towards ideas of national identity; and two, to attempt “to recover the sites and social spaces in which geographical knowledge was undertaken and to plot the connections between the places of geographical knowledge production with its audiences and makers.”

In Withers’s study, the production of “geographical knowledge” is cast as a form of intellectual enquiry that involved practices that could be held as being “scientific,” including not only mapping, but forms of writing, picturing and natural historical

surveying as well. Moreover, the making and the dissemination of this knowledge is seen as always involving situated and practical activities. Yet significant changes in the geographic configuration of geographic knowledge are recognized as being tied to the formulation of natural science in the late seventeenth century, including both changes in knowledge of the natural world itself and therefore in the means used to obtain such knowledge. Emerging at this time was “the use of explicitly formulated methodological rules that aimed to discipline the production of natural knowledge by managing the effects of human intervention.”77 In Withers’s view, a key point concerning the codification of these rules is that they also implied a high degree of spatial control over the sites and spaces within which knowledge was being produced—from control over laboratory space (in the arrangement of instruments and staff) as well as in non-laboratory settings. In addition, aspects of spatial control are similarly identified with the venues in which knowledge, once produced, has been disseminated (both graphically and orally).78

Investigating the local foundations of knowledge is additionally important to Withers’s analysis—important because of the extent to which modern science has depended more on direct observation of nature (rather than indirect experience of it). Empirical experience of nature in turn raises other sets of considerations regarding the production of knowledge which are fundamentally geographical, yet which are not covered just by considering where or what sites have been observed. Instead, the case

77 Withers, Geography, Science and National Identity, p. 17.
Withers’s presents is for understanding “the field” of enquiry—that domain from which knowledge is garnered—as “a mutual constitution between given intellectual practices (rather than subject areas a priori), the epistemological questions that sustain them and their practitioners.”

Furthermore, the formation of the field of enquiry through certain combinations of practices, questions and practitioners points also to its distinction from other kinds of sites—including the sites where field observations are transferred to. In addition then, understanding the local foundations of knowledge also involves investigating the how field observations are “transferred” in both literal and metaphorical meanings of the term—i.e., “in terms both of movement over space and of epistemic equivalence; that is, of applying methods which effect a ‘representation’ of the real world in order to bring it back for further local use.”

Withers’ analysis is not primarily concerned with censuses (population or otherwise) or, for that matter, with any other forms of state knowledge. Hopefully, however, the analysis in this chapter suffices to indicate that there are some important conceptual overlaps with Hannah’s analysis of census-taking—and thus that claims from both analyses can be used in combination with one another. By the same token, these parallels also point to the potential to test and extend critical studies of survey-taking in other historical and geographical contexts.

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79 Withers, Geography, Science and National Identity, p. 21.
80 Withers, Geography, Science and National Identity, p. 21.


2.5 Chapter summary

This chapter has discussed (a) the main tenets of governmentality theorizing, and (b) their application in recent geographical research on statistics; in addition it has also discussed the overlaps to (c) recent research on the historical geography of knowledge. To sum up the key points, Murdoch’s and Ward’s application of governmentality is a commendable attempt to understand how agricultural statistics play into state power from a distance. Taking “governing at a distance” as the end result, is however, to say little about the precise spatial politics of mastering territory that are integral to understanding how this configuration is attained, and maintained. Hannah’s systematization of the key processes of abstraction, assortment, centralization and compilation involved with census-taking sheds a good deal of light on those spatial politics, and in consequence provides a primary framework for much of the next (empirical) part of the present study, especially in Chapters 3, 4 and 5. Moreover, Hannah’s attempt to relate the spatial politics of observation to a broader logic or cycle of state power also involving judging and regulating is also valuable in underpinning the analysis in Chapter 6. Withers’s understanding of the historical geography of knowledge production and dissemination nicely supplements the four processes that Hannah covers; at the same time it underscoring the potential applicability of those processes to geo-historical moments other than the late nineteenth century period in the US.
Chapter 3

STATISTICALLY ACCOUNTING FOR SCOTLAND

3.1 Introduction: knowing the modern nation through statistics

This chapter opens the empirical part, part (b), of the study, by taking a more detailed look at the Statistical Account of Scotland. Many of the spatial politics that were encountered in the making of the Account were unprecedented ones, for which reason alone it is a sensible place to start. The Account was novel not only for its usage of the term “statistics” but also because of its geographical span; in achieving a full coverage of the entire country it surpassed any previous attempt that had similarly aimed at providing a comprehensive survey of the modern Scottish nation.81 According to the Account’s champion, Sir John Sinclair (1754-1853) the work epitomized what he termed as the “principle of minute statistical observation.”82 His enthusiasm for collecting statistics

81 Judging by Withers comments on those earlier schemes, the most similar attempt to an exercise like the Statistical Account appears to have been a survey attempted by Walter Macfarlane around the 1720s. Descriptions for seventy five parish descriptions from this time are among Macfarlane’s surviving papers. Like the Account these descriptions were also written by parish ministers, but whereas Sinclair issued 160 questions (see Appendix A) Macfarlane had given only a single sheet of “directions and rules.” Withers, Geography, Science and National Identity, p. 143.

82 Some further background regarding Sinclair’s understanding of “statistics” is helpful here. In the Account he comments that the conception of statistics as tools enabling states to calculate taxes and to prepare themselves for war was a far too limiting one. In contrast, his own reasoning ran that if the internal structure of the nation state could be revealed and recorded in “full anatomical accuracy and minuteness,” then so government could be conducted in a much more positive sense and justified in encouraging national growth along particular lines of development. See Sinclair, The Statistical Account of Scotland vol. 3, pp. xi-xvi (“Address to the Reader”). Because Sinclair himself was primarily responsible for planning and
was subsequently carried through to his sheer determination to complete the work; in the end it took almost nine years before the last of the twenty published volumes was completed (see Figure 3.1).

In what follows, Hannah’s four processes of abstraction, assortment and centralization and compilation—processes he identifies as being fundamental to any national survey-taking effort—provide a basis for analyzing the spatial politics which were manifested in the Statistical Account and which Sinclair must surely have faced. Thus in the next section, I turn firstly to consider how Sinclair sought to abstract and assort Scotland into a “field” from which his statistics could be produced. The section after that is then concerned with the spatial politics of centralization, and is based largely on analyzing Sinclair’s inability to control the length of time it took for information to be returned to him from the parish ministers. Next, the processes of compilation are addressed, and this is done by considering how Sinclair sought to construct an overall view of Scotland and of how its development should be governed. Finally, to round out the analysis, a survey of Sinclair’s “public” is undertaken, investigating the social and intellectual connections in which he positioned himself as well as his published work. In so doing it becomes clear that though the Account was about Scotland, it was not intended solely or even primarily for the Scottish public.

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conducting the Account (save for a few trusted acquaintances), he has been called “a one man statistical office.” See I. Hacking, The Taming of Chance (1990), p. 27.
**Figure 3.1:** Timeline of the *Statistical Account* (caption on following page).

- **May 25, 1790:** Sinclair distributes his questionnaire (called “Queries”)
- **Aug 21:** Letter to members of Presbyteries
- **1791 (Vol 1 printed):**
  - **Jan 25:** Additional questions & Specimen Reports for 4 parishes sent out
  - **Dec 5:** Letter announcing donation of £2000, and enclosing specimen of revised Statistical Table
- **1792 (Vols 2-4 printed):**
  - **Dec 28:** 1st of 16 “general circulars”
- **1793 (Vols 5-9 printed):**
  - **Apr 2:** letter to non-respondents; **Apr 6:** 57 letters sent by Moncrieff and Hardy; **May 2 (from Inverness):** letter to some ministers
  - **Jul (no date):**
  - **Oct 4; Nov 3:** letters to 19 Highlands ministers
- **1794 (Vols 10-13 printed):**
  - **Aug 25**
  - **Nov 1**
- **1795 (Vols 14-16 printed):**
  - **Jan 12:**
  - **Apr 3:**
  - **Aug 3:** announcing Sinclair’s plan to send “Statistical Missionaries” to some parishes; **Sep 3**
- **1796 (Vols 17-18 printed):**
  - **Jan (no date)**, **Jan 23**, **Jan 25**
- **Dec 1**
- **1797 (Vol 19 printed):**
  - **Apr (no date)**
  - **Jul 11:** last of general circulars
- **1798 (Vol 20 printed):**

**Totals:**
- **May 5 – Nov 15 1790:** 85 parish reports received = 9% of total
- **Nov 15 1790 – Jun 1 1792:** 440 reports received = 56% cumulative
- **Jun 1 1792 – Mar 13 1793:** 47 reports received = 61% cumulative
- **Mar 13 1793 – Mar 28 1794:** 226 reports received = 85% cumulative
- **Mar 28 1794 – 13 Jul 1796:** 109 reports received = 97% cumulative
- **Jul 13 1796 – Jan 1 1798:** 27 reports received (plus 4 parishes for which there were still no returns)
3.2 Organizing “the field”: the spatial politics of abstraction and assortment in the *Statistical Account*

Under Hannah’s heading of “abstraction” are the politics of creating and accessing a spatial “grid of reference.” To a large extent these politics relate to the need to establish a framework of “basic” spatial units appropriate to the particular statistics being produced. The politics of “assortment” follow from this, though emphasizing instead the additional requirements to locate and distinguish the subjects of survey-taking (people, houses, farms, and so on) so that they can be individually measured and recorded. The context for Sinclair’s engagement with these issues during the conduct of the *Statistical Account* stemmed from his position as a lay member of the General Assembly of the Church of Scotland.\(^83\) To be sure, the Church was a greater factor in the lives of eighteenth century Scots people than it is at present, and having the Assembly’s approval would therefore have carried greater authority then it stands to at present.\(^84\)

Figure 3.1 (previous page): The diagram includes (a) the year of publication for the Account’s twenty volumes, (b) the number of individual accounts returned by particular dates, and (c) the year and month of the many letters and reminders that were distributed. Months which are flagged with asterisks indicate mail sent from London; all other mail was sent from Edinburgh. (Source: Sinclair, *Statistical Account* vol. 20, Appendices C to E, and H.)

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\(^83\) The General Assembly is the highest court of governance within the Church of Scotland’s Presbyterian structure. Sinclair claimed to be on terms of intimacy and friendship with its leaders. See Sinclair, *Statistical Account* vol. 20, p. xi.

\(^84\) According to statistics from the 2001 British population census in Scotland, around two million people currently claim the Protestant faith (Church of Scotland) as their current religion, equating to around 42 percent of the overall population. However, statistics produced by the Church itself indicate that actual communicant membership of congregations is considerably lower, somewhere in the region of 600,000 persons. This figure is noted in the report by the Church’s Panel on Doctrine of May 2004, <www.churchofscotland.org.uk/boards/worship/downloads/wppod2004.rtf>. 
The grid of spatial units Sinclair utilized was, as previously mentioned, that formed by the nine hundred or so Church parishes. In effect, a unique territorial survey was to be carried out in each and every parish, each survey covering the gamut of observations Sinclair requested. A copy of the questions he drew up for these parish surveys is provided in Appendix A, and as Maisie Steven noted they amount to a truly daunting list.\textsuperscript{85} Considering this sheer number of questions, it might then be said from a practical standpoint that the parishes held the advantage of being small enough to be observed to the level of detail which Sinclair was calling for, yet at the same time that they were not so small as to make the overall number of areas (hence measurements) so large as to become unmanageable. Furthermore, one could add that the “parish” label itself might served the impression of equality and comparability between different areas. For all of these reasons, the choice of the parishes as a spatial framework appears as no more than the logical one to have made.

History, however, also had an important bearing in Sinclair’s choice. The fact one should not lose sight of is that the parishes were not objectively designed, let alone intended for survey-taking purposes. At root they gave expression to a set of social relations between ecclesiastical authority and the Scottish population. Put another way, organizing the parishes was itself part of organized religion—part, in other words, of the much longer-standing project of establishing religion’s influence over the nation.\textsuperscript{86}


\textsuperscript{86} According to Smout, for example, the understanding of the parishes as \textit{territorially} defined units covering the whole country had had much to do with the spread of Catholicism under the rule of King David I in the thirteenth century. In earlier times Smout has it that “even the parish was a unit unknown outside Anglian Lothian [Lothian being the area including Edinburgh and its environs].” See Smout, \textit{A History of the Scottish People}, pp. 27-28.
Sinclair was fortunate to the extent that the major politics involved in that process had already been settled by the time he started planning his own work. By then the importance of the parishes had been branded into understandings of Scottish local life, both in the aftermath of the Reformation, and subsequently as part of the Church’s Presbyterian structure. In short, the “map” of the parishes was well established, and well known.

If the parishes could be characterized by their stability, the same could not be said of ecclesiastical polity even inside the established Church. Thus although Sinclair was fortunate in having the parishes to work with, he was even luckier in regard to the character of the parish ministers whom he sought to enroll as his data gatherers. It is highly likely that the information obtained about the parishes would have quite different—not nearly so extensive or detailed—had the Account been undertaken even just a few decades earlier or later. As it was, the majority of the parish ministers in the 1790s were affiliated with the party of “Moderates.” For the most part they were, as Smout put it, polite, educated gentlemen, whose outlook on religious instruction for the masses had left behind the fiery evangelism espoused by their forebears (and still by preachers of other shades). In this sense they were “unenthusiastic” clergymen, nonetheless capable of elegant sermons on the virtues of obedience and personal industry.

The question of why the Moderates were in the majority at the time of the Account has been considered in other works, all indicating how Scottish religion in the eighteenth century was a complex story. There were many who found the established Church lacking in some regard or other, the removal of penalties associated with excommunication having softened the discipline that Puritanism was able to exact.
Ministers who were doctrinaire puritans were likely repulsed also by the revival of a patronage system from the early eighteenth century, conferring the rights to appoint a new parish minister only on the lay members of the parish (typically the landowners). For these and other reasons some preachers had left the established Church, the most notable secessions occurring between the 1730s and early 1750s, and, while some such successions were short-lived, this was not universally true. By 1820, the United Secession Church had 280 congregations, mainly between Glasgow and Edinburgh; in the city of Glasgow alone as many as forty percent of residents were dissenters. This however indicates that the effect of these changes did not combine into a significant challenge to the religious status quo until after the Account had been created—and by the same token, the outflow of some of the staunchest critics may actually have strengthened the position of the Moderates in the established Church, at least initially so.

The question nevertheless is why the Moderates were so willing and able to act as the Account’s local informants—why in this sense were they seemingly so “enthusiastic”? A considerable part of the answer has to do with the intellectual currents constituting the European Enlightenment, which both influenced and were significantly influenced by leading Scottish thinkers. Intellectuals including Adam Smith, David Hume and Adam Ferguson—all of whom were at the Enlightenment’s “hub”—held chairs at the Scottish universities where many of the Church’s ministers were educated, and their emphases on rational thought, criticism and on inquiry would have challenged

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the conventional horizons of theological teaching. The impressively rich descriptions on subjects of natural history, society and economics that stand out in many entries in the *Account* should therefore not be all that surprising. Moreover, they serve to illustrate that Sinclair was not the only one active in importing new ways of thinking about and documenting Scotland.\(^8\)

Given the discussion thus far, it may seem as if Sinclair could not have asked for better trained observers to call upon—a view which is only underscored by other more practical duties the ministers undertook.\(^9\) Yet although many of the entries in the *Account* were of a high standard, they are by no means standardized. Some of the ministers used the opportunity of responding to Sinclair’s questions to platform on their own pet subjects—ranging from place names to botany to government policies. Some too were by no means shy in directing their invective against local landowners or the gentry, in spite of the patronage system that had installed them into their parishes.\(^9\) In general, a huge variety of individual interests and agendas is evident in the *Account*, and on most conditions and issues described contrary views are not too hard to find.\(^9\)

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\(^8\) Here I am taking a swipe at other studies which note that Sinclair adapted the term “statistics” from Germany (following his European tour in 1786-67). To suggest that there was a “German version” of statistics seems rather coarse and requires more research. At any rate it was of course not the case that the clergy simply accepted Sinclair’s own view on statistics.

\(^9\) For example, Sinclair notes that ministers generally took a “clerical survey” of their parish in spring, in preparation for Church’s General Assembly meeting held each May. See Sinclair, *Statistical Account of Scotland* vol. 20 (Appendix C), p. xxxv. Presumably this survey involved a good deal of touring and visiting within the parish.

\(^9\) The writings excerpted in Maisie Steven’s work illustrate the reproofs being directed against the landed gentry. Absentee landlords, lack of attendance at church, short leases granted to tenants, and the failure to provide for the parish poor were all frequent criticism. See Steven, *Parish Life in Eighteenth-Century Scotland* (1995), pp. 163-5.

\(^9\) In fact they abound. Consider the report for the northernmost parish of Unst (on the Shetland Isles—vol. 5), which includes a list of animals including “curiously speckled and spotted” black cattle, horses, sheep and hogs, dogs (“of the common cur kind”) and cats, seals, and otters. In contrast the entry
Collectively, such variations were quite a far step from Sinclair’s designs on producing statistical facts in “scientific-like” fashion.

To a large extent Sinclair had invited these difficulties on himself because of the structure—or rather the shortage thereof—to his questions. Granted they were divided into four main sections, and the sequencing of these sections on “geography and natural history,” “population,” “production” followed by a final set of “miscellaneous” questions again made clear that the intent was to emulate the empirical inductive methodology of natural science. In this regard it could be said that Sinclair aspired to show that knowledge that was geographically organized and “layered” into the aforementioned was an authoritative and credible means towards analyzing both nature and society simultaneously. 92 It meant however that his list was a good deal longer than anything that had ever been attempted previously. Sinclair’s logic was that “many individuals might be inclined to send answers to any questions put to them, who [otherwise] would not take the trouble of drawing up a regular Report,” and therefore that a list of questions for the northern mainland parish of Durness (vol. 3) contains a shorter discussion of agriculture and its produce (eleven lines) than it does on the subject of caves in the parish (15 lines). At 103 pages, the behemoth description for the lowland parish of Longforgan (vol 19; county of Perthshire) shows just how far Sinclair’s capacity for detail was matched by some of his informants. Written “By a Proprieter in the Parish, a Friend to Statistical Inquiries,” it includes descriptions of a proto-hothouse “steam pit” for growing melons at Castle Huntly, and for a yam-cleaning machine. Another long description of almost 60 pages is provided for Alloa (midway between Glasgow and Edinburgh—vol. 8). Agricultural husbandry in the parish was considered to have been transformed from being “uncommonly bad” two decades previously as a result of a host of factors including the abolition of rents paid in kind and the rescinding of other obligations formerly imposed on tenants, new machinery, and increased farm sizes and land enclosures (with “fences [that] are now remarkable, both for strength and beauty”). In contrast, one of the most parsimonious accounts in the entire work is that for the north-eastern parish of Kincardine O’Niel (vol. 15); in contrast to the two preceding examples, is presented in an almost entirely tabular format. Why the author in that case decided that numbers alone should suffice is a subject for further investigation.

92 For Withers this view of geographic knowledge is what distinguished the Account from the ways in which geography was being taught and practiced elsewhere in Scotland around the same time. See Withers, Geography, Science and National Identity, p. 146.
was “The most natural mode of obtaining information.” By contemporary standards, however, the ordering and the content of his questions appears as a piece of mad poetry, committing just about every design error there was in terms of the format, phrasing and conditionality of different questions. It would likely send shudders down the spines of present-day census designer, and little wonder then that it evoked the wide ranging quality and quantity of responses as it did.

Whilst in retrospect it is quite easy to find fault with Sinclair’s design, of itself it also reveals something about how little was known at the time about what information sensibly could be asked for, or how to do so, from a distance. The distribution of six additional questions months later (and what questions—again see Appendix A) suggests how Sinclair himself initially was quite oblivious to this issue. Things changed, however, as responses started to be returned (Figure 3.1, the right hand side of which is also summarized in the graphs in Figure 3.2). During 1791, it seems that it began to dawn on Sinclair that the masses of information he was receiving could actually swamp his own resources to synthesize it into an overarching and relatively concise “statistical view” of the country. The change is discernible by comparing the additional material he sent to the clergy. In January 1791, his plan had been to send out copies of the four reports he had by then received for the parishes with which the first volume of the *Account* opened (namely, the parishes of Jedburgh, Holyood, Portpatrick and Hounam). At this stage Sinclair was obviously pleased with the sort and quantity of information he was receiving, and these reports were to serve as model “specimens” for ministers elsewhere

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to follow. In December of that year, however, he embarked on a quite different approach, issuing instead a set of model “statistical tables” (see Appendix B). His professed hope with these tables was that they could be the means for the ministers for shortening and condensing much of the material he was requesting. In other words, here he is seen engaging for the first time in a serious effort not only to control access to the sorts of information he was requesting, but to reduce it. Moreover, reducing the quantities of information being sent (as opposed to doing it once it reached him) was preferable for reasons other than savings in time or effort. His own role in editing was risky, in that it could have been construed as reducing the “authenticity” of the reported information, which was the very feature of the Account which he was most eager to promote. More importantly perhaps, it also stood to jeopardize support that the ministers might give him; why bother writing a careful report, if it was going to be (possibly heavily) edited.

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94 In published form the reports for each of these parishes each runs to several pages and generally they stuck fairly closely to the subjects included in Sinclair’s list of questions. See Sinclair, Statistical Account of Scotland vol. 1, pp. 1-53.
96 There is evidence that some ministers were dissatisfied with the editing Sinclair undertook in order to shorten their accounts. Their complaints are noted in Sinclair, Statistical Account of Scotland vol. 20 (Appendix D), p. xiv.
Figure 3.2: Graphs illustrating progress of the *Statistical Account*—(top) of parish reports Sinclair received by year, (bottom) of parish reports published in each volume of the *Account* (Source: Sinclair, *Statistical Account of Scotland* vol. 20 (Appendix C.).)
3.3 The spatial politics of centralization

One aspect of the *Account* which has only been alluded to so far and which is not at all well recognized in other studies is that not part of the original plan to have published the *individual* parish reports; initially Sinclair had foreseen that it be a more generalized synthesis.\(^97\) Switching plans so as to proceed with publishing the ministers’ own accounts meant consequently that a response *not* received from a parish was also *not* an option. In this respect, the problems of knowing what information to ask for and how to control its volume as discussed shaded also into the difficulties that Sinclair would have faced in *centralizing* the results in a timely manner. Reducing the temporal variations in the ministers’ replies was important, for it would have bolstered the opportunities for drawing comparisons across their contents. In reality, however, the graphs in Figure 3.2 illustrate that Sinclair grappled with, and was only partly successful in reducing, those variations.

Copied letters included in the *Account* clearly illustrate that Sinclair was hoping for a much speedier conclusion than turned out to be the case. In his “circular” letter of January 1791 (the one with which he had enclosed the four “specimen” parish reports—see above), he noted that he expected to receive returns “from above a half of Scotland” by the spring of that year. In the end, however, only 53 (6 percent) of the reports were returned and published in the first volume in 1791 (see Figure 3.2). The timing of this

\(^{97}\) To be precise he actually stated that “My original intention was, to have drawn up a General Statistical View of North Britain, without any particular reference to parochial districts.” See Sinclair, *Statistical Account of Scotland* vol. 20, p. xii.
volume—exactly a year after he had sent out his list of queries—was still symbolic, and meant too that he would have been able to advertise the good progress he was making at the annual meeting of the Church’s General Assembly in May. Nevertheless his estimated time to completion had to be revised. In the letter he later sent out in December of 1791 (a latter including his model statistical tables), he suggesting that were he to receive all the remaining reports by the following May, then it would still be possible to publish the whole work within a modest “two or three years” of its inception. 98 There were indeed some grounds for optimism given that reports were being returned in some numbers. It turned out that 1792 and 1793 were the years in which he received and was able to publish many of the reports (see Figure 3.2).

Clearly some ministers went to considerable lengths to get their reports back to Sinclair. Some even followed up later, supplying extra material that was often published as appendices scattered throughout Account’s volumes. Others however were less enthusiastic supporters of the project, and Sinclair recounted later that at the start of November in 1792 there were about 210 ministers from whom he had never received any acknowledgement, let alone a report. 99 This must have troubled him, of course. What it reveals however is the significance of his social standing not only with the Church but also as a Member of Parliament. 100 Most important here was the privilege he had of being able to send mail gratis under parliamentary frank. It was a privilege he exploited

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100 Sinclair first entered parliament in 1780 as the member for his home county of Caithness. He retained the seat in 1790, 1802, and 1807. In between these dates—and because Caithness was one of a few counties for which representatives were only returned at every other election—Sinclair was also the MP for the English boroughs of Lostwithiel (in the south west county of Cornwall, no less) and also for Petersfield (within Hampshire, south-west of London).
fully, and withouth which the *Account* would probably not have been completed on grounds of costs (given that was about a half a century before the introduction of the nationalized penny post, and as Mitchison put it, “learned communication could be very expensive.”)\(^{101}\) Importantly, the privilege applied not only to letters that Sinclair sent, but also to letters that could be returned *to* him—by the ministers.\(^{102}\)

This mailing privilege (plus the postal system itself) thus facilitated a two-way mode of communication, whether or not the ministers really wanted it. It meant that Sinclair was able to keep hammering away at those among them who were failing to meet his requests. As is shown in the timeline in Figure 3.1, the majority of reminder letters were concentrated in 1793 (two mailed in April, and one each in May, July, October and November), and again in 1796 (including three successive notes in January alone, and another in December). Aside from a small number of letters written by some friends (also named in Figure 3.1), most of these letters appear to be written by Sinclair himself. The extent to which Sinclair was able to establish himself at the center of communications without seeming to impinge on his own frequent travels between Edinburgh and London (when parliament was in session) is itself quite remarkable.

The different amount of time it took for the ministers to send in the replies—some quick to respond, others much slower—means that the progress of the *Account* had its own “space-time geography.” Again surprisingly little attention has also been paid to the

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\(^{102}\) As noted in his third circular letter in December 1791; ministers were informed that they could return their reports without costs in packets of under two ounces of weight. Sinclair, *Statistical Account of Scotland* vol. 20, p. xiv.
this aspect of the *Account*, even though it is obvious from non-systematic way in which the parish reports were published in the work’s volumes. Sinclair himself drew attention to the uneven contours of this space-time geography in so far as he had issued a written “warning” in 1795 that he would (and subsequently did) send out his own assistants—grandiosely titled “statistical missionaries”—to make reports for the parishes he was still awaiting replies from.\(^{103}\) That Sinclair himself did not visit such parishes—or at least did not confess to do so in his letters—tends to suggest that they were conveniently located close to either of his homes in Edinburgh or Caithness in the north of Scotland (those being the places where he would have spent most of his own time).

Assumed that Sinclair’s original list of questions was mailed out to all the parishes around the same time—and lacking any other indication in his writing, this seems a reasonable assumption to make—the aforementioned space-time geography of the making of the *Account* can be depicted using “time slice” parish maps illustrating the volume of the *Account* in which each parish report was published. Four such maps are sufficient to illustrate this (see Figures 3.3 to 3.6; the maps use the same set of boundaries that was used to construct the parish map display in Figure 1.4). They show the locations of parishes included in the first volume (Figure 3.3), then followed by a map of the parishes in the first nine volumes (Figure 3.4), by which over half the total number of reports had been published. In the other two maps, the remaining quarter of parishes is mapped first (Figure 3.5), corresponding with the reports in volumes 14 through 20. The

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\(^{103}\) Sinclair, *Statistical Account of Scotland* vol. 20 (Appendix D), p. xlix. Who these individuals were is unknown.
other map (Figure 3.6) is subset, showing only those parishes for which reports were published in the *Account*’s final two volumes.

**Figure 3.3:** Locations of parishes (white—*not* shaded) for which reports are included in volume 1 of the *Statistical Account* printed in May 1791. The volume includes 53 (6 percent) of the total 938 parish reports. The volume starts with the four southern parishes that are labeled, and which Sinclair used as the “Specimen Report” distributed with his second circular letter of Jan 1791. Note how most of the reports were from ministers in Lowland parishes (Source: Sinclair, *Statistical Account* vol. 20, pp. 555-586.)
Figure 3.4: Locations of parishes (white—not shaded) included in volumes 1 through 9 of the *Statistical Account* printed between 1791 and 1793. Around half of the parish reports (489 or 55.5 percent) are included. In his second letter to the ministers in January 1791, Sinclair had previously written that he hoped the entire exercise would be completed by May 1793 at the latest. (Source: as for Figure 3.3.)
Figure 3.5: Locations of parishes (shaded) included in vols. 14 through 20, printed between 1795 and 1798. In other words, this map shows the locations of the final quarter of parishes for which Sinclair had not received reports (or not in time for printing) by the end of 1794. (Source: as per Figure 3.3.)
Figure 3.6: Locations of parishes (shaded) included in volumes 19 and 20 of the *Statistical Account*, printed in 1797 and 1798 respectively. Volume 19 includes reports from 32 or approximately 3.5 percent of all the parishes, while volume 20 includes reports from 22 (about 2.5 percent). (Source: as for Figure 3.3.)
What findings may be drawn from such maps? There are some indications from Figure 3.3 that ministers occupying parishes in the lowlands and in the east of Scotland—both quite near Edinburgh—were the most quick in supplying their reports, although the same pattern is less evident in Figure 3.4. In spite of—or perhaps in addition to—the haranguing letters he wrote, Sinclair himself also appeared keen to avoid the impression of strong locational bias. This is evident for example in his arrangement of the reports volume 2 of the *Account*, starting with the report for the southern parish of Tortherwald (near the English border) and ending with the report for Mid and South Yell (in the Shetland isles, the more northerly off the two main groupings off the northern mainland).\(^{104}\) From Figure 3.5 it seems clearer that there was some clustering in the places where ministers were less quick to comply with Sinclair’s requests. In Figure 3.6, the locations outstanding are in the country’s main groups of islands, and with the exception of Aberdeen in the northeast, also in the relatively large parishes in Highland and upland areas.

Overall, the picture from these four maps alone is of a highly variegated pattern. Geographical remoteness, notably from Edinburgh (where the majority of Sinclair’s letters were addressed from) does not appear to have translated into delayed responses. Some of the ministers who occupied remote rural parishes were as fine scholars and writers as any.\(^{105}\) On the other hand, there are indications that ministers in parts of the Highlands and islands, were slower in replying, although whether this meant that they


were less willing to assist Sinclair remains a matter for speculation. To complicate matters further there also appears to be little consistency between the time it took the ministers to compose their responses to Sinclair and the amount of information which was being included.

3.4 The spatial politics of compiling the *Account*

On the publication of the third volume of the *Account*, Sinclair also produced a “sample” of parish reports which was translated into French and then sent to “every person of power, political influence, or literary merit, on the continent of Europe.” The sample consisted of reports for six parishes, each distinguished not only by the description applied to it. Thus the central Highland parish of Kingussie was labeled as being “entirely pastoral” while the parish of Morham in the fertile land lowland east of Edinburgh was described as being “entirely agriculture.” Moulin, a central village parish, was a place distinguished by the “commencement of manufactures,” as distinct from the town of Nielston southwest of Glasgow where instead there was the “complete establishment of manufactures.” The eastern coastal town of Montrose was labelled as being “composed of foreign commerce,” presumably owing to its status as a small port

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106 Smout notes that the conversion to the more authoritarian forms of Presbyterianism was one of the most striking aspects of Highland social change at the turn of the eighteenth century. Smout, *A History of the Scottish People*, pp. 351-360.
for European trade. The final parish report in the sample was for Edinburgh, a place identified with the “progress of luxury.”

From this sample and its accompanying labels it is possible to make two points regarding the geographical ambition in Sinclair’s project. First they indicated his intention to show clearly that Scotland was a modern, *modernizing* nation. Second and more specifically, they also indicated a more specific intention—namely, to demonstrate that different parts of the country were suited for *and* could be allocated to differing combinations of users, people and resources. Taken these points together, what must not be forgotten is that Sinclair’s ultimate goal in the promotion of the term “statistics” was to advance a plan for improving the nation.

At the time, “improvement” stood as a totem for a number of concerns in which the focus was centrally yet not exclusively on the rapid transformations which were taking place in Scottish farming. From a landowner’s perspective it was about achieving the best combination of resources—including tenanted farmers—with which to raise the value and income from land. Prosperity of farming was more widespread, however, particularly from the trade of beef cattle; several of the Highland parish entries in the *Account* testify to the thousands of “black cattle” that were being raised during the 1790s, and to the popularity of these animals in markets further afield.\(^{109}\) Notwithstanding the difficulties of obtaining accurate data, Gray was fairly confident that a doubling if not

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\(^{109}\) Black was the original color of what are nowadays more commonly referred to as Highland cattle. The rise in prices was not of course without place to place variations. In the parish of Ardochattan in Argyll, for example, English drovers reportedly were paying between four and six pounds per animal, while the in parish of Edderachillis in Sutherland, animals of only “ordinary” quality might be sold for 50 shillings (i.e. around half or less than the previous figure. See Sinclair, *Statistical Account of Scotland* vol. 6, p. 177, and vol 6, p. 283 respectively.
tripling of cattle prices took place during the second half of the eighteenth century, and that such increases were far more than those in oatmeal costs (which would have been the main food expenditure for most families). Additionally, and in the Highlands especially, improvement was also about arranging and encouraging alternative forms of living for those who were displaced from often crowded traditional holdings, in order to make way for re-organized farms. The possibilities for creating those forms of living in rural industrial development not only in towns was much more accepted; as Malcolm Gray put it, it was “a preoccupation not altogether delusive and not without genuine hope of profit.” The two major Highland cottage industries which had been flourishing were kelp-making and linen-spinning, supported by strong prices which lasted until around 1815. Furthermore, pre-1815 incomes were also growing from fishing, which had been commercialized much earlier. In short there were several reasons to believe that Scotland did not have to become a nation of town dwellers, or that its population was destined to become an industrial working class of “machine minders.”

Sinclair’s views on national development thus stemmed from his advocacy of planning out agricultural and estate improvements; in both cases systematically produced

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112 Kelp-making involved drying seaweed in rudimentary kilns, leaving an alkaline extract used for making soap and glass. Production was tied to the seaweed-rich north and west coasts of the mainland and of the islands, and was made possible the large resident population who could be deployed as gatherers. Prices fell sharply such that the industry was in collapse in the 1820s. Linen-making grew more significantly in the more southerly and easterly parts of the Highlands, albeit under growing competition as cotton manufacturing in water-powered mills to the south also expanded.
113 Smout, A History of the Scottish People, p. 256.
local statistical facts were regarded as essential.\textsuperscript{114} Again, however, the decision to publish the parish accounts came back to being a problem, for while the completion of the \textit{Account} demonstrated that Scotland \textit{could} be “revealed statistically,” the mixture of subjects in the individual reports and their haphazard arrangement in the \textit{Account’s} volumes did not readily help to demonstrate that statistics were as useful as he claimed they were.

The place where Sinclair wrestled with demonstrating the utility of his statistics was not in the publication of the \textit{Account per se}, but rather with the work’s projection towards (and acceptance by) the intellectual and political audiences he sought to cultivate. It was a culmination which was several more years in the making, however; while the final volume of the \textit{Account} had been published in June 1799, slightly more than nine years after he had first outlined his proposal, another quarter century again passed again before in 1825 his much shorter, two-volume \textit{Analysis of the Statistical Account of Scotland} was also available.\textsuperscript{115}

The time it took Sinclair to produce this \textit{Analysis} appears to the fly in the face of the earlier importance attached to the speedy compilation of the parish descriptions;

\textsuperscript{114} In his own terms Sinclair had argued, “In fact, what is a great and populous country, but an estate on a large scale? And as no individual can judiciously improve his landed property, unless he knows its extent, –its soil, –its climate, –the number of its farmers, –the state of its buildings, –the crops it is capable of producing, –and a number of other particulars unnecessary here to be enumerated; so, neither can any government improve a country, nor ameliorate the condition of its inhabitants, without adopting the principle of minute investigation, in order to discover not only the evils it suffers, and how they can be removed, but also the advantages in which it is deficient, and how they are attainable.” Sinclair, \textit{Analysis of The Statistical Account of Scotland} vol. 1, p. 60.

\textsuperscript{115} Sinclair claims to have begun preparing the \textit{Analysis} in June 1823; see Sinclair, \textit{Analysis of The Statistical Account of Scotland} vol. 1 (“Origin of the Work”). In fact his work on it began earlier that this date, in so far as during the intervening years between the \textit{Account} and the \textit{Analysis} he had also written his \textit{General Report of Scotland} (published in 1814), and his \textit{Code of Agriculture} (published in 1817). Both of these latter works containing sections that are very similar to parts of the \textit{Analysis}—including discussion of his nine “general divisions” (see below).
writing in the *Account* he had unusually forewarned the reader about this “delay,”
suggesting that he would not proceed in “too hasty a manner.”\(^{116}\) To some extent this
was simply intended to bolster opinion of his own analytical rigor in working with the
parish descriptions (which he likened to a “great quantity of ore.”)\(^ {117}\) A more practical
explanation is that the two-volume *Analysis* would have been (far) more economical to
print and to distribute than was the twenty-volume *Account*—thereby standing more
chance of reaching and being read by the audience Sinclair had in mind.

Different pieces of evidence within the *Analysis* illustrate Sinclair’s perception on
how statistics could be used to generate a picture the modern Scottish nation. One
commented on by Withers is the so-called “Pyramid of Statistical Enquiry,”—an early
example of what contemporary census geographers call a “nested hierarchy” (see Figure
3.7). Having said this, the changes Sinclair was to make away from this neat spatial
hierarchy in order to justify his view on national development also bear scrutiny. In
Chapter 4 of the *Analysis*, for example, under the sub-heading “On the General Divisions
of Scotland,” one finds only a series of complaints about the inequities of parliamentary
representation owing to the calculation of voting privileges based on valued land rents.\(^ {118}\)

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\(^ {116}\) In the “Advertisement” dated 25\(^{th}\) October 1798, in which *The Analysis* is billed as “the result


\(^ {118}\) The granting of universal suffrage to the British populace was still more than a century in the
offing, and, instead, it was still a time when only (large) landowners voted to elect the representative for
their county. Eligibility was determined against a long-established tariff of valued rents, but because it
permitted just under three thousand electors, it was in Sinclair’s view a system in dire need of overhaul.
Furthermore, he complains also of the three pairs of counties (Bute and Caithness, Clackmannan and
Kinross, and Cromarty and Nairn, as shown in Figure 3.8) which each had only one Member of
Parliament—and to make matters worse, the system was such that the Member was elected alternately from
just one of the counties in each of these pairings. Sinclair, *Analysis of the Statistical Account* vol. 1, pp. 77-
79.
Most of the chapter is devoted instead to a discussion of nine main “agricultural divisions,” each with its own distinctive characteristics and specializations. Collectively, these divisions are given further prominence by their labeling on a map—indeed it is the only map to be included in the *Analysis* (Figure 3.8).

**Figure 3.1:** Sinclair’s “Pyramid of Statistical Enquiry.” In effect this diagram was one of the first to illustrate a hierarchy of nested geographical units used for national statistical purposes. (Source: Sinclair, *Analysis of the Statistical Account* vol. 2, “Advertisement;” image from Statistical Accounts Online Service © University of Glasgow and University of Edinburgh. The Statistical Accounts of Scotland are available online at http://edina.ac.uk/stat-acc-scot/.)
Figure 3.8: Maps showing Sinclair’s grouping of counties in nine “agricultural divisions” (caption on following page).
In spite of the labeling of these divisions as “agricultural divisions” only four were discussed purely in terms of their farming characteristics. Not surprisingly, those four divisions covered most of the fertile lands south east of the Highlands, where the pace of agricultural improvements was fastest. Outside of these divisions the counties of Ayr, Renfrew, Lanark and Dumbarton were re-grouped into “The manufacturing and commercial district.” Elsewhere, development in the Highlands districts was being envisaged based on the rural kelp and linen industries mentioned earlier, alongside the development of improved sheep farms. Several of the reports in the Account supported Sinclair’s notion that sheep farming was suited to the terrain in these districts given incentive by the wool manufacturing industry as well as the markets for meat. In

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119 Within this area, the grouping of the counties is not at all surprising given the biological and physical characteristics, or the changes that new methods of husbandry had been bringing. This included even the counties of Kincardine, Aberdeen, Banff, Elgin and Nairn (grouped as “The North-east Lowlands”), in spite of the tremendously high costs that could be entailed, which Sinclair claimed could be as much as one hundred pounds per acre. Sinclair, Analysis of the Statistical Account vol. 1, p. 83. As Smout noted, the sheer physical effort involved with farming the moors and bogs here, combined with the way the pattern of tenure with land characteristically organized in medium-size farms, was becoming the basis for a distinctive regional identity and system of cultural values. Smout, A Century of the Scottish People 1830-1950, pp. 13-14.

120 One of the best examples of this I have found is in the lengthy section on “Sheep” in the entry for the linked parish of Lochgoilhead and Kilmorich, in which the first sheep farm had been stocked some thirty five years earlier. The minister in this case shared the same view as a number of his peers regarding
essence, the potential for mixed regional economies seems to be clearly what Sinclair had in mind with (and for) his nine divisions. He was not blind to the conflicts that could arise, notably the competition for space created by the reorganization of land into new farms. Sinclair personally went to considerable lengths to show that these conflicts could be avoided, and that improvement could be both financially attractive and socially beneficial.\textsuperscript{121} For all this determination, however, Mitchison also suggests that Sinclair never recognized adequately that the model of improvement he pursued on his own Highland estate might not be as feasible or as desirable to landlords elsewhere.

In this respect it is also worth contemplating those features of ordinary social conditions in the Highlands which are recorded in the \textit{Account} but which are not emphasized in Sinclair’s descriptions set out in the \textit{Analysis}. Probably the most glaring omission was the complete lack of any reference Sinclair made to the cultivation of potatoes, in spite of the crop’s rapid uptake during the latter half of the eighteenth century, and entirely to produce a subsistence crop. It was not until some decades later, in the 1830’s, that this new dependency on the potato monoculture began to reveal its

\textsuperscript{121} Mitchison suggests that Sinclair is characterized as being highly critical of the strategies deployed by other landowners, and, with his own Caithness estate, that he set out to show that re-organization more accommodating to the needs of sitting tenants was achievable. In the amount of land he set aside for those tenants and their families, in the terms and conditions of their leases, and in starting fisheries in which they might be employed, he went to great lengths to meet this goal, albeit the cost of which were not disclosed. From the time he bought the estate in 1788, until 1812, the rent he could take had increased from £300 to £1,600. See Mitchison, \textit{Agricultural Sir John}, pp. 111-112.
calamitous side;\textsuperscript{122} before then, however, the cultivation of potatoes was in general commended as a highly positive change in the reports written by Highland ministers.\textsuperscript{123} Several indicated that potatoes performed well enough even on steep slopes and small plots to support any growth of population which was occurring. They might not have made for what could be called an appealing diet, but they meant that food was available, enabling in turn the reproduction of a preference for small-scale land occupancy, which, as Smout notes could easily be misinterpreted as a preference for idleness or backwardness.\textsuperscript{124} It was a far remove from Sinclair’s own prescription for improvement, whereby “any adverse circumstances in [Scotland’s] natural situation, have tended only to rouse the energies, and stimulate the industry of its inhabitants.”\textsuperscript{125}

\textsuperscript{122} The first significant failures of the potato crop were in Argyll in 1833, and over the entire west coast in 1836 and 1837. However, a worse episode was in 1846, when blight destroyed the entire west coast crop and left 150,000 people at risk. Speedy charitable and official relief meant the demographic effects were to pale into insignificance compared to the death toll in neighboring Ireland, where more than one million died. As this contrast goes to show, famine is a crisis of political proportions. Smout, \textit{A Century of the Scottish People}, p. 12.

\textsuperscript{123} Potato cultivation had apparently been introduced very successfully in many parishes. For example, in the parish description for Urquhart in the county of Inverness, it is commented that potatoes “succeed extremely well on every farm … and, owing to this, scarcity is hardly known.” In the parish description for Kilmorack it is contended that nowhere else did “The great advantage accruing to Highlanders from paying a proper attention to the cultivation of this useful root” appear more convincingly. From the Argyll parish of Kintail, it was suggested that “The most competent judges of the soil and climate, suggest that the plan of raising potatoes is the best Highland farming scheme,” while in the very north-west, in the Sutherland parish of Edderachillis, “Potatoes, though less than 30 years ago scarcely known here, now constitute a considerable part of the food of the inhabitants.” In addition to the yields they could afford, potatoes were (crucially) relatively non-perishable, and easy and cheap to store; “It is now found, that, by keeping potatoes in a cool place during the summer months … they may be preserved sweet and sound, from one end of the year to the other,” is how the minister of the parish of Glenurchy and Inishail in Argyll put it. See Sinclair, \textit{Statistical Account of Scotland} vol. 20, p. 308; vol. 6, p. 248; vol. 6, p. 289; and vol. 8, p. 338 respectively.

\textsuperscript{124} Smout, \textit{A Century of the Scottish People}, p. 67.

\textsuperscript{125} Sinclair, \textit{Analysis of the Statistical Account} vol. 1, p. 75.
3.5 The geography of Sinclair’s “public”: a partial survey

Sinclair’s claim was that his intent with the *Analysis* was “to lay before the public [a] condensed view of the valuable information contained in … the Statistical Account of Scotland.”126 It was not, however, a manifesto for the common Scot. In consequence, this chapter cannot be closed out without turning some thought to the striking differences between the indigenous network of ministers that Sinclair utilized in producing the *Statistical Account*, and, on the other hand, the geographically much wider-reaching connections constituting the “public sphere” for his project and with which he sought to engage intellectually.

A basic view of the geography of this public sphere may be gained from the thirty or so letters excerpted as an appendix to the *Statistical Account*.127 There were accolades from Professor Eberhardt Zimmerman of Brunswick (whom Withers describes as a “political statistician” and whose work had had a tremendous bearing on Sinclair’s own statistical inclinations),128 while others were from Professors Treschow and Thoskelin of Cophenhagen, and from Monsieur Pleschééf (author of a *Geographical View of the Russian Empire*). It is highly probably that Sinclair had personally met some of these correspondents during his own European tour (although they signal also that letter-writing and the postal system were also important, as they had been to the conduct of the

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Account).\textsuperscript{129} There were excerpts too from letters from fellow Britons, including George Dempster (a colleague-improver and friend of Sinclair’s), from historians and ministers who had been generous with their praise of the Statistical Account, and from the Lord Auckland (William Eden—by then a statesman of long experience). Almost half of the letters included came from foreign government representatives (including President John Adams and George Washington).

The lengths Sinclair went to in order to cultivate this correspondence appear at odds with his patriotism, and also because it is probable that many of his contacts would have had little if any direct experience of Scotland. The reasons Sinclair sought to construct this particular public audience for his project thus merit more attention, starting with his increasing (and seemingly mutual) dissatisfaction with the existing British government led by Prime Minister Pitt.\textsuperscript{130} It is not a stretch to believe that those in the government at the time were not too receptive towards Sinclair’s ideas on using statistics to promote a more active role for government in national development; if so then his mustering support from politicians and intellectuals elsewhere can be viewed as “the next best means” for securing the legitimacy of his work.

\textsuperscript{129} Sinclair’s tour around the northern European states in 1786 was not occasioned by the happiest of circumstances, having followed the death of his first wife. Out of sympathy, Pitt had given Sinclair the status of “commercial negotiator” on behalf of the British government. Together with his baronetcy, Sinclair used the leverage this position gave, gaining access to several national courts, and in so doing to gather the sort of “useful information” as he thought befitting the responsibilities of a public-minded politician. See Mitchison, Agricultural Sir John, pp. 53-58.

\textsuperscript{130} Noted in Mitchison, Agricultural Sir John, p. 52.
3.6 Chapter Summary

The conduct of the *Statistical Account of Scotland* illustrates how “blind” the modern state was to the characteristics of the Scottish population and territory at the turn of the eighteenth century. In other words, the novelty of Sinclair’s use of the term statistics was indicative of a prior dearth of survey knowledge with which to know the modernizing nation. The analysis of the *Account* carried out in this chapter thus provides an important baseline against which to gauge subsequent developments in the spatial politics of national agricultural statistics. On one level it adds depth to understanding the problems and struggles that must be contended with so that local conditions can be organized, accessed and turned into statistical information, and how well that information travels across space. As part of this, aspects of how Sinclair wrestled with statistical defining what farming was, and how it contributed to national development, have also been touched on. All of these difficulties re-surfaced again when the Highland and Agricultural Society’s surveys were undertaken a half century or so later. The next chapter provides some indications of how there were similar as well as novel spatial politics involved with those Society surveys.

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131 Scott, *Seeing Like a State*, p. 2.
Chapter 4

NATIONAL AGRICULTURAL SURVEYS

4.1 Introduction: “national” agricultural statistics

By the middle of the nineteenth century significant differences emerged between Scotland and England in terms of developments in specialized agricultural statistical surveys. Obtaining agricultural statistics in England was extremely difficult, as Coppock documented, partly (though not only) because of the ongoing degree of opposition expressed by several of the country’s farmers.\(^{132}\)

In contrast, the series of surveys conducted by the Highland and Agricultural Society in Scotland were not only tolerated by farmers north of the border; they were even carried by a large number of their body. What made this difference all the more intriguing was the departure from other processes of agricultural development. Up until then, in other words, most innovations affecting Scottish farming had in fact been borrowed from England, where they were already in fairly wide usage, and then adapted.\(^{133}\)

In terms of agricultural statistics, however, clearly there seemed to be some different factors at work.

\(^{132}\) Coppock, ‘Statistical assessment of British agriculture’, pp. 7-10.
What reasons could account for this contrast between the two countries?

To suggest that farmers in Scotland have somehow been naturally more inclined to support statistics makes no sense, and by the same token one should not assume that statistical surveys have gone completely unopposed. Neil Davidson has pointed out that “the Scots were not peculiarly ‘governable’ or ‘uninflammable’ compared to other peoples.”

In this chapter I thus explore the Society surveys as an important moment—indeed as being the next key moment after the *Statistical Account*—in the development of Scottish farming statistics. Particular attention is paid to the thoughts and actions of the Society’s then Secretary, John Hall Maxwell, as he went about orchestrating these surveys. Maxwell toiled to establish and improve the “epistemological power” of the surveys, and how he did so serves to illustrate the spatial politics which were both comparable to and different from those that had been involved in the production of the *Statistical Account* some six decades earlier. The timeline set out below should also help to familiarize the reader with the contents of subsequent parts of this chapter (see Figure 4.1).

\[134\] For example Davidson cites the level of peasant resistance sustained during the Highland Clearances to suggest that ordinary folk of Scotland were not an especially acquiescent people. N. Davidson, ‘The Scottish path to capitalist agriculture 2’, p. 445,
[1798:
Final volume of Statistical Account of Scotland printed.]

1847:
Highland & Agricultural Society of Scotland makes first proposal for collecting statistics to British government.

1853:
With financial support secured from Board of Trade, the Society performs an “experiment” in collecting statistics, covering three of Scotland’s 32 counties. Only 3 farmers failed to make returns.

1854:
Society extends trial statistical survey of 1853 across the whole of Scotland. Enumerated holdings include (a) in Highlands, holdings having an annual rental value of £20 or more, and (b) Lowland holdings have an annual rental of £10 or more. Almost 100% response rate.

1855-57:
With some modification to the questions asked, the Society conducts repeat annual surveys, again with very few instances of opposition or refusal to cooperate.

1857:
The Society ends its agreement with British government following a dispute over the procedure to be followed in accounting for spending of Treasury funds.

[1866:
First British national agricultural census conducted.]

Figure 4.1: Timeline summarizing the mid-nineteenth century agricultural statistical surveys conducted by the Highland and Agricultural Society.

4.2 A patriotic duty

To the extent that the Society’s surveys can be understood as a Scottish development—breaking, as mentioned, from the spread of ideas and changes from England—it is a change which also has to be set in the context of other national developments that were occurring. The half century or so between the final Jacobite uprisings in 1747 and around 1815 was a period, when, as Neil Davidson
puts it, “the class structure of the Scottish economy was wrenched into line with
that of England, with the result that both countries began a process of capitalist
industrializing.” Capitalist relations similarly affected Scottish farming, and
their effects amounted to an agricultural revolution the pace of which was felt as
strongly over many parts of the Highlands as it was in the Lowlands.

The changes taking place did not, however, lead to a proliferation of
independent owner-farmers, as some had thought. Instead, sharp upturns in the
land rents became an increasing basis for social prestige, as well as for wealth.
The concentration of landownership into a few sets of hands became so great that,
in the nineteenth century, ninety percent of Scotland was owned by less than
1,500 landowners. The value of country estates as assessed for taxation
purposes provide an indication of the changes which were underway (Table 4.1).
In net terms the number of estate owners was falling, decreasing by about six
percent between 1770 and 1814. Similarly, the number of smaller estate owners
(having rental rolls totaling less than £500) decreased by more than eight percent.
In contrast, the number of landowners with estates assessed at over £2000 grew,
by around twenty seven percent.

\footnotesize

135 N. Davidson, ‘The Scottish path to capitalist agriculture 2: the capitalist offensive
The concentration of land into fewer and larger estates widened the divisions between a landowning class and the numerous non-leased occupants and cottars forming the bulk of the rural population. Yet though such peasants could be described as the dispossessed victims of the capitalist agricultural revolution, it would be wrong to assume that large landowners were its sole proponents and beneficiaries. Also crucial to the changes taking place was a supply of new tenant farmers—competent and business-minded tenants who were prepared to take on large commercial leases with the attitude that “an attachment to place meant less than an opportunity to accumulate.”

Pacing this transformation of Scottish agriculture was, furthermore, the country’s equally rapid rise to become one of the foremost cultural and intellectual centers in Europe. This growth in Scotland’s stature as an epicenter of intellectual currents was a startling phenomenon to several of its external observers, both for the rate with which it occurred and also because it was there

\[\text{Table 4.1: Number of landowners in Scotland by value of estate, 1770 and 1814}\]

<table>
<thead>
<tr>
<th>Year</th>
<th>&gt;£2000</th>
<th>£500–£2000</th>
<th>&lt;£500</th>
<th>Total Number of Landowners</th>
</tr>
</thead>
<tbody>
<tr>
<td>1770</td>
<td>336</td>
<td>1,095</td>
<td>6,723</td>
<td>8,154</td>
</tr>
<tr>
<td>1814</td>
<td>429</td>
<td>1,094</td>
<td>6,147</td>
<td>7,670</td>
</tr>
</tbody>
</table>


\[137\text{In broad terms, cottars were married farm workers who lived with their families in tied cottages.}\]

\[138\text{N. Davidson, ‘The Scottish path to capitalist agriculture 2’, p. 442.}\]
(and not in England) that it took shape. For others, however, the development of
the “Scottish Enlightenment” alongside the farming changes which were
occurring was no mere coincidence. According to Davidson, for example, both
can justifiably be argued as being parts of the same whole—the one providing a
basis (in political economy theory) for explaining socio-economic developments,
including a program for agrarian change, the other providing a practical
movement (that of “improvement”) for the implementation of this program. In
Davidson’s own words:

The general theory of the Enlightenment was applied to the
specific problems of Scottish society with a view to transforming
it; specifically, it was concerned with reforming the agricultural
basis of the economy in order to achieve the same level of wealth
and opulence that the sister kingdom of England had already
achieved. It involved, in other words, practice and practitioners,
not only theory and theoreticians.\textsuperscript{139}

Davidson may be justified in asserting that the theoretical lines of thinking
which were being advanced in the Scottish Enlightenment were highly attuned to
analyzing Scottish social and economic conditions, or when viewed collectively,
they amounted to a modern form of patriotism. It was not, however, Scottish
separatism as had existed in the past. The difference now was that the stable
conditions that existed—and which were essential for the types of transformations
being proposed—had been secured using \textit{British} military and juridical power.
Many in Scotland were acutely aware of this. To the extent that a new form of

\textsuperscript{139} N. Davidson, ‘The Scottish path to capitalist agriculture 3: the Enlightenment and
Scottish national expression was being shaped, therefore it was also a consciousness in which ideas about the modern nation were being more closely interwoven with wider developments in British governance.

However this “patriotic imperative” might be traced, its mark was yet discernible in Scottish farming in the middle of the nineteenth century, just as it had been writ large in Sinclair’s project. It is detectable in the writings of later improvers such as John Dudgeon and also in those of Maxwell, who by then was the Secretary of the Highland and Agricultural Society (a position he occupied from 1846 until 1865). The lack of “authentic” statistical information on farming was, for both men, nothing short of an egregious national embarrassment, not least when compared to the state of knowledge about other industries. Speaking at the 1854 Berwick agricultural show, Maxwell argued that whereas “the Government and the country could ascertain the particulars of iron, sugar or cotton,” it knew very little about what food resources there were.

In a sense then, two challenges existed: to show that up-to-date statistics on the produce and productive capabilities of British farming mattered, and to demonstrate how they could be gathered (accurately, and economically), succeeding where other schemes had floundered. Nothing further had come of an experimental survey in 1844-45, which undertaken for the Board of Trade in a single county in each of England, Ireland and Scotland. A draft Bill making provisions for government collection agricultural statistics was introduced in
1847, but this too was also stymied. In short, scant evidence existed in favor of increasing the collection of agriculture statistics.

In and of itself, however, the recognition of these challenges does not fully explain why survey developments in Scotland pulled ahead of developments in England. Some inroads towards answering this question can be gained by turning to Maxwell’s claim that the “slender minority in opposition [to the Society’s surveys] … comprises the names of landlords … but whose example has been fortunately disregarded by their tenants.”\textsuperscript{140} In other words, enrolling the support of the new class of tenants was vital to the survey method which Maxwell embarked on. Having said this, ensuring this cooperation also raised a new “set” of spatial politics that had not been evident previously. One departure from the making of the \textit{Statistical Account} was the fact that Maxwell was not, like Sinclair, a totally “free agent,” in the sense that he was employed by and acting on behalf of the Highland and Agricultural Society. In the following section, attention is turned to looking more precisely at the Society’s influence on the surveys which Maxwell carried out.

4.3 The Society’s part in enrolling “the flower of the Scottish tenantry”  

Maxwell’s reliance on Scotland’s tenant farmers stemmed in turn from the ability to identify Scottish farming interests with the Highland and Agricultural Society. The Society itself was around 60 years old by the time Maxwell was elected as its secretary in 1846. By that stage it was literally well patronized by Scotland’s aristocratic landowners, who took turns serving as its quadrennial President. It was also becoming more than a gentlemen’s society, however, such that by 1853—the year when a preliminary statistical survey was first conducted—the number of members stood close to 2,900, compared to the 500 there had been at the start of the nineteenth century. A similar trend was evident in the numbers attending its annual show. The inaugural event of 1822 had been in Edinburgh, attracting 1,000 visitors, with takings just a few shillings over £51. By comparison there were 8,000 visitors to the 1837, while in the following year (at Glasgow), gate receipts reached nearly £850.  

Today the “Highland Show,” as it is more common known, continues to be the premier national showcase for Scottish farming.

In view of these trends the point is that the Society stood to play a key role in advancing the acceptability of surveys that could increase knowledge about Scottish farming. Rather than government approaching the Society, however,

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141 A phrase borrowed from Maxwell’s autobiographical notes.
evidence indicates that the reverse process occurred—namely, that it was rather a matter of the Society having to convince the British government of the utility of the statistical information which it proposed to gather. Maxwell himself recounted that “the Highland Society was first called to the subject in 1847, or rather I should say that they then first endeavored to call the attention of the Government to the subject.”

The “they” Maxwell referred to were those among the Society’s directors who used their patronage connections to gain official support. Among them were some of Scotland’s largest rural landowners, whose influence over the initiation of the surveys also extended in other ways. The most obvious manifestation was in the choice of the three counties Roxburgh, Haddington and Sutherland which were included in the first experimental survey undertaken in 1853. Collectively, these counties encompassed a wide range of farming systems and farm sizes, and thus would have given a reasonable basis for testing the survey methods. But it should be noted also that much land in each county was owned by lairds who had also served as the Society’s president, including the existing incumbent, the Duke of Hamilton. Indeed the Duke of Sutherland (who had served before Hamilton) owned virtually the whole of his county.

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143 BPP, 1854-1855, VIII, p. 3.
144 Maxwell adds that the Dukes of Hamilton and Buccleuch had met with the President of the Board of Trade in 1854 to impress on the latter the importance of the Society’s statistical plans. BPP, 1854-1855, VIII, p. 8.
The backing Maxwell received from the Society’s directors did not however translate into *carte blanche* support for the survey methods which he appears to have taken sole charge of developing. Indeed Maxwell appears to have embarked on something of a personal gamble, later noting that:

> When I say that I was authorised to proceed as I thought best, I should explain that Mr Cardwell [then President of the Board of Trade] left the arrangements entirely in my own hands, & that practically the Society did the same. I was authorised certainly to use the name & influence of the Society, but the Directors declined to accept any responsibility or charge, and treated the matter as one exclusively between the Board of Trade & myself. No Committee was named to superintend the proceedings, nor were the reports of them laid before the Board.¹⁴⁶

It seems clear then that Maxwell received only qualified endorsement among Scotland’s rural landowners, and therefore that landlord pressure on their tenants, while this may have been a factor, does not fully explain the reasons for the success of the survey plans that Maxwell put into action. On the other hand, the extent of the support he received among *tenants* themselves, as is recorded in the annual reports he wrote to the Board of Trade, is quite striking. In the first report he prepared from the 1853 experiment, he stated that the returns were “complete, exhibiting the details of every tenement in the land in the counties, and

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¹⁴⁶ This is recorded in Maxwell’s autobiographical notes.

Sutherland made for an exceptional case in that it had been there just a few decades earlier that the degree of force deemed necessary to modernize the local economy had plumbed new depths. Perhaps the most notorious evictions ever to be associated with the term “Clearances” were carried out in Sutherland, amounting to a campaign in which the majority of crofting residents were forced off their traditional holdings onto newly created fishing villages with neither money nor equipment and training made available to help make this transition. See N. Davidson, ‘The Scottish Path to Capitalist Agriculture 2’, pp. 436-437, and Smout, *A Century of the Scottish People 1830-1950*, pp. 62-69.
the information has been voluntarily given, except in three cases where the
schedules were filled by the Enumerator."\textsuperscript{147} The following year the first fully
national survey was undertaken, from which Maxwell reported that “about 50,000
schedules were issued, and of these about 100 are unaccounted for, giving an
apparent shortcoming of one-fifth of one percent.”\textsuperscript{148} On further investigation the
total number of schedules actually distributed was revised to 43,467. Putting this
into a longer term perspective, the surveys Maxwell was conducting included
almost two-thirds more farms than were enumerated by the official agricultural
census a century and a half later—a difference which becomes even greater when
the number of small holdings is taken into account (Table 4.2).

\textbf{Table 4.2:} Classification of holdings for survey purposes, 1854/1855 and 2003

<table>
<thead>
<tr>
<th>Year</th>
<th>“Main”</th>
<th>“Minor”</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1854 &amp; 1855 surveys</td>
<td>43,467</td>
<td>42,229</td>
<td>85,696</td>
</tr>
<tr>
<td>2003 census</td>
<td>26,200</td>
<td>24,200</td>
<td>50,400</td>
</tr>
</tbody>
</table>

(Note: Column labels use the terminology of contemporary agricultural censuses,
by which a “main” farm holding is broadly one of more than one hectare in area,
or where the net value of the crops and livestock is greater than a threshold one
and two-thirds European Size Units. “Minor” farms are those that were below
this threshold at the time of the last classification. Maxwell’s threshold criteria
were different from this of course, instead based an annual rent threshold and with
a different threshold applying in Lowland and Highland areas. The number of
occupiers judged to meet this threshold was counted in the 1855 survey; the
number of smallholders had been ascertained in 1854.)

\textsuperscript{147} J. H. Maxwell, ‘Report of the inquiry into the agricultural statistics of the counties of
Roxburgh, Haddington, and Sutherland’, \textit{Transactions of the Highland Society of Scotland} 3\textsuperscript{rd}
series VI (July 1853-March 1855), p. 206.
The ability to draw the distinction between “farms” and small holdings” was in fact a crucial part of Maxwell’s plan. In effect a new statistical “population” of Scotland’s farmers was being created, yet at the same time the issues of who was and who as not counted hints further at the blend of old and new spatial politics which existed. How these politics affected Maxwell’s plans can be better revealed by taking a closer look a further look at his endeavors to create and manage the statistical population which he composed. In so doing, the question of “who counted” can be approached in two obvious ways, both of which are relevant here: namely who was counted, and who did the counting?

4.4 Who was counted?

The recruitment of improvement-minded tenant farmers had been underway for several decades before Maxwell embarked on his surveys. As note above, the capital and commercial acumen such tenants was hugely important, for it funded, as it was one of their number put it, “the surest test of improvement”—namely “the rent that can be afforded.” Initially, however, supply was insufficient to meet demand, leaving landowners in the position of having to attract interest in their properties. In some situations there was no option but to work with existing tenants, the sons of whom were often sent to gain experience

149 A. Wight, Present State of Husbandry in Scotland, Extracted from Reports Made to Commissioners of the Annexed Estates and Published with their Authority vol. 3 part 1, (1778-84), p. 70, cited in N. Davidson, ‘The Scottish path to capitalist agriculture 2’, p. 439.
on other farms where improved systems were already being used. Another tactic which was not infrequently used was to invite tenants from outside to settle temporarily, in the belief that “Tenants are more apt to copy from one another, than gentlemen.”

Years later, a similar belief that knowledge flowed better between neighboring tenants and landlords was apparently no less important to Maxwell’s survey plans. By then the numbers of tenants capable of working newly reorganized farms had increased, although this is also not to say that the changes occurring had displaced other land occupiers entirely. In north-east Scotland, especially in the county of Aberdeenshire, a sizeable peasantry of small hill tenants continued to exist (persisting through until the end of the First World War.) Further to the west the distinctive form of small-scale Highland tenure known as crofting also survived, and indeed with the Crofters’ Holdings Act passed into law in 1866, crofters were eventually given a uniquely secure position among all Britain’s land tenants. The passing of the Act reinforced a Highland agrarian structure characterized by two very different developments, namely the large estates—large both by British and European standards—at one end of the scale, together with proportionately large sheep farmers and grazers who in some cases paid several hundred thousand pounds in rent, and “dwarf” sized crofts at

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the other end of the scale, consisting of holdings that often had less than five acres of arable and grazing land apiece.¹⁵²

Thus for all of Maxwell’s commendations of the tenants whose support he received, in reality it was a body from which a mass of smaller occupiers—almost equaling the number of larger tenants (Table 4.2)—was excluded. The sheer numbers of these small occupiers posed counting problems, vis-à-vis Maxwell’s own eagerness to demonstrate that a full scale national survey could be performed to the same standards of speed and economy as had been attained with the 1853 experiment. At a cost of £670, that experiment had been performed for almost a third less than the budget Maxwell had estimated in his application to the Board of Trade;¹⁵³ moreover it had taken him only two months to collate a complete abstract of returns for the experiment (following the distribution of survey schedules in late May), and this in spite of the fact that schedules had then been served upon all occupiers (i.e., including those holding as little as two acres of land).¹⁵⁴ Base on these experiences, Maxwell had estimating that a full national-scale survey could be successfully carried out for £6,000 per annum; this was

¹⁵³ In Maxwell’s autobiographical notes.
¹⁵⁴ Note that the number of occupants surveyed in 1853 was not recorded, and consequently one can only guess the number of smaller tenants then enumerated from figures later published from the 1855 survey (after he had applied size limits—see below), which recorded 1,027 occupiers total in Roxburgh, 462 in Haddington, and 141 in Sutherland. Maxwell, ‘Agricultural Sstatistics of the counties of Roxburgh, Haddington, and Sutherland’, p. 205; BPP, 1854-1855, VIII, p. 8; BPP, ‘Copy of a report of the Highland and Agricultural Society for 1855’, 1856, LIX(2), p. 5.
again a modest sum, and not surprisingly the Board of Trade was happy to approve the new plan.

In reality, the 1854 survey raised new problems which were to frustrate its execution in as timely a fashion as the previous year’s experiment. The biggest difficulty was that of procuring accurate lists of all farm occupants to whom schedules were to be sent. Maxwell’s report for 1854 shows that this was an unanticipated issue, having noted that “It was supposed that such lists might have been obtained before the end of July, and [consequently] arrangements were made for taking acreage and stock as at 21st of August.”  

In practice, some of the lists were not available in July (or for several further weeks, in some cases), which in turn delayed the issue of some of the survey schedules until as late as the beginning of November. Furthermore, the lists with which he was furnished were not only late, but also included several “persons who had left the country or were dead […] while the names of occupants were improperly repeated, which occasioned much unnecessary correspondence and annoyance.”

Here then was another aspect of the new spatial politics encountered by Maxwell, a politics which had to do with accurate naming and addressing and authoritative, centralized, registers. Precisely where Maxwell sourced his aforementioned lists from is beyond the scope of the current study; what can said, however, is that the lists certainly included rental rolls obtained from private 

landowners, as well as some amount of information taken from older valuation rolls. More to the point, the effort required to “clean” the lists and the delay this caused likely would have strengthened Maxwell’s justification for not counting smaller land occupiers as part of the main statistical population.

In the absence of other statistics, or maps, the rental rolls Maxwell obtained were also important in setting the dividing line just mentioned between small occupiers and other farmers. Indeed this size criterion was one of two key alterations Maxwell introduced between the 1853 and 1854 surveys (see also below). He explained that: “As the issue of schedules to Highland crofters, or to occupants of the smaller holdings in the Lowlands would have been useless, it was early resolved to send them only to tenants rented at not less than £20 in Highland, and £10 in Lowland districts.”

The justification for the particular values chosen was later explained on the grounds that in the Lowlands “a man

\[\text{\footnotesize \cite{footnote157}}\]

Loretta Timperley discusses the valuation rolls existing before 1855, when the Land Valuation (Scotland) Act of 1854 came into effect. Each roll provided a list, usually organized by parish, of the “valued rents” of properties within each county. Those valuations were in fact pegged historically as the rent which had been paid in 1656; as such they would bear little relationship to the rents actually paid in the mid-nineteenth century. L. R. Timperley (ed), *A Directory of Landownership in Scotland c. 1770* (1976), p. viii. The 1854 Act established a new, uniform valuation system, but it was pure coincidence that the Highland and Agricultural Society surveys originated at the same time. In any event, in later testimony, Maxwell was dead against the proposal that agricultural statistics could be gathered as part of the same machinery used for collecting taxes, for fear of the suspicion and oppositions this would provoke among farmers. In BPP, 1854-1855, VIII, p. 58.

\[\text{\footnotesize \cite{footnote158}}\]

As a result, twenty six counties were classed in the Lowland division, the seven other “Highland” counties being Argyll, Arran and Bute, Caithness, Inverness, Orkney and Shetland, Ross and Cromarty, and Sutherland. Maxwell, ‘Agricultural statistics of Scotland for the year 1854’, p. 485.
might hold two acres, and pay a comparatively large rent, much larger than one in the Highlands holding 20 acres and paying a few shillings.”

Collectively, these enumeration decisions indicate how closely Maxwell’s plans were tied to the broader changes affecting Scottish agrarian relations. In both instances, a preference for small-scale land occupancy (though not necessarily ownership) which has continued to survive in other countries was being written out of the consideration of what farming was. To be sure, Maxwell’s rationale for excluding smaller occupiers was justifiable for not only the reasons rehearsed above, but also because “the extent to which they could affect the general results as regards the stock and crop of the country at large are too immaterial to necessitate the labour and expense which an annual repetition would involve.” Yet such reasoning applied better to some parts of the country than others, and Maxwell himself was forced to admit, for example, that “In some of the northern counties –in Orkney, and especially in Shetland, –the acreage so omitted is very considerable.” More telling signs that Maxwell’s judgments on small farms were less than completely rational are to be found in his attitude towards smaller farmers themselves. If a small holding was not a proper farm, then correspondingly a small holder could not be deemed a reliable survey respondent; in Maxwell’s own words: “many of them would be unable to

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159 As is recorded in BPP, 1854-1855, VIII, pp. 8-9.
comprehend the inquiries made, and to complete the schedules served upon them.”

In fairness it should be added that the difficulties with defining and dealing with “small farmers” and with maintaining updated registers that Maxwell experienced have not disappeared. Further consideration of them is, however, beyond the present purpose. In the next section the study moves to another aspect of “who counted”—namely, concerning the question of who did the counting?

### 4.5 Who did the counting?

An obvious departure from Sinclair’s *Statistical Account of Scotland* was Maxwell’s decision to switch to self-enumeration—in other words having tenants completing their own questionnaire schedules, rather than relying on the parish ministers or other local agents. Here too Maxwell’s plan contrasted the experimental surveys carried out in England, as well as with an argument that Dudgeon had previously made. In the latter’s view, self-enumeration was destined to be problematic because:

besides that there would be great difficulty to compel returns so numerous within due time, I am satisfied it is not to be expected that we could look for a faithful and true account from tenants of the full proceeds and productiveness, in many instances, of their individual occupations. Many would consider it inquisitorial, and a duty to be evaded, or lightly got rid of; while the fear of exposing in detail, to others, or it may be to their landlords or to their agents,

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the true value of their possessions, could not fail to operate against a true and fair return being made.\textsuperscript{163}

The opposition to the schemes piloted in England showed that the problems Dudgeon discussed were not merely figments of his imagination; as such, the germane question is how Maxwell was able to circumvent similar difficulties as and when they arose north of the border?

One reason owed to the way in which Maxwell defined what he called his “survey districts.” These districts consisted of subdivisions of the country into small groupings of parishes (much smaller than the nine “agricultural divisions” Sinclair had devised—see Chapter 3). Within each county, the goal of Maxwell’s grouping strategy was “so as to have, as far as possible, a district similar in its agricultural products, and in the character of its farming.”\textsuperscript{164} In this way, Scotland’s almost 900 parishes were eventually partitioned into 115 survey districts. The maps on the following pages show how these divisions were formed from the parishes within the three counties included in the 1853 pilot survey (see Figures 4.2, 4.3 and 4.4). The distribution of schedules within each parish was typically administered by a resident farmer who was hired onto a specially appointed district committee (see below).

\textsuperscript{163} Apparently this difference of view did not ultimately damage Dudgeon’s support for Maxwell’s surveys, as he was subsequently one of the survey Enumerators Maxwell appointed in the county of Roxburgh. John Dudgeon, ‘On a method of obtaining correct statistics of agricultural produce’, \textit{Journal of Agriculture}, ns IV (1851), p. 373.

\textsuperscript{164} In BPP, 1854-5, VIII, p. 4.
Figure 4.2: Survey districts Maxwell created for the Highland and Agricultural Society’s 1853 survey of the county of Roxburgh. The survey districts are mapped onto the agricultural parish boundaries used for contemporary census purposes (see Figure 1.4). The match-up is not exact, however, owing to the addition and merging of parishes and other boundary changes (e.g., the two parishes shaded gray were subsequently transferred to the neighboring county of Selkirk). Also displayed are the approximate locations of Kelso and Jedburgh, the two main towns. Each district had its own “Enumerator,” and supporting committee members, all whom usually were local farmers. A copy of the collated statistics is provided in Appendix C, showing the original list of districts and their corresponding parishes and Enumerators. (Source: BPP, ‘Copy of a letter to the Board of Trade by the Secretary of the Highland and Agricultural Society of Scotland, Transmitting an Abstract of Agricultural Statistics of the Counties of Roxburgh, Haddington and Sutherland’, 1852-1853, CI (917).)
Figure 4.3: The 1853 survey districts for the county of Haddington. Haddington and North Berwick are the largest towns in the county. (Source: as for Figure 4.2.)
The grouping of parishes into survey districts was “phase one” of Maxwell’s plan. The second phase was, however, the crucial one, in so far as it relied more heavily on the direct cooperation of farmers. In each survey district Maxwell’s intention was to have “secured the services of an influential, intelligent, active practical farmer.” Styled as the “enumerator” for the district, each such individual was also to have an additional “committee to aid and to work under him, consisting of farmers of a similar stamp, connected with the different parishes, so that in fact each parish in the district was represented at the

**Figure 4.4:** The 1853 survey districts for the county of Sutherland. Shaded gray are the parishes of Reay, now part of the county of Caithness, and Durness, which Maxwell divided into a western portion included in District 1 and an eastern portion in District 2. Locations for the villages of Helmsdale and Bettyhill are also shown. (Source: as for Figure 4.2.)
committee.” Approximately twelve hundred tenants were subsequently enrolled into Maxwell’s scheme when these criteria were applied across the whole of Scotland.

Such careful choosing of his field agents bought Maxwell a number of benefits—some deliberate, but others not. For one thing it bought him a pool of staff who were both known and experienced in their respective parishes, and which could thus be used not only for putting an acceptable face on the local administration of the surveys but also for ascertaining different crop yields (see below). Second, it also bought a labor force for which little if any additional training was necessary, and for which the financial remunerations that were justified (and indeed were expected) were relatively modest. Thirdly, it appears from Maxwell’s comments that it also bought the same dedication to task as was then being manifested in the business of farming itself. Noting the length to which some committee members were going in order to record exact acreages of all the crops in their respective parishes, Maxwell observed “This labour, though uncalled for, was far from being thrown away, as it afforded me the means of sometimes testing, and, I am happy to say confirming, the accuracy of individual returns from the same localities.” Quite serendipitously in other words,

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165 BPP, 1854-1855, VIII, p. 4.
167 For example for the 1855 survey Enumerators received an average of £20 each, while committee members received reimbursement costs only. In BPP, 1854-1855, VIII, p. 11
Maxwell’s strategy had secured a handy means for double-checking the statistics which were being collected.\textsuperscript{168}

Finally and most significantly, the use of some farmers to survey the rest of their number also bought an unparalleled degree of trust in Maxwell’s plan.\textsuperscript{169}. Establishing the conditions for this trust was (of course) a matter of negotiation, as was revealed most conspicuously following the 1853 experiment. The sequence of communications Maxwell had envisaged for that survey was such that, as he himself explained it, the “schedules were sent by me to the district enumerator, circulated by him, and returned to him, and, after being subjected to his inspection, finally sent to me.”\textsuperscript{170} It was a chain of communications which certainly worked effectively for questions in the first section of the schedule, for which farmers were asked to provide the land and crop acreages of their farm; “In this,” claimed Maxwell, “there is nothing very inquisitorial—nothing that a landlord does not know, or a neighbour cannot tell; and even if I published the replies to such queries, I should be making known nothing that any farmer has an object in concealing.”\textsuperscript{171} In regard to questions on livestock, however, the experience evoked many more objections, especially among sheep farmers, and as

\textsuperscript{168} Maxwell, ‘Agricultural statistics of Scotland for the year 1854’, p. 484.

\textsuperscript{169} Referring back to problems discussed by Coppock, who noted that when in 1844 the question of collecting agricultural statistics was first raised in Parliament, Gladstone (who was then the President of the Board of Trade) had reported that no class of public functionary was capable of providing an adequate or acceptable machinery. See Coppock, ‘Statistical assessment of British agriculture’, p. 7.

\textsuperscript{170} Maxwell, ‘Agricultural statistics’, p. 5.

\textsuperscript{171} BPP, 1854-1855, VIII, p. 5. Information also from Maxwell’s autobiographical notes.
a result of which Maxwell had felt compelled to hold public meetings in all three of the pilot counties. 172

The reasons for these objections highlighted the epistemological limits involved with using statistics to access the kinds of information Maxwell really sought—not about crop acreages or livestock numbers per se, but namely about the amount of agricultural produce. In the case of crops it was quite possible to make appropriate yield estimates once the acreages on individual schedules were returned and aggregated. All that was required in that instance was a set of average yield multipliers—averages for each individual district—and to obtain those multipliers Maxwell was again to rely on the collective observations and experience of the farmers who had been appointed to his survey committees. 173 Such a system was however not possible in those “pastoral districts” where there were not only large numbers of sheep to count but also large (and remote) areas to compass. In order to know the amount of meat being produced in those districts, there was no therefore alternative but to ask each enumerated farmer to report the number of their stock.

In effect, livestock farmers were being asked to surrender information from which both the amount and value of their respective operations could be directly calculated. In turn, knowing the value of produce a farmer was generated was but a short step away from assessing the level of rent that might be levied, or

172 BPP, 1854-1855, VIII, p. 4.
at least that was it way it would have appeared from the tenant’s viewpoint. Little wonder then that several livestock producers were to find fault with the information requests Maxwell was making of them. In consequence, the compromise which Maxwell arrived at involved altering the aforementioned sequence of communications prior to the 1854 survey. “Where most jealously did exist,” he explained, “I proposed that the individual returns of sheep should be sent to the members of the parish committees, or the enumerator of a district, & that only gross returns should be sent to me”; however, “every where this was scotched. No one man would give details to a neighbour, but all were prepared to send them to me, on my assurance, that the general results only should be known.”

The irony of these changes should not be overlooked. If it really was the case that most sheep farmers mistrusted their local neighbors, to the extent that they would rather pass on information to a distant outsider like Maxwell, then it is truly revealing of just how far agrarian social relations and traditional attitudes towards holding land had been altered by the middle of the nineteenth century. In the face of the “capitalist offensive,” as Davidson refers to it, older ideas of communalism had shrunk by comparison to the economic value that could be vested in private property. Moreover, the network between Maxwell and Scotland’s farmers did not simply ensure that the privacy of the latter was being

174 From Maxwell’s autobiographical notes.
protected. It signaled, rather, how “The ‘private’ enterprise was to become a vital locale for the government of economic life of the nation.”

Just as has continued, however, matters of governing the nation were complicated by the sheer variety of institutional sites which were involved. This was demonstrated in 1857, when the national Audit Office requested that Maxwell should not only submit detailed statements and vouchers against his expenditure of Board of Trade funds, but that he should also cede direct control over how enumerators and clerks were to be hired and paid. These requests must have affronted Maxwell; his financial prudence had been evident all along, and whereas he himself had been at pains to foster trust among farmers Scottish farmers, his own credentials were now being questioned. The Audit Office refused to budge from its requests, however, and in consequence of which both Maxwell and the Society members as a whole saw no option but to desist from conducting any further surveys on behalf of the government.

4.6 Chapter summary

With the loss of the Society’s and Maxwell’s support it was nearly a decade before any national agricultural surveys (the first agricultural censuses) were again conducted in Scotland. Furthermore, in spite of the ways in which

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175 Rose and Miller, ‘Political power beyond the state’, p. 187.
Maxwell had succeeded with his plans, the case for regular or official farming surveys had still not been completely proven. The next chapter investigates these subsequent developments in state statistical surveys, in particular concentrating on exploring when, how and why census categorizations have developed.
Chapter 5

STATE AGRICULTURAL STATISTICS, PART 1: IMPROVING LEGIBILITY

5.1 Introduction: the “impetus to categorize”

The Society surveys which Maxwell’s conducted, ostensibly for the British government’s Board of Trade, are just one example of how new programmes for governing the modern nation were evolving in the nineteenth century. Having said the surveys Maxwell organized were not a genuine “state technique,” in the sense of being administered directly by government and its full-time, professional bureaucrats. The context for that stage of development was provided in 1865 by an epidemic of rinderpest (known more simply as cattle plague) in 1865, following the importation of infected cattle shipped from Estonia to England. The following year the British government undertook the first successful agricultural censuses in England, Wales and Scotland. A livestock census was performed first, in March 1866, followed by a census of crop acreages a few months later, in June. In both cases the survey schedules were distributed and collected by the Excise officers of the Board of the Inland Revenue (acting, just as

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Maxwell had done, on behalf of the Board of Trade). Some years previously Maxwell had had his doubts about the efficacy of deploying these tax officers for collecting statistics, for fear that it could increase the suspicions among farmers as to why the statistics were being gathered. A decade later, the practical fact of the matter was that the Revenue offered a professionally trained cadre of territorially-organized staff that no other government department could match.

Even more fundamental than either of these changes were the underlying reasons which made these first censuses necessary. For Maxwell, Dudgeon and to a lesser extent in Sinclair’s case too, the prime justification for having accurate agricultural statistics had lain with quantifying the nation’s food resources, or in other words in seeking to ensure that the modern nation with its expanding population could feed itself. In contrast, the rinderpest epidemic had brought about a different problem. In the face of popular anxieties about tainted food supplies and their potential to sicken and kill people, food quality was becoming a more important justification for official action. In effect, the epidemic was an early example of a modern “food scare;” allied with other concerns over tainted foods and generally unreliable medical cures, it favored the production of knowledge with which official policy of complete disease eradication could be

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178 At least this is what is officially recorded in NAS, AF39 Agricultural Census, Parish Summaries, 1st Series, 1866-1911. The correction that Matthews makes with regard to the conduct of the censuses in England and Wales may also apply in Scotland; using a collection of recently discovered Inland Revenue circulars, Matthews claims that the first livestock census was actually administered by the surveyors of taxes – i.e., only the crop census was undertaken by the excise officers. Surveyors were normally responsible for income, property and other assessed taxes, while excise officers’ duties involved, as now, collecting of duties on alcohol, tobacco and other commodities. See Matthews, ‘The administration of the livestock census in 1866’, pp. 224-225.

179 See also Maxwell’s testimony in BPP, 1854-1855, VIII, p. 58.
Statistics from the 1886 and 1867 livestock censuses suggest that Maxwell’s concerns about involving the Excise officers had been allayed; many farmers cooperated, even though the statutory powers to compel farmers to make accurate returns were still several years in the offing.

These circumstances show how concerns over the nation’s food supplies had the potential to engender an increased degree of state interest in why and how farming could be recorded through statistics. The processes operating were akin to what David Kertzer and Dominique Arel have referred to, in regard to national *population* censuses, as an “impetus to categorize.” As James Scott further points out, it is an assumption which has served modern states well, providing a means to simplify populations into much more “legible”—and hence “administrable”—formats. Yet as Scott’s work also goes to show, the way in which categorizations have been utilized by modern states has been by no means limited to the direct enumeration activities involved in census-taking; the distinction drawn between “nature” and “society,” as is of increasing interest to a number of other social theorists, is itself another instance of how categories enable real world conditions to be simplified into more legible formats.

In a similar vein as these other arguments the aim in this chapter is to critically examine the history of categorizing efforts associated with the Scottish agricultural censuses. More specifically, the following sections focus on how, and when, census

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180 Freidberg, *French Beans and Food Scares*, pp. 1-8. According to Gordon Scott the need for statistics with which to document the plague’s spread was made all the more prescient given that it had previously entered the country in 1714 and 1745, and on the second occasion it had led to the death of half a million cattle. See G. Scott, ‘The murrain now known as rinderpest’, pp. 14-16.

181 Kertzer and Arel, ‘Censuses, identity formation, and the struggle for political power’, pp. 2-5.

categorizations of livestock—cattle in particular—have changed in relation to a variety of events and concerns, all of which could be construed as national “food scares.” As in the preceding chapters, a timeline is again provided (see Figure 5.1), in this case so that changes discussed in the following pages might simultaneously be compared against other census-taking developments.

5.2 Pre-Twentieth century categorizations

The categorizing activities integral to census-taking are not dissimilar from the spatial, political activities Hannah includes under his heading of “abstraction” (see Chapter 2); in their own right, in other words, the process of counting things within categories itself amounts to a distinctive effort to establish a new “grid of reference” that allows social and economic conditions to be better accessed. Like Hannah’s processes, then, census categorizations have been fundamentally involved in the construction of an abstract “field” of observation, and in turn this abstract field also “forms the background and condition of possibility of assortment, whereby the units being observed (whether resources, people or activities) are unambiguously identified and distinguished from one another, and fixed to clearly defined locations.”

In consequence, the attempts to enumerate cattle farming in the earliest Scottish agricultural censuses bear parting resemblance to at least some of the struggles which Hannah analyzes in his own study of the 1870 and 1880 US population censuses. In the

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183 Hannah, Governmentality and the Mastery of Territory, p. 124.
1866: first agricultural census for Great Britain, directed by Board of Trade. Census returns distributed/collection by Excise Officers of the Inland Revenue. (Excise Dept. moved from Inland Revenue to Board of Customs and Excise in 1909.)

1889: responsibility for directing census transferred to new Board of Agriculture for Great Britain (under Agricultural Act of the same year).

1911: responsibility for agricultural census in Scotland for 1912 onwards transferred to the new Board of Agriculture for Scotland (created with the Small Landholders (Scotland) Act of that year.)

1917: census returns made compulsory under Corn Production Act of that year.

1919: Board of Agriculture for Scotland assumes distribution/collection of census returns from Excise Officers.

1921: with repeal of 1917 Corn Production Act, censuses once again become voluntary.

1925: census given a statutory and compulsory basis under Agricultural Returns Act of that year.

1933: Parish numerical identifiers first introduced.

1939-ongoing: sample-based December censuses.

1940: sample-based censuses (a) in September (until 1950), (b) in March (until 1952)

1947: Statutory provisions for taking censuses collected under the authority of the Agricultural Act (Scotland) of that year.

1975: agricultural census used to supply information to EU Farm Structure Survey.

Parish Summaries 1st Series (1866-1911)
Annual censuses conducted in June, on a voluntary participation basis. (Estimates made in cases where requests for statistics were not met.) Minimum size of holdings for which crop acreages were enumerated:
1866: > 5 acres;
1867-68: no minimum;
1869-91: 0.25 acre;
1892-1911: > 1 acre.

Parish Summaries 2nd Series (ongoing)
Minimum holding sizes:
1912-69: > 1 acre;
1970-72: 26+ SMDs*;
1973: 40+ SMDs*;
1892-1911: > 1 acre.
Present: (a) operating > 1 hectare, and (b) >= 1.66 ESU**

*Standard Man Days annual labor requirement.
**European Size Units.

Figure 5.1: Timeline showing developments in government agricultural censuses in Scotland. (Sources: NAS, AF39 Agricultural Census, Parish Summaries, 1st Series, 1866-1911; NAS AF42 Agricultural Census, Parish Summaries, 2nd Series.)
latter context, as Hannah discusses, particular problems were posed the masses of immigrant newcomers whose arrival in such masses meant that their numbers (let alone their whereabouts) became exceedingly difficult to keep track of. In the present context cattle production might be compared to those immigrants, in the sense that it too was relatively new on the scene, not having been a major part of older pre-improvement forms of Scottish farming as practiced up until the beginning decades of the eighteenth century. According to one local history, “The balance of stock was much more towards sheep … The Union with England in 1707 had not yet destroyed the struggling native woolen industry, nor was the cattle industry that replaced it yet significant.”

In later decades, however, a quite different picture of was being given. By the end of the eighteenth century, Sinclair put it that no stock was selling better in English markets than “the Scotch breed of cattle,” while breeding developments were also being linked to expanding urban markets for cheese, butter and milk.

Although Sinclair discussed these new developments, a detailed enumeration of cattle farming had itself not been part of his *Statistical Account*. The question he had asked parish ministers was rather “What at an average is supposed to be the number of cattle, sheep, horses, hogs and goats in the district [i.e., within the parish]?” Such phrasing seems uncharacteristically inhibited, at least compared to the level of detail that had been asked for in other questions. Why this so remains a matter of speculation, although it perhaps indicates Sinclair’s awareness of the fact that a comprehensive

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livestock count would have been an immensely difficult exercise for one individual to undertake single-handedly. Even the average number of animals being reared was not always obtainable. Here for example is one entry given in the *Account*, for a parish in eastern Scotland:

*Husbandry* –The cattle reared are of the Angus breed, generally black, and without horns. Most of them are bought up for the English markets when three or four years old, where they are much approved of; others are fed either for home use, or to be driven to the Glasgow market. This being a fertile corn part of the country, a considerable number of the cattle are bought at markets from inland situations, instead of being reared in the parish. Some few enterprising individuals have of late introduced the Teeswater or short-horned breed of cattle, which comes sooner to much greater weight.\(^{187}\)

Clearly it seems that everything but the actual number of animals is being given here. Many other parish reports in the *Account* are likewise lacking in numerical descriptions of livestock farming, even to the level of average figures.

A half century later, Maxwell’s strategy of having farmers complete their own survey schedules was a major step towards alleviating some of the same observational difficulties that the parish ministers must have faced. Furthermore, it is not clear that the opposition among sheep producers (see Chapter 4) was also shared by cattle farmers. Yet having said this, the survey methods which Maxwell adopted did not mean that all the problems of counting bovine livestock had completely disappeared; they were, if anything, intensified, owing to the improved categorizations that Maxwell (and Dudgeon) saw fit to work towards. Dudgeon’s proposed schedule (included in his 1851 *Journal of Agriculture* paper) shows that the averages figures which Sinclair had requested would

now no longer do, and instead under the heading of “Disposable Live Stock” there were separate categories for cattle, sheep, pigs and horses.\textsuperscript{188} Two years later, in the 1853 experimental survey which Maxwell organized, cattle were further divided into “Milk Cows” and “Other Cattle."\textsuperscript{189} In as far as individual milking animals were of greater financial value than cattle reared for their meat, this division itself serves to signal the degree of specialization—and value—that was by then developing in capitalist agricultural production. A separate third category, for “Calves, was subsequently added in the national surveys carried out in between 1854 and 1857.\textsuperscript{190}

The success of the Society surveys in Scotland had impressed the Board of Trade, and whether for this reason or more for matters of convenience it is not too surprising that the three same three cattle categories Maxwell had used were subsequently carried forward into the first official livestock census in 1866.\textsuperscript{191} It was not a straight copy, however, as instead of having three separate categories, division was instead by achieved by creating two sub-categories for “Other Cattle”—one for animals aged two years or

\textsuperscript{189} BPP, ‘Copy of a Letter addressed to the Board of Trade by the Secretary of the Highland and Agricultural Society of Scotland, Transmitting Abstract of Returns of the Agricultural Statistics of the Counties of Roxburgh, Haddington and Sutherland’, 1852-3, C1 (917), p. 3. Also BPP, 1856, LIX(2), p. 7.
\textsuperscript{190} The reasons for this additional category needs more research. Perhaps it was because of growing demand for veal, which, according to Sinclair had been a relatively minor part of Scottish production in the late eighteenth century. See Sinclair, \textit{Analysis of the Statistical Account} vol. 1, p. 266. Another explanation relates to the success of new fodder crops (turnips especially) which had a dramatic impact on Scottish stock farming in the first half of the nineteenth century. See J. Blackman, ‘The cattle trade and agrarian change on the eve of the railway age’, \textit{Agriculture History Review} (1975), pp. 59-60. By the middle of the century both livestock and deadmeat were being transported to Britain’s major urban markets by railways. See R. Perren, ‘The meat and livestock trade in Britain, 1850-70’, \textit{Economic History Review} (1975), pp. 385-400.
\textsuperscript{191} Coppock claimed that the returns which were used by the Board during an 1853 experimental (two county) survey in England had been based on those Maxwell had used. Coppock, ‘Statistical assessment of British agriculture’, pp. 11.
Figure 5.2: Categories of cattle reported in the 1866 Census. (See also Appendix D, and Figure 5.4, for an explanation of the diagram structure.)
over, and other for younger animals (Figure 5.2). This revision marked an important change from the use of *physical and visible* characteristics which until then had always been the primary basis for categorizing animals. Use of the new age-based division was in effect something of a tacit acknowledgement that visible appearance was not always an easy, reliable or appropriate guide for identifying and counting individual animals. In addition, it was also a more apt means for understanding cattle production as a “system”—allowing a way of creating an inventory of “resources” and “products”—not dissimilar from the techniques of management applied in other production systems.

From a practical standpoint the categories chosen also had to simple ones—straightforward enough overall that the census fulfilled its primary purpose of providing accurate figures for tackling the disease problem. Yet the set of results which was initially reported in May 1866 were heavily criticized, and were replaced by a revised version just three months later. Why this was so has been considered recently in a paper by Stephen Matthews, who goes on to suggest that the main difficulty with the initial version of the results was less one of accuracy than of content. According to Matthews, the problem was that:

They [the original set of statistics] made no mention of the size of land holding included, how the information had been gathered or how complete it was felt to be. Although Surveyors had not been asked to report the numbers of occupiers who failed to respond, they were required to state

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193 Sinclair’s comments are appropriate once again. Sinclair had claimed that “polled” (i.e. naturally hornless) Galloway beef cattle could be sold for as much as ten shillings less per head than horned cattle of the same weight – a difference he attributed to allegations that “the age of horned cattle cannot be misrepresented; whereas, a dealer can assert that those without horns are of any age that best suits his purpose.” Sinclair, *Analysis of the Statistical Account of Scotland*, vol. 1, p. 264.
194 For example, Sinclair had added about Galloway beef cattle (see above footnote) that “They used to be bought for the English market when four years old; but now they are sent earlier.”
the estimated numbers of cattle, but this detail was omitted from the first published version.\(^{195}\)

Of the deficiencies that Matthews notes here, the distinction between estimated and actual counts was in fact the only one corrected in the revised report; moreover, the generally quite small totals for livestock counts that were estimated tended to support the view that the first livestock census had been relatively well supported among those farmers enumerated.\(^{196}\) In his own analysis Matthews concluded however that “The success of the census does not seem to reflect a complete change of attitude in the farming community. … It appears the reason for the better cattle returns was the devastation of the plague rather than any deep felt conversion on the principle of supplying information.”\(^{197}\) This observation is important, but it also obscures another point—namely the state’s new-found need for statistics, with which to govern the nation’s food supplies.

5.3 Twentieth century categorizations

The epidemics of cattle plague in the 1860s and following years were quickly brought under control, but thereafter many British farmers subsequently faced other

\(^{195}\) Matthews, ‘The administration of the livestock census in 1866’, p. 227.

\(^{196}\) The revised census statistics are tabulated in BPP, ‘Return of the Total Number of Cattle, Sheep and Pigs, Returned by Occupiers of Land, and Estimated by Collecting Officers’, 1866, LIX, pp. 1-4. For each of cattle, sheep and pigs, the tables give county-level breakdowns of: (a) the total number of animals (i.e. both returned and estimated); (b) the number estimated by collecting officers; and (c) the corresponding percentages for the numbers estimated. Incidentally, the percentage of cattle which had to be estimated in Scotland (0.75 percent) was less than half that in either England (1.69 percent) or Wales (1.64 percent).

\(^{197}\) Matthews, ‘The administration of the livestock census in 1866’, pp. 227-228.
problems. As imports of foreign foodstuffs into the UK rose—dramatically so—so prices for home-produced food (especially wheat) came under considerable pressure. In spite of this pressure, however, government policy continue to leave the fortunes of home farming to be decided by market forces, because of “the perceived greater good for British industry of an open economy.” Accordingly when in 1889 a Board of Agriculture was created, it offered little material assistance to British farmers.

The agricultural censuses for England and Wales and Scotland were one of the responsibilities which the Board did take on shortly after its formation. By then the crop and livestock censuses had been combined into one exercise, and census-taking had become a routine annual exercise. The ongoing depression in British agriculture continued, however, lasting up until the First World War. Farming contracted, geographically speaking, and as it did so the growing concerns over farmland loss and abandonment had the ironic effect of catalyzing an increasing array of land and other problems. For the record, the policy of eradicating the rinderpest epidemic was fully successful within months after embarking on it. Similarly, the State Veterinary Service—which had also been created in reaction to the earlier epidemic—is said to have halted two further outbreaks in the 1870s, in both cases within weeks of the detection infected stock. Perren for example records that between 1870-4 and 1910-14, wheat and flour imports had risen by 100 percent, meat by 420 percent and butter and cheese by 290 percent. R. Perren, Agriculture in Depression 1870-1940 (1995) p. 27, citing figures from T. Fletcher, ‘The great depression of English agriculture, 1873-1896’, Economic History Review (1961) pp. 417-432. Care has to be taken though, since the depression that occurred in UK wheat prices did not happen to prices for other produce, or at the same time, and furthermore the consequences for consumers and for different farmers were by no means standard.


Matthews notes that combined crop and livestock censuses were held on 25 June each year until 1877, but thereafter the census date was advanced to early May. Matthews, ‘The administration of the livestock census in 1866’, p. 228. In the official records it is recorded that the British Board of Agriculture retained responsibility for the Scottish censuses until the passage of Small Landholders (Scotland) Act in 1911, with which responsibilities for the Scottish censuses were transferred to a newly-created Board of Agriculture for Scotland. See NAS, AF39 Agricultural Census, Parish Summaries, 1st Series, 1866-1911.
Figure 5.3: Changes in the numbers of census categories over time. For the period including 1866 to 1951, the values plotted were derived from parish-level summary tables. From 1961 until 2000, the number of categories was counted directly from copies of the census questionnaires. (See also Appendices D to H.)
rural surveys. Archived parish-level reports illustrate how the census categorizations of the day were being affected. Between 1866 and 1920, for example, eighteen new categories for reporting livestock statistics were added (Figure 5.3).

The outbreak of the First World War further dampened UK cattle production, for reasons mentioned in Richard Perren’s analysis. Food supplies not just in Britain but throughout Europe came under pressure, and governments of all the warring countries became rightly obsessed with maintaining home production as well as with protecting their respective imports. Cereal crops (notably barley and wheat in the UK) were deemed to be the most essential items, as they could be grown quickly and generally involved less expensive resource inputs than did livestock production. Moreover, though animal protein was at the time also regarded as an important dietary component, the war also placed Britain’s meat supplies under strain. Domestic output was reduced as sheep and cattle pasture were converted to crops, and (more significantly) because of the reduced availability of animal feed. Suppliers in Commonwealth countries suffered too, because of the short supply of refrigerated shipping space, firm controls on which were imposed by the British government. As Perren also notes, however, the issue of meat was more than a matter of availability; for the consumer, it was also a question of choice, palatability and variety. Reduced domestic production during the war and the reliance on

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202 Murdoch and Ward, ‘Governmentality and territoriality’, p. 314. See also Short et al., The National Farm Survey, 1941-1943, pp. 21-25.
canned and frozen imports combined with long food lines combined to demoralize British consumers.  

Given these circumstances, the expansion of domestic livestock production became a new political priority towards the end of the war. It was a change reflected in the new livestock categorizations which were being implemented in the agricultural census. In 1919, the three categories that had existed in 1866 had been split into a larger number of narrower sub-categories. The categories for enumerating dairy cattle were divided in two, namely into a count of cows currently providing milk, as distinct from the count of cows in calf but not in milk. The latter was in fact further sub-divided, based on whether or not the cows being counted were heifers (i.e., young first time mothers). In addition to these changes, a newer higher level category was also introduced, for counting the number of bulls being used for service. Finally, the category of “other cattle” less than two years old was further sub-divided by animal age, into those older and those younger than a year old (Figure 5.4). Taken together, such changes make it clear that the production of increasingly specialist knowledge by the national state was becoming integral to the governance of cattle production as a modern economic sector. The production of milk and dairy products may be taken as an example. In this case, the new census categories supported the view that the production of these items depended on the production of a reliable supply of lactating cows, which in turn relied on better knowledge (a) about the numbers of cows capable of becoming pregnant, and (b) about on the number of bulls capable of impregnating them. Cattle reproduction in other words

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had to be managed from a distance, and the new census categorizations in which cattle were being counted can be read as were part of that intent.

This change in statistical knowledge did not, however, translate into greater financial support. In earlier work Perren had noted that “The twenty years between Armistice of November 1918 and the outbreak of war in September 1939 was a generally unprofitable one for British farming.” In the 1920s agriculture in the country was again feeling the effects of imports and foreign competition, on top of which the government had demonstrated its reluctance to incur the added costs of guaranteeing minimum prices in agriculture in the face of the overall depressed economy and rocketing unemployment level. After June 1921, when the government took the decision to end the price support policies that had been set out in the 1920 Agricultural Act, the period up until the early 1930s was in consequence a time when a “real” liberal ideology of free trade in British agriculture was attempted (in fact for the last time, until very recent changes). With the case for state interventions in farming once more emasculated, so the impetus for producing more census information also appears to have lessened. In

Figure 5.4: (next page) Cattle categories reported in the 1919 census. The top portion shows the categories printed in the parish summary tables (see Appendix E.) On the diagram, these categories are rearranged top to bottom into a set of progressively finer subdivisions. Thus, the “In calf” includes heifers (i.e. young, first-time mothers) as well as older females having had offspring previously. Although not stated, age is also important to this division, in so far as young calves become heifers at puberty, at which point they can be mated. Age to puberty continues to vary with breed, anywhere between 9 to 16 months.

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Figure 5.4: Cattle categories reported in the 1919 census. (Caption on preceding page.)
specific case of cattle production no new additions were made to the census categories and sub-categories which were already being used.

The world economic depression of 1929-32 combined with the lack of protection from foreign products had a severe effect on Britain’s farmers, ultimately prompting a resumption of state interventions that included a variety of new support and marketing measures which were introduced between 1931 and 1934. The Great Depression had been heralded by a new fall in cereals, and brought about considerable changes in the structure of British agriculture. Perren has it that “Milk, cattle, pigs, poultry and eggs, were, in that order, the most important sources of farm income and probably of farm profits too.” The value of milk production was reflected both in the number of producers and the instigation of milk marketing schemes, the latter embodying a new corporatist form of relation between producers and the state. A new primary division between dairy and beef cattle categories was introduced for the 1933 census (thus duplicating each of the items and categories which had previously been included). In effect it could be said that beef and dairy production were now being identified as two distinct and specialist economic enterprises; moreover, in so far as cattle were not to be

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207 Perren claims that by the autumn of 1938 there are around 110,000 milk producers registered with the Milk Marketing Boards (which furthermore did not operate in Northern Ireland or all of Scotland); by comparison the number of British farmers registered as wheat growers was 76,650. See Perren *Agriculture in Depression 1870-1940*, p. 49. Under the version of the Milk Marketing Board scheme that did operate in Scotland, a pricing policy was devised in which prices for Scottish-produced milk were to be fixed with milk distributors and the proceeds collected from purchasers, while each month a specially created marketing board distributed the proceeds amongst milk producers less the cost of administration. In Smith’s view, the prior approval of a sister scheme in England, by English farmers, may have swayed Scottish dairy farmers to follow suit. J. H. Smith, *Cheesemaking in Scotland: A History*, (1995), pp. 83-84.

208 Accompanying this was the instruction that cattle included in the dairy figures were not to be entered a second time in the beef section. NAS, AF40/22/6 Parish Summary, 1933 Census.
double-counted under both of the aforementioned census divisions, they were enterprises which were treated as being quite separate from one another (see Appendix F).

The enumeration of Scottish cattle reached its acme during the 1939-45 war, at least in terms of the number of census categories. The war had brought a new national food emergency to Britain as a whole, the response to which was a much more comprehensive (and as it turned out, long-lasting) set of domestic production policies.\footnote{Short et al. point out that going into the war the UK was still dependent on imports for 70 percent of its food supplies. Short et al., The National Farm Survey, 1941-1943, p. 19.} New information were required to plan and implement the policies, therefore serving to strengthen the accumulation of the state’s knowledge about a variety of farming resources and conditions. The Scottish census conducted in 1941 included 107 categories overall, including no less than 22 separate categories into which individual cattle were to be classed (Figure 5.5). The dairy cattle and beef cattle groupings created for the 1933 census continued to be used, in addition to which there were now two other new sets of categories—one set for counting the numbers of bulls being used or reared for service, and the other for counting calves for rearing (i.e., which would be kept) as opposed to those destined for slaughter.

The precise reasons for these categories require further investigation, although two factors—output levels of meat and dairy products, and the need to ration livestock feed supplies—must have been key. In the most fundamental sense, however, the level of detail at which counts were being recorded indicates how cattle were being statistically constructed as a kind of national “population,” and moreover that the management of this population was built on observing the sexual and age characteristics of individual
Figure 5.5: Cattle categories from the 1941 census return. Copied above is the relevant section of the original census questionnaire (see also Appendix G); overleaf, the diagram shows the heightened statistical dissection of the lives of cattle in starker terms.
Figure 5.5: (continued).
animals. This relationship between detailed observation of the individual and the management of the population as a whole is close to Foucault’s conception of the development of “biopower” over human populations, involving, as Hannah summarized it, “the regulation of individual bodies with large-scale regulation of the ‘social body’ through discourses of expertise regarding sexuality.” In the present case, the categories on cattle included in the agricultural censuses served to pigeon-hole the lives of individual animals according to their use, age, gender/maternal status, and fecundity. In so doing they also served in another crucial capacity—namely, in translating biological characteristics and relationships into economic terms. Through the development of census categorizations, in other words, cattle were becoming seen far less as animals per se than as products (and inputs) in specialized production systems.

5.4 Chapter summary

As Scottish cattle farming has modernized, then, so an impetus to categorize it has been motivated by a series of national “scare” stoked by concerns over the security, quality and safety of the nation’s food supplies; contemporary problems like the 2001 Foot and Mouth epidemic are simply the latest in the line. In tandem with ambitions to “know the nation” through statistics, such concerns have in turn affected the ways in which statistical surveys have been performed, and also the extent to which those surveys could be promoted and accepted as being necessary. Having said this, there has also always remained some level of opposition. Such was the case at the time of the 1939-45

210 Hannah, Governmentality and the Mastery of Territory, p. 19.
war, in spite of the effectiveness of the state’s wartime policies in pulling British farming from its pre-war state of depression. Furthermore, as I move on to cover in the next chapter, farming’s post-war modernization created new needs for, and new politics in, national agricultural statistics.

\[211\] With regard to the 1941 census, Short {et al.} note for example that some farmers in England were deliberately returning higher figures of dairy cows in order to qualify for higher allotments of feed; furthermore, as many of sixty percent of returns were estimated to have been defective in respect of new (hence unfamiliar) questions which were included as part of the wartime National Farm Survey. Short {et al.}, *The National Farm Survey, 1941-1943*, pp. 95-97.
Chapter 6

STATE AGRICULTURAL STATISTICS, PART 2:
MANAGING FARMING’S ECONOMIC IDENTITY

6.1 Introduction: managerial liberalism and census-based typologies

Much of the discussion in the preceding empirical chapters has been concerned
the social relations necessary to develop statistical surveys of Scottish farming, and, in
addition, with how statistical categorizations have served to instill order over ways of
thinking about what farming is. In the present chapter, the focus lies in connecting these
politics—those having to do with how statistics are produced—with the broader politics
of statistical knowledge in governing modern liberal democracies. In the abstract, the
production of statistics itself amounts to the moment, or phase, of “observation,” in
addition to which two further phases of governing activity are also involved. The phase
which observation leads on to then concerns ways of using statistical knowledge—using
it so as to make judgments which serve to (further) normalize particular understandings
of the subjects being enumerated. Judgment is not the same as regulation, however.
Instead, the phase of regulation addresses the governing processes and programs that
states are involved in, to maintain order over “their” populations and territories. These
processes and programs include positive inducements (typically manifested in rights of
access to, and levels of government funds for, supporting particular activities and plans)
as well as an array of penalties (fines, loss of funding and so on) which are calculated to further instill views of what is “right and proper.”\textsuperscript{212} Together these three phases of observing, judging and regulating provide a theoretical basis helping to assess how knowledge derived from the performance of national scale surveys is linked into broader cycles of social control in modern liberal democracies.

In a temporal sense the chapter examines the changes to national agricultural governance which were precipitated by Britain’s involvement in the Second World War. The war had the effect of considerably strengthening the integration of statistical knowledge into policy-making; the agricultural censuses in particular were to become a crucial means for enabling government committees to take stock on the agricultural resources across the country, and to judge how those resources could best be mobilized to increase levels of homegrown food supplies. This usage of statistics in effect enabled the diversity in British farming to be subsumed within a “national farm”—a term used by Murdoch and Ward, to signify the extent to which the assessments and projections which were made possible by the censuses (and other statistics) were being used to specify production targets on the ground; as Coppock also pointed out, this closer relationship “worked” to the extent that farming was transformed out of its pre-wartime condition, in which “fields and buildings had been neglected, and many farmers had lost heart.”\textsuperscript{213} The relations between the state and farmers which were forged during the war dominated in the decades that followed, throughout which the maximization of food output through increased levels of productivity and economies of scale remained the key priorities. They

\textsuperscript{212} Hannah, \textit{Governmentality and the Mastery of Territory}, pp. 113-117.
have been classed as an example of “managerial” liberalism, the state having continued to assume a lead responsibility for farming’s development by way of a range of subsidies and other financial controls, supports and other regulations.214

Developments in statistically-based farming “typologies” after the Second World War provide a particular focus of analysis in the following section of this chapter—typologies being an archetypal means for the formation of governing judgments, allowing large volumes of “raw” statistical data to be collapsed (re-arranged) into a small number of classes. Specific attention is paid to the attempts to define Scottish sheep farming as one such “type” of farming—in other words as its own specialized sub-sector, separated from other types of farming and which could be managed via a specific set of production policies. The point made clear however is that the actual integration of tasks associated with observing and judging is not as simple as a theoretical treatise of “knowledge/power relationships” might imply.

6.2 Birth of a problem

[T]he whole country must recognize that agriculture is one of our most important basic industries and that the nation’s well-being will henceforth depend, perhaps unknown for centuries, on the output of our agriculture. Now, no less than in the hard days of the War, must agriculture make an important contribution to the nation’s prosperity. … We must bring home to the individual farmer a realization of the country’s extremely urgent and serious food position. There are too many farmers who fail to make the best use of their land. They do not plough or sow soon enough nor spread their manure properly; they are indifferent about wastage from vermin and uncut weeds; they are careless about seed and their stock are ill-herded.

Their costs of production are too high—a factor that must be closely watched.²¹⁵

Such was the government’s reproof to British farmers going into the winter of 1952. Just as with its earlier contribution to the war effort, agriculture was expected to play a key role in national economic development. In the quest for cheap food and exportable surpluses (the latter to be traded against a balance of payments deficit), maximizing output and increased efficiencies remained paramount. New policy initiatives thus only reinforced existing issues in the practical exercise of power; the actions of tens of thousands of farmers still had to be “managed.” With the imminent threat of food shortages receding, however, farmland which had been diverted into crops for direct human consumption could once again be put to other purposes. Increasing livestock output was once again merited. More generally, regulating on “best use” relied on sorting farming by clearly defined specialist types.

In the case of hill sheep farming, problems existed right from the beginning. Armies may march on their stomachs, but neither mutton nor lamb was deemed as being a key ration (either for the troops, or for the home civilian population). Home output of meat, milk and eggs had all declined during the war. Census figures indicate that though the drop in sheep production may not have been the most severe overall, the reductions were sizeable; in the Scottish census of June 1942, for example, the total number of sheep reported was down nearly 15 percent on the corresponding 1939 total of just over 8 million animals. The number of breeding ewes alone was down by nearly 12 percent

from the 3,412,329 reported in 1939, and had decreased by a further 3 percent by 1943. The greatest proportionate decrease was in the number of lambs less than a year old, which from the 1939 total of 3,541,764 had decreased by one-fifth by 1942. By 1945 it was lower still, at 2,755,890 (Figure 6.1).

The reductions in *hill* sheep production were in fact part of a longer trend, as consumer tastes changed from eating the mutton they could produce to a preference for lamb produced in the lowlands. The low prices obtained for mutton from hill sheep farms was intensified after 1930, shown by low standards and lack of investment in housing and equipment. By the end of the war, it was therefore not surprising that Scottish hill sheep farming was deemed as being “in a depressed economic condition particularly when compared with other branches of farming.”

**Figure 6.1:** (next page). Livestock on agricultural holdings during the Second World War (overleaf). The top two graphs give numbers (expressed as ‘000 head of livestock) for the UK as a whole and are derived from figures in Murray’s summary. The bottom graph gives the numbers of sheep for Scotland only, produced from wartime census figures (Sources: K. A. H. Murray, *Agriculture. History of the Second World War, United Kingdom Civil Series* (1955), p. 373 (Appendix Table IV), as cited in Short et al., *The National Farm Survey*, p. 36. Department of Agriculture and Fisheries for Scotland, ‘Abstract of Agricultural Statistics for Scotland, June 1936/38–1972.’)

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216 As the term suggests hill sheep farming takes place on higher ground, typically above 1,500 feet—therefore over a large part of the Scottish Highlands. Production involves extensive grazing, with grazing densities as low as one to four animals per hectare depending on the quality of the vegetation. The generally poor quality of this vegetation affects fertility, leading to relatively low annual lambing rates. Many female lambs are retained for around four years, before being sold on to other farmers for further breeding in less harsh conditions. See National Sheep Association, ‘Educational Support’, http://www.nationalsheep.org.uk/education/Chapter_03.pdf>, accessed 26th May 2004.


218 In notes on Hill Farming Improvement Schemes, September 1948. NAS, AF80/1/2 Conferences of Scottish Agricultural Economists, 1945-1950.
Figure 6.1: Livestock on agricultural holdings during the Second World War (caption on previous page.)
conclusion stood as a reversal of the earlier views of Sinclair, who had extolled the virtues of “hardy sheep” as a way to advance agricultural improvements beyond the lowlands of Scotland over the greater part of the country”\(^{219}\).

Departmental documents from the early post-war years, including notes, minutes and letters, all illustrate the formation of a new *numerically*-based form of administration at this time. One of the ways in which those administrations had begun was with the 1946 Hill Farming Act—a piece of legislation which provided for grants to those landowners and farmers who committed to undertake comprehensive “rehabilitation plans” for their farms. If approved, each plan could receive a grant worth 50 percent of total costs, subject to a maximum of £4 million for the UK as a whole over a five year period. Application records indicate that the scheme appears to have been more enthusiastically embraced in Scotland, at least in its early days.\(^{220}\) More significantly, a definition of which hill sheep farms were to be improved was based on numerical size criteria. Smaller farms and crofts having flock sizes of less than 200 sheep were deemed not just small but “clearly uneconomic,” not just unsuitable but ineligible for the scheme. Furthermore, insofar as the funds provided could be used to expand sheep numbers, specific targets were also being set.\(^{221}\) The result was that only 18 percent of the 16,613

\(^{219}\) Sinclair, *Analysis of the Statistical Account of Scotland*, vol. 1, p. 82.

\(^{220}\) Drawn from correspondence between a Ministry of Agriculture official to another in the Department of Agriculture for Scotland. In the letter it is noted that in Scotland grant uptakes had then surpassed £1 million, while in England they had reached only £450,000. See NAS, AF80/51 Hill Farming Act, 1946, 1947-1948.

\(^{221}\) Based on a list of examples of “typical” and “problem” applicants contained in the notes of one government scheme inspector. One applicant is recorded as aiming to increase on number of breeding ewes as far as possible over and above the between 1,500 and 1,600 such animals which he already possessed. In the inspector’s view, an increase to 2,000 was reasonable without deteriorating present high quality of sheep stock. NAS, AF80/5/1 Hill Farming Act, 1946, 1947-1948.
farms and crofts which were classed eligible for hill sheep subsidies were now deemed large enough to merit an improvement grant. Furthermore, as the following statement indicates, there was an expectation that policy interventions could fulfill multiple objectives:

> the general interest, as well as the farming interest, requires that evidence should be produced of as firm and conclusive character as possible showing the return on this investment in terms of increased food production for the nation, increased income earning capacity for the farmer and possibly also some evidence of the wider social benefits to hill farming communities.

These were the circumstances in which recourses to agricultural statistics and statistical analyses also became increasingly important. Instructions for a 1947 “economic classification of farming types” provide an idea of how statistics from the agricultural censuses were to be processed to help support the targeting of interventions. In these instructions, it was asserted that individual census returns for June 1947 were to be the primary data source for the classification, and from which it should be almost entirely possible to classify every farm holding into 24 different so-called “farming types” (Figure 6.2). A series of stages was set out, beginning with dividing out “other holdings” from “farms,” followed by the division of the latter into “spare-time,” part-time and full-time farms. In this latter stage, decisions were to be aided by estimating the number of “man hours” required to work each holding derived according to a schedule of

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222 ‘Analysis of Hill Sheep Farms in Scotland for which Improvement Schemes have been received.’ NAS, AF80/5/1 Hill Farming Act, 1946, 1947-1948.

223 This is contained in a note on the Hill Farming Improvement Scheme, for discussion at a conference on agricultural economics held in September 1948. In NAS, AF80/1/2 Conferences of Scottish Advisory Economists, 1945-1950.
Figure 6.2: Excerpts from the 1947 farm-type classification guidelines. The top section shows the list of types by which farming was to be exhaustively classified. (Type labels have been re-entered in a different font on the right hand side, owing to the poor quality of the scanned image.) The bottom section shows the criteria by which the “Hill Sheep Farm” type was to be classified. Overleaf, a list of standardized unit labor requirements used in deriving different classes is also given. (Source: NAS, AF80/14 Hill Lands (North of Scotland) Commission and Advisory Panel on Highlands and Islands: Statistics, 1947-1968.)
standardized average unit labor requirements per acre or head of output (Figure 6.2—
tables above). Using these values, a full-time farm was defined as having an estimated
requirement of 2,400 man hours per annum (eight and a half hours per day, for five and a
half days per week, for 50 weeks a year). Equally, this full-time threshold was important
for defining farms less than full-time; for example, a spare-time farm was identified as
one requiring up to but no more than one quarter of the labor time (i.e., 600 man hours)
of a full-time farm.

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224 Note too that these coefficients were defined not by the Scottish Department of Agriculture and instead by the Ministry of Agriculture in London.
The final step in the 1947 classification procedure involved assigning each full-time farm to one of fifteen specialist types. (No further classification of part-time and spare-time farms was to be performed; in other words the expectation was that full-time farms had to be economically specialized, whereas the same was not expected of smaller farms). In the list of type descriptions (also supplied with the 1947 instructions), the “typical” hill sheep farm was defined as having “at least 400 ewes,” but “not more than 20 cattle of all ages per 100 ewes” with in addition “about 95 percent” of its area under rough grazing or permanent grass. Through this combination of statistically-based thresholds a simplified definition of a hill sheep farm was thus brought into being with the intention that it would assist subsequent policy-making.

The processes involved defining types of farming effectively also meant that attention was diverted from the specific circumstances of individual farms towards analyzing the overall farming sector. Evidence of this changed emphasis is contained in a subsequent exchange of letters between government officials in England and Scotland in the mid 1960s. In the first of those letters one official in London expresses his concern over the errors involved with using standard man days as a basis for distinguishing full-time and part-time farms; when the reply came from his correspondent in Scotland it noted that “no doubt some individual farms would be placed on the wrong side of the dividing line, but we are, I think, concerned not with individual farms but with the aggregated numbers and output of full and part-time farms.”

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225 From copies of letters which were written in October 1966. See NAS, AF80/20, Interdepartmental Liaison on Statistical Questions: Committee on Agricultural Censuses and Related Statistics, 1966-1968.
This exchange of opinion stemmed from the fact that the typology which the Scottish department of agricultural was following was, as was also the case with Northern Ireland, somewhat different from the system used in England and Wales. In 1966 a new joint study was embarked on with the goal of creating a single schema for the entire UK. Initially it was estimated that the study would require two year’s worth of work; subsequently, this turned out to be woefully wide of the mark. The classification of hill farming seems to have been one of the reasons why deliberations proved to be more protracted than had been originally anticipated. By a meeting in 1972 it was suggested that “hill and upland beef and sheep farms” should be classed one of six main types of UK farming. However the issue remaining was how to define this type, which was providing difficult based on census returns alone. An alternative approach which was suggested was to make a “once and for all” delineation of hill land (in effect using the same basis which had previously been used to judge eligibility for hill livestock subsidies). Again though there were problems, on the one hand because some farmers had qualified for the subsidies even if just part of their farm was on hill land, and on the other hand because those renting hill land were also eligible for subsides. By itself then, the proposal to use hill land as the main criterion approach did not lead to a clear distinction of hill farms. The approach subsequently agreed on involved treating hill farms as a “sub-type” of a principal “beef cattle and sheep” category; the problems were


\[227\] This is recorded in the minutes from this meeting. In NAS, AF80/23 Interdepartmental Liaison on Statistical Questions: Committee on Agricultural Censuses and Related Statistics, 1971-1973.
in other words not resolved, but they could now at least be “confined” within one single type where they stood to pose less danger to the integrity of the overall classification.\textsuperscript{228}

There were also other ways in which the real circumstances of farming continued to confound the clarity of statistical-based classifications. For instance, just as soon as the hill farm issue had been addressed, attention was being returned to the problem of classifying full-time farms with reference to standardized labor requirements, by then referred to as “standard man days” (SMDs). A primary reason for using SMDs was to circumvent the problems of judging economic activity based on simple physical measurements of land acreages and livestock numbers. Having said this, the calculation of SMD requirements itself assumed that each individual farm could be assessed its one or more constituent practices (the individual SMD estimates for which could then be summed together to give an overall farm total. This was problematic because the labor requirements of different productive activities were in turn affected by new methods and technologies of production. As Britton and Hill observed, it was rather the case that:

> techniques of production change with time, generally requiring a smaller labour force, so it is expected that the periodic revisions of national smd’s (sic), which are undertaken to keep them in line with actual average labour requirements, should normally be downwards;

from this it followed that

> Smd’s can only be used to make size-of-business comparisons between different time periods if standard labour requirements remain constant.\textsuperscript{229}

\begin{footnotesize}
\begin{enumerate}
\item This is recorded in draft minutes of the thirteenth meeting of a Committee on Agricultural Censuses and Related Statistics, held in October 1972. In NAS, AF80/23 Interdepartmental Liaison on Statistical Questions.
\item D. K. Britton and B. Hill, \textit{Size and Efficiency in Farming} (1975), p. 18. By the time they were writing the SMD coefficients had been revised such that one SMD represented eight hours of manual work
\end{enumerate}
\end{footnotesize}
These difficulties also affected uses of SMD thresholds for defining full-time farms. In the early 1970s the English department of agriculture attempted to record annual changes in the number of full-time farms above and below a 275 SMD threshold. The changes thus measured were additionally sub-divided into “significant” and “non-significant” changes of greater or less than 50 SMDs respectively. When however these same thresholds were applied to the number of Scottish farms between 1968 and 1971, it was found that changes recorded for one year were often reversed in subsequent years. Furthermore, longer term monitoring of the changes to individual holdings was then still beyond the capabilities of existing data processing systems.230

To conclude this section it was finally worth reminding ourselves that a (if not the) major goal of all of this activity was to allocate each farm to one—and only one—specialist type of farming. In this respect there were also differences in approach between Scotland and elsewhere in the UK. In the department of agriculture for England and Wales, the preference was to use a 50 percent SMD threshold—i.e., to decide the type of a farm based on whichever of the farm’s constituent livestock or crop “enterprises” required 50 percent or more of the farms overall estimated labor requirement. By the same token, those farms in which “per enterprise” SMD requirements were more evenly divided (no single enterprise having SMD requirements as high as 50 percent) were to be assigned to a non-specialist “mixed” type. Officials in the Scotland department preferred a method based simply on the single largest enterprise, for an adult male under average conditions—a decrease by a half hour compared to the standard as adopted in the 1947 Scottish classification discussed earlier in the text.

230 This is discussed in a memo written in 1971, on changes in numbers of full-time farms and changes in occupancy. In NAS, AF80/23 Interdepartmental Liaison on Statistical Questions.
irrespective of the actual percentage SMD requirement. Their concern was that the application of the 50 percent threshold in Scotland would have left an extremely small number of farms (around 800) in the “mixed farming” type—and in any event, many of those farms in that situation were judged as having upwards of 40 cent of their SMD’s in their main enterprise.\textsuperscript{231} In other words the view in Scotland was that farms below the threshold that was being applied in England bore more resemblance to those near the threshold than to each other.

### 6.3 Assembling the “European farm”

In summary so far, statistical typing of Scottish farms was certainly part of the determination of the British state to turn over decision-making regarding agricultural development to its own experts. However, the transition to this new mode of government was not unique to Britain. The same sequence of relatively recent events—the pre-war depression followed by wartime disruption, food shortages and balance-of-payments problems—were felt also in other western nations, including the six which were to form the European Economic Community (EEC—the European Union’s predecessor). While the precise shape of an agricultural policy for the EEC was the subject of a good deal of debate, the requirement for “Community statistics” with which to plan it was, in contrast, generally well supported. A sense of this level of support is captured in two statements:

\textsuperscript{231} Draft minutes of the thirteenth meeting of the Committee on Agricultural Censuses and Related Statistics held in October 1972. In NAS, AF80/23 Interdepartmental Liaison on Statistical Questions.
the common agricultural policy (CAP) first saw the light of day in 1962 following long negotiations between the then six Member States. ... As was to be expected, not all Member States agreed on the priority to be given to one or other of these objectives, but it was abundantly clear that proper management of the CAP required the availability of harmonised data on the structure of agricultural holdings and on actual production, plus reliable data on agricultural prices and income.232

and

From the very first survey on the structure of agricultural holdings in 1966/67, it was clear that, in order to facilitate and broaden the interpretation of results, a classification system was needed to divide holdings into uniform groups as a function of their production structure. This classification also had to make it easier to compare the various member states. ... A typology became even more necessary with the development of the Common Agricultural Policy, which often requires information on specific groups of holdings as well as simulations which need uniform groups of holdings.233

The CAP applied to British farming when the UK joined the EEC in the 1970s. In this respect it was, as Murdoch and Ward point out, it was “relatively seamless transition” in view of the extent to which statistics had already been used by the national British state.234 In a wider sense, however, the guidelines for formulating the CAP stressed that it should not amount simply to a collation of national policy approaches. Fennell sums up the balance of factors thus:

Unity of conception within a Community policy did not exclude diversification of choice and methods which were a function of the circumstances and aptitudes of the different regions—indeed on the contrary this diversity corresponded to the need for internal specialization within the Community which would promote the common market.235

Standardized and *standardizing* statistics were thus integral to the EEC’s development, in order to draw comparisons between agricultural production in different regions as well as between agriculture and other economic sectors. In these regards the requirements for statistical knowledge on agriculture was to present a new string of challenges. A notable challenge was to compare the size of farm businesses comprising the agricultural sector to other kinds of business activities making up other economic sectors. A measure often used in the latter case was based on the concept of “value added,” giving the money value of a business’s output in net terms (in other words after subtracting the costs of goods bought from other businesses). Applying the same measure to agriculture was, however, more complicated—not only because necessary data on receipts and expenses were not readily available, but also because of the deduction of “general” operating costs.\(^{236}\)

In theory, a more appropriate measure for the size of an agricultural business was that of “gross margin;” unlike the value added measure, the calculation of gross margins was based on a more precise allocation of costs to individual livestock and crop production enterprises. In reality the measure of gross margins was also frustrated by the problems of obtaining the necessary data from all farm businesses. One German research who was expert in European Community agricultural statistics remarked thus on the situation in the late 1970s:

> it has not been possible so far to record values and quantities of production results at the level of the local production unit (holding) and enterprise (by contrast with other industries). In particular, there are no available

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\(^{236}\) The problem with data availability was noted by Britton and Hill, *Size and Efficiency in Farming*, p. 16.
aggregate value figures for production, net and gross, for turnover, total wages and salaries, investment, stock changes etc, all of which are needed for the production of integrated national accounts.

Moreover, his evidential exasperation with this existing state of affairs was vented on

“a large number of small and undersized agricultural units in the Community … only partly integrated into the market economy [and also because] “interest in quantitative assessment of a farm’s operation is limited to a relatively minute group of progressive farmers.”

Later on the calculation of so-called standardized gross margins (SGMs) provided a compromise solution. As their name implies SGMs involved using “per enterprise” coefficients which were standardized for agriculture within each of the EEC’s administrative “regions.” In this way the previous problems of data access and availability could be circumvented, and analyses of farm business size could be taken in hand by state statistical experts.

As touched on previously, the full significance of official agricultural statistics concerns the extent to which they affect agricultural policies, further modifying representations of what farming is. Such connections between statistics on British farming and the CAP are investigated in the following section, again using sheep production as an example. By way of a preface, it is worth noting that price and market regulations on the production of sheep (and goat) meat were a relatively late addition to the CAP, introduced in late 1980, centered on a system of annual producer subsidies calculated against the number of eligible female animals. This so-called sheepmeat


238 Scotland was considered one of six such regions in the UK for which regionalized SGMs were computed. It was part of an overall original set of 119 for the nine Member States when the Community typology was established in 1978. Statistical Office of the European Communities, *Farm Structure: Methodology* (1986).
regime has had dramatic impacts in terms of increasing British sheep production, indeed so much so that recent appraisal concluded that “it encourages producers to keep sheep rather than produce a product that the market requires.” This conclusion serves to suggest that the “cycle” of observation, judgment and regulatory action with regard to governing sheep production has not operated seamlessly. In Britain, the actual weakness of these connections came to the fore at the time of the Foot and Mouth Disease epidemic in early 2001.

6.4 Fixing to count sheep

The CAP’s sheep meat regime was heavily influenced by the terms negotiated by the UK government when it joined the EEC. At the time, the UK government was seeking some means to continue the system for supporting sheep farmers incomes which had originated in the 1940s, in addition to the grants for land improvement and business expansion that were also available (see section 6.2). Pre-EEC subsidies were calculated as a so-called deficiency payment—in other words as an annual payment, the level of which was set with reference to profitability of hill sheep farming in the previous year. The terms reached and implemented by the EEC were very similar to the UK’s pre-


240 The English Ministry of Agriculture (being the lead UK government department of agriculture) is reported as having been “surprised” by the volume of sheep being moved within the UK in February 2001, when the first cases were being discovered; indeed, its initial estimate to the Prime Minister’s office, of a million movements, was rapidly doubled. See I. Anderson, Foot and Mouth Disease: Lessons to be Learned Inquiry Report (2002), p. 30.
existing system; indeed it could hardly be classed as “common” regime at all, in view of the relatively small numbers of producers receiving subsidies, as well as the overall value of production.\textsuperscript{241}

The European system of producer subsidies (known as the Sheep Annual Premium—SAP—paid for every qualifying ewe) has itself required analysis of an enormous amount of statistics on market prices (for different meat grades) recorded throughout the EU’s territory.\textsuperscript{242} Their net effect in the UK was as mentioned earlier—namely, to create incentives for keeping sheep rather than producing meat that was in high demand. By 1998 there were 21.3 million breeding sheep (equating to an increase of over 40 percent more than in 1980) resulting from both new producers and from existing farm businesses increasing their prior levels of production. Such increases have however raised environmental concerns over the consequences of intensified grazing (including the potentially irreversible loss of plant species and fragmentation of

\textsuperscript{241} A study of the Europe regime published in 2000 reports that sheep meat production accounted for just 3 percent by volume of meat production, and only 2 percent of the total value of EEC (now EU) agricultural production. Production has been concentrated in just four out of 15 member states, and the UK and Spain together have accounted for more than 50 percent of the total EU amount. Furthermore, per kilogram support levels for sheep meat were some 50 percent greater than those paid on beef—in part reflecting the higher operating costs that sheep producers have faced. Scottish Agricultural College, Industry Strategy Consulting, Institut National de la Recherche Agronomique and Diputación General de Aragón, An Evaluation of the Common Organisation of the Markets in the Sheep and Goat Meat Sector (2000), pp. 148-149.

\textsuperscript{242} Negotiations have involved the European Commission presenting its price proposals to the Agricultural Council of the Council of Ministers. The Commission is the EU’s main bureaucratic institution, while The Council of Ministers is its legislative body. Both are headquartered not in the UK but in mainland Europe. The annual subsidy level for qualifying sheep is calculated as the difference between a “basic price,” set by the Agricultural Council during the negotiations, and a “representative price.” As subsidy is paid against live animals, a translating mechanism (known as the “technical coefficient”) has also been required. The coefficient is the factor representing the weight of meat on an average heavy lamb throughout Europe.
Allied with the increases in subsidy support costs, the Commission agreed from 1993 onwards that limits were to be placed on the number of supported animals. In turn these limits were translated into producer quotas, specifying the number of eligible animals which individual producers could claim subsidy against in a given year. In the UK the level of these producer quotas was established with reference to numbers of animals which had been claimed against in 1991.

In foreclosing the open-ended commitment to subsidy support, quotas were then politically correct in advance of the 1994 Uruguay Round of the negotiations of the World Trade Organization (then still known as the General Agreement on Tariffs and Trade). If the European Commission’s own comments are anything to go by, however, the view from the bureaucratic center of government was more circumspect. Experience had shown the validity of earlier concerns ahead of the application of production quotas in the CAP’s dairy sector, because:

- they would be difficult to reconcile with the Community’s approach, based on free decision and internal trade; it would be almost impossible to construct such a policy without some inequity between different producers or regions of the Community; production quotas tend to fossilize the existing structure; quotas would be extremely difficult to negotiate and even more difficult to change; and consequently there is a risk that in due course there would be return to surplus production.

Such concerns signaled the increase in governing activity that was required to administer the quota system. Producers were not the only ones who had to be educated about it; officials in nation-state agricultural departments also had to be trained. In both cases,

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assigning responsibilities for new statistics and accurate recording-keeping were both an important part of this process.\textsuperscript{245}

New record-keeping checks and balances were however only part of the heightened observational requirements of the quota system; in addition, new physical, spatial conditions also had to be organized, most notably including checking the actual numbers of sheep against subsidy applications and flock records. These requirements came together in the design of a 100-day “retention period,” within which physical checks could be carried out. During this time, producers have been required to retain in their businesses the same number of qualifying ewes as was given (beforehand) in their submitted subsidy claims. The checks themselves have been the responsibility of the member state government departments, which under the laws of the scheme have been required to carry out site checks on at least 10 percent of all subsidy applications.

In the UK the starting date for the retention period has been in early February—a choice deliberately coinciding with the traditional lambing dates from January to early May during which time sheep are typically gathered in from open hillsides for closer supervision. In effect, sheep at this time are relatively “immobile” and fixed to particular places than at other times of the year, the idea being that this would make checking easier to carry out. By the same token, however, the reduction in mobility imposed by the

\textsuperscript{245} In order to claim subsidy and to assist quota checking, individual producers have been required to maintain standardized “flock records,” detailing all births, purchases, sales and other movements and transactions, all of which have been subject to random inspection. At the same time, the quota systems operated by national government departments have also been subject to audit checks. If these checks indicate that the Commission’s rules and guidance on sound financial controls have not been followed, a reduction may be made to the level of Commission funding. This penalty system is known more simply as “disallowance.” See Comptroller and Auditor General, \textit{The Sheep Annual Premium in England} (2000), p. 1.
retention period—specifically the inability to sell animals to other producers and buyers—has been a source of frustration for some producers. One was anonymously cited as saying that “A single retention period from February to May is a disadvantage to early lambing flocks (December) as cull ewes have to be retained to be sold later when many more are on the market.” Another complained that “I mainly lamb in January and have most of my cull ewes ready by the end of the retention period. It is maddening to see the Irish retention period finish just before ours, whereupon they flood the UK market.”

Similar tensions are evident in two other aspects of the quota system. First, the system implemented has permitted a degree of “quota trading,” which within certain limits has allowing producers to buy, sell, or lease quota. In effect, quota trading is another way of allowing mobility in production. Yet this notion is somewhat ill at odds with the intent of using sheep subsidies as a mode of regional assistance and in order to protect “fragile” local rural economies. In consequence, the European regulations require member state to introduce “ring-fencing” measures, preventing quotas from being moved out of so-called “sensitive zones” (six of which have been specified in the UK). Secondly and in relation to this first point, the rules of the system has also allowed considerable flexibility regarding the determination of eligibility. In addition to buying and selling quota, the rules of the scheme have granted leeway to those producers whose actual number of animals has been in deficit relative to the numbers they claimed subsidy

246 These views were aired in the survey of producer responses and attitudes. See Ashworth et al., An Economic Evaluation of the Sheepmeat Regime as Applied in the United Kingdom, pp. 66-67.
on, allowing them to make up such deficit by purchasing additional “replacement” animals. In theory the number of such “replacements” in any given year should have been small. Judging by the “disallowance” penalties (see above) applied in the UK, however, the signs are that the replacement was being used more “strategically” than this.248

Crucially, these scheme rules and regulations created new conditions and relationships which were not anticipated. A relatively innocuous example of this is the profit being made by third parties (land agents, property companies, auctions, and specialist sheep dealers), all offering their services to farmers who seek assistance in utilizing quota to their own best advantage. In early 2001, it was the unexpected coming together of several of the factors discussed above—generous quotas, the many farmers and government officials involved, and the enormous difficulties of monitoring movements of many individual sheep (not to mention their physical similarities)—which when combined with a virus that was also difficult to spot resulted in a potent combination that was to set off the epidemic of Foot and Mouth Disease.249

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248 Between 1993 and 1996 for instance, the disallowance applied to the UK government for its failure to satisfactorily police the scheme amounted to £87.3m—higher than the total for all other member countries, and more than double the £37m levied on Italy which attracted the second biggest disallowance. Comptroller and Auditor General, The Sheep Annual Premium in England (2000), p. 4.

249 The report of the government’s own inquiry into its handling of the epidemic goes on to acknowledge that a primary reason for the unanticipated level of sheep movements “discovered” when the first cases of the virus were detected was because “the Common Agricultural Policy annual premium which encourages farmers to ensure they have their full quota of sheep for the inspection period in February/March.” See I. Anderson, Foot and Mouth Disease: Lessons to be Learned Inquiry Report (2002), p. 30.
6.5 Chapter summary

The analysis in this chapter adds substance to the claim made by Murdoch and Ward—namely that “whole way of thinking about agricultural policy” had come to be based on statistical categories and statistically-founded norms. However, the cycle between phases of observing, judgment and regulation has not operated as smoothly as Murdoch and Ward imply. The growth in the production and uses of statistics and other forms of statistical observation and calculation—as in the CAP quota system—has not equated to a straightforward growth in regulatory power. Indeed the example of governing sheep production shows that the task of making farming visible for external checking remains just that—a difficult task. That this has been so owes partly to the varying tensions between the need to fix production to particular places (where it could be checked, and either approved or penalized) and the economic imperatives for mobility (in other words allowing circuits of both trade and specialization in sheep production to occur).
Chapter 7

CONCLUSIONS

7.1 Introduction

To recap, my intentions are twofold—to illustrate that studying national statistics helps understand farming changes in Scotland, and to do so primarily via an attempt to understand the spatial politics involved in the creation of those statistics. The approach taken has been part theoretical, part empirical. The choice and use of theory has been informed by other geographical studies of developments in national statistics—studies which, in turn, have sought to apply concepts from the literature on governmentality theory. In a broad sense, what those geographical studies share is a concern to contribute to understanding of power relations within “free” liberal democratic societies, at the same time seeking to avoid conflating power with the idea of single, unified powerful state. A premise providing a starting point for those geographical studies is that statistics enable states to observe populations and territories from a distance. It is only a starting point, however; of itself it gives little information about how power is exercised across space, through diverse modalities and mediated relationships, and on an ongoing basis; in other words, they tell us little about the actual and contested efforts to improve knowledge gathering by reorganizing its spatial aspects. Understanding those aspects has however been assisted by the systematization of ideas about the spatial politics in census-taking,
involving the processes of abstraction, assortment, centralization and compilation. In consequence those processes have been used to primary organizing framework for the present study. The “primary” qualifier is necessary, as the framework is by no means meant to be exhaustive. A by-product of this study has to show ways in which it could be extended.

The theoretical ideas drawn on in this study have been applied to analyze the workings of three national statistical surveys in Scotland. The *Statistical Account* in the late eighteenth century was the first national, detailed and geographically organized statistical survey of Scotland to be successfully completed. The reasons for its success are important to consider, both compared to earlier survey attempts and in terms of the extent to which the spatial politics encountered during its conducted remained the same or have changed in subsequent national statistical projects. Sinclair’s understanding of statistics meant that the results of the *Account* contain a diverse array of information, only some of which is on the local conditions of agriculture. On the other hand, the extent to which Sinclair saw regional specialization in agriculture as being integral to national development is very clear in his own attempts to analyze the information from the *Account*. The Highland and Agricultural Society surveys in the mid nineteenth century were the first national surveys which were entirely focused in collecting agricultural statistics. Why they were instigated then, and why like the *Statistical Account* they were successful—whereas other attempts, notably in England, were not—were both key reasons to include them in this study. Finally, the annual agricultural censuses dating from the latter 1860s were the first national agricultural statistics to be fully produced by state institutions and their own officials. Like both the Society surveys and the *Statistical
Account the censuses have also used the geography of parishes as a basis for organizing data collection. In addition, the volume of statistics produced from the censuses has grown considerably over time. Analyzing those changes yields new information about developments in farming itself. Moreover, the changes made to the information sought at the time of data collection and in subsequent data analyses provide information about developments in agricultural regulation.

In the following section of this Conclusion, the goal is to draw together the most important threads that have been followed in the previous chapters. To aid with this task, the theoretically determined structure used up until now is left behind for a more conventional temporally based structure, in the hope that this allows a clearer summation of continuities and changes to have occurred since the Statistical Account. The transition to the new narrative is assisted via the development of a new set of questions.

7.2 Main findings from the study

The five related questions which help in this section to marshal the main findings from the study are as follows:

1. How has territory been divided and organized geographically, for purposes of collecting national agricultural statistics?
2. What has counted as being “farming?”
3. What has been asked about farming—i.e., what questions have been posed?
4. Who has been involved in producing the statistics requested through survey-taking?
5. How have the results been geographically reported—and how has this been different from the geographical organization of conditions important in collecting the information?

Each of these questions pertains to a set of considerations which have to be addressed in the production of geographically referenced agricultural statistics. The specific range and nature of these considerations has changed over time (incidentally showing that “geographical referencing” is more than an issue primarily for contemporary digital spatial data handling technology). The above ordering of questions is adhered to in what follows; to be clear, however, this does not imply any priority or ranking.

The first question is concerned with how national territory has been divided for the purposes of organizing data collection, and it relates to what census geographers nowadays refer to as “collection geography” (to distinguish it from the “output geographies” used for reporting the aggregated statistical results). In all three surveys considered (i.e., the Account, the Society surveys, and the agricultural censuses) Scottish parish geography has been used to organize local survey-taking activities. (Indeed this was an important factor in providing the initial motivation for this study.) On the surface, it thus appears that the parishes have been one of if not the constant aspects in the development of surveys of Scottish farming over the last two centuries, still as integral to the organization of agricultural censuses today as they were in Maxwell’s planning of the Society surveys in the mid-nineteenth century, and in the organization of the Statistical Account more than a half century before that. In Chapter 3, an attempt was made to trace the production of parish geography before the Account, considering its importance in the
development of the Scottish national church and its own ambitions to know the nation. It was argued that the stability and status of the parish “grid of reference,” which Sinclair and others subsequently have exploited, were forged in ecclesiastical politics well before the *Account*.

What has changed, however, is the understanding of parish geography, which over time has been simplified considerably. Again in Chapter 3, attention was drawn to the fact it was not Sinclair’s original intention to publish the parish descriptions he was receiving from Church of Scotland ministers. It could be suggested that the reason he switched plans was not just because of the length and complexity of the information he was receiving, but also because of a revised appreciation of the parish as its own nexus of relations between social, economic and “natural” characteristics and activities, of which farming is part. Nowadays, however, the parishes are no more than a set of numerically coded blocks for dividing up the country, and likewise, the farms within each parish are each coded numerically. These joint parish-holding numeric identifiers are used not only in the official agricultural censuses, but also in the newer data systems for administrating subsidy applications as were mentioned in Chapter 6. The crux is that in providing such simplified systems of identifiers, numbers have contributed toward a “thinner” understanding of parishes and of the relations between farms and parishes. Even as statistics on farming have become more specialized, much other information about farming’s immediate socio-spatial relations has been removed.

Second, the question of what has counted as “farming” draws attention to the necessary *selectivity* of the enumeration process; in other words it has quite simply been impossible to enumerate all holdings or plots of land (let alone to enumerate them to the
same level of detail). In consequence, the process of enumeration follows and presupposes other phases of measurement—notably the processes of categorization and standardization, which impose certain limits on what to count. In the analysis of Maxwell’s survey plans in Chapters 4, as well as of the rules for defining post-war economic types of farms in Chapter 6, this study has shown that much of the concern here has been focused explicitly on the problems of setting lower boundaries—i.e., on specifying *minimum sizes* of farms and land holdings deemed worthy of counting as “proper” farming. This concern is also detectable in Sinclair’s *Analysis of the Statistical Account* discussed in Chapter 3, albeit in a somewhat different way, in reference to his lack of discussion of the subsistence cultivation of potatoes on small peasant plots.

Since then, specifying *and* maintaining a minimum size of holdings has remained a problem for government authorities, and furthermore, it is perhaps in relation to this problem that Hannah’s concept of normalizing surveillance, operating in cycles of observation, judgement and regulation, most applies. Difficulties experienced with attempts to observe holdings in a comprehensive manner have themselves prompted resolutions on what to judge and count as a minimum size of farm. As was discussed in Chapter 4, this was precisely the situation that Maxwell was in as he strove to define a “statistical population” of farms, from which a mass of smaller landholding tenants was subsequently excluded. Likewise, the modern classifications involving “economic types of farming” discussed in Chapter 6 were based on prior classifications by holding size, as was manifest in the distinction drawn between full-time farms and part-time or spare-time farms. The latter process was also dependent on the information that the agricultural censuses were providing. The analysis could be extended here, by investigating whether
the needs for information with which to define types of full-time farming influenced changes in the questions included in the censuses.

Third, the question of what has been asked about farming refers to developments in standardized questions and response categories, and the representations of farming they have supported. Here, the study has concentrated in Chapter 5 on exploiting the long run of parish summaries and questionnaires from the annual censuses, in order to shed new light on the changing importance of censuses in the extension of state authority during periods of national crisis. In addition, however, the analysis in Chapter 5 may be compared with the tabulated returns prepared earlier by Maxwell (Appendix C), and in turn the latter can be compared with Sinclair’s questions on the “productions of the parish” (Appendix A). From drawing these comparisons, one basic finding is that the range of questions about Scottish farming has not simply grown over time; in fact it decreased from the Account to the Society’s surveys, before increasing again, especially over the course of official censuses conducted in the first half of the twentieth century.

To leave matters at this would be to over-simplify considerably, for the differences between the questions asked by Sinclair and Maxwell affords knowledge about other changes in statistics. In Chapter 3 it was argued that Sinclair’s inexperience in questionnaire design—with how best to access information, and translate it into formats that can be analyzed—became a problem, which, when combined with the varied and often lengthy detailed contents of the parish descriptions he was receiving, caused him to revise his requests for information. Furthermore, that this problem arose was because his original understanding of statistics as “useful information” was not confined to information that had to be quantified. In contrast, the analysis in Chapter 4 showed
that Maxwell was much more focused on obtaining information on production and on yields, and equally it is clear that he also understood statistics as meaning precise and accurate numeric information. This understanding imposed limits on his confidence in obtaining information, and can be suggested as another reason for his decision to limit the national surveys carried out after 1853, to only holdings above the rent value thresholds that he drew, in his keenness to show that the surveys could be carried out efficiently and economically. Maxwell’s confidence was conditioned also by his deliberations of what was feasible and acceptable to ask of farmers, and similar deliberations were subsequently to become an ongoing feature of the official censuses.

The requesting of financial statistics on landholding values—in terms both of their valued rents and the values of their produce—is itself another important difference distinguishing the *Statistical Account* from the Society surveys and the official censuses. Sinclair apparently had no qualms in asking the parish ministers to provide these statistics, questions on which appear both in his initial list of queries and in his later requests for tabulated data. In contrast, Maxwell may have sought information on rents with which to set lower limits on what counted as a farm, but never once did he include requests for such information during the surveys themselves. Indeed the difficulties he encountered with his questions proved a major factor in the changes he introduced between the 1853 pilot and the first full national survey in 1854. As was discussed in Chapter 4, livestock farmers and sheep farmers especially were suspicious that the statistics they provided would be used against them to assess (rather increase) the rents they paid to their landlords. The rental value basis Maxwell applied was not continued subsequently into the official censuses, in which case limits on holdings to be counted
have been set instead based on acreage, and latterly, as mentioned in Chapter 6, via the calculation of minimum standardized labor requirements. Nor has any information on values (or expenses) been asked for directly in the censuses—a “deficiency” which, as also mentioned in Chapter 6, has led to the derivation of even more abstract statistical measures of farming, such as standardized gross margins. In sum, the questions asked in the Society surveys and later in the censuses were influenced by a quite different understanding of trust than was the case with the Account, including the definition of rights to privacy and confidentiality. This issue of trust is broached again below in relation to the next question.

That question, fourthly, is concerned with who gave information about farming, understood in a conventional sense as the survey and census respondents, although as the study has shown it also encompasses the involvement and supervision of others both in the field and also in the centers to which the statistical returns have been made. As just indicated, one change was Maxwell’s success in enrolling farmers as self-enumerators, in contrast to Sinclair’s direction of the parish ministers. This change was significant, but does not imply that the parish ministers were, as a whole, less effective observers. On the contrary, the detailed observations that many ministers provided in their replies were to alter the content—and the progress—of the Statistical Account. In Chapter 3 the content of these responses was related to the growth of Moderatism in the character of the Church of Scotland personnel in the late eighteenth century. While the descriptions Sinclair received caused him to change his original plans, it is important also to think about the problems he had to deal with subsequently, both in centralizing replies from all parishes,
and in compiling from the information the sorts of representations of Scotland he was most interested in.

Returning to the matter of trust, it is apparent that Sinclair’s concern was with establishing the ministers as local observers who could be trusted to provide authentic facts, especially from the perspective of the public audience for the *Account* that he sought to create. Having said this, he appeared to be quite unconcerned with how to *create* trust between himself and the ministers. He did not assure them of his plans for using the information they would supply or who would see it. Instead, the circulars he wrote to elicit the replies he had not yet received often had a chiding tone to them which did little to address any doubts over the latter issues which some ministers may have harbored. In consequence it is perhaps easier to understand why some ministers were much slower in meeting Sinclair’s requests. In contrast, Maxwell was far less presumptuous, and worked much harder to provide assurances to his respondents that the statistical returns they provided would not be used against them to indicate to others the rents they paid. This concern affected the information which Maxwell deemed appropriate to request, and how he strove to get it. This may help to explain why he was able to attain a much more rapid rate of response to his requests than Sinclair was able to achieve. Much the same perspective on trust has been evident in the taking of the official censuses, complicating more technically founded conceptions regarding the place of the censuses as data resource that can be shared or used by others. This point is taken up again in the next section, in regard to characterizations of the contemporary “data infrastructure.”
Finally, the fifth question turns attention to how statistical results have been reported geographically, raising the related question of who the results have been prepared for. A common finding across all three of the survey developments on which the study has focused is that the production of statistics has in turn serviced the production of representations of the nation. In Chapter 3, copies of the letters which Sinclair chose to include in the *Account* were drawn on to undertake an investigation of the intellectual audience he sought to create, including who he saw as being important figures and where they were. Many of the letters were from correspondents in other European countries (again illustrating a basic point—namely the long history of connections between national statistics and Europe.) Sinclair’s efforts to compile and project representations of the modernizing nation were also discussed in Chapter 3, focusing on his preparation of the *Analysis of the Statistical Account*. The publication of this *Analysis* was necessary in a practical sense, in order to condense the *Account* into a more portable format, and more importantly, in order to show correspondence with his own understanding of how improvement on a national scale should proceed. His invention of nine “agricultural regions” was part of this strategy.

In a sense Maxwell took the reverse course of action from Sinclair; though he created groups of parishes as survey districts for the purposes of collecting the data, his reports after the pilot in 1853 give only aggregated statistics totaled for counties. Why he chose to discontinue reporting the results for his survey districts remains a subject for further research. In a sense, however, his privileging of the national picture over reporting on local conditions was continued in the censuses, in which the production of
parish summaries has been regarded as an intermediary processing step, rather than an important end result *per se*.

Furthermore, the first two sections in Chapter 6 highlight the attempts made to use the census as a source of data for economically classifying farms, rather than as a source of locally referenced data. In relation to this line of thinking it is useful to refer back to the contemporary distinction outlined near the start of this section, between the “collection” and “output” geographies. From the continuing production of the parish summaries—and in spite of the problems Coppock highlighted with the strategy (see Chapter 1)—it is apparent that this distinction has been given much less consideration than has been the case with national population censuses. In other words, the options for producing certain local statistics from the censuses, for areas other than for parishes have by and large been overlooked. This is another reason making it more difficult to see how the censuses might be part of the contemporary data infrastructure, which is discussed in the following section.

### 7.3 Possibilities for future research

The potential to continue this study exists on two fronts. For one thing, greater exploration of archived empirical sources relating to each of the three survey developments investigated in this study could be made. For another, the contemporary context of the spatial politics of agricultural census-taking could be better elaborated, in one regard by turning attention to the positioning of the censuses as part of a broader
“data infrastructure.” Some summarizing comments on both of these possibilities are sketched out in this section.

In regard firstly to the investigation of the geography of the *Statistical Account*, it would be interesting to continue the spatial analysis in Chapter 3, to investigate why it took some of the Church of Scotland ministers so much longer than others to meet Sinclair’s requests. Thus far the analysis has considered the spatial and temporal variations in response rates at the parish scale only. In other words, no consideration has been paid to the influences on the ministers’ response rates that might have been due to their membership of, and therefore any sense of affiliation they had with, larger-scale groupings of neighboring parishes into presbyteries, and in turn of neighboring presbyteries into synods, both the latter amounting to the next highest-levels within the Church’s geographical structure of governance. A search for maps (let alone look-up tables) of the relation between parishes, presbyteries and synods would be the first step in this direction. At the same time, further investigation of other assumptions—that the queries were sent out to all ministers at the same time, and that the postal system was operating such that the ease and speed of correspondence (in both directions, between Sinclair and the ministers and vice versa) was similar over all parts of the countries—would be required.

On a rather different note, the partial survey of the public sphere for the *Account* could be extended, by posing questions about where both the volumes of the *Account* itself and of the *Analysis* were published—which printing houses took it on, in other words, and why?—and, similarly, by further investigating the places these published volumes reached, were read in, and discussed. Doing so stands to add understanding
about how well national statistical knowledge has been created, and the networks of people and places and perspectives on problems which it has been capable of integrating.

Secondly, both the Highland and Agricultural Society’s library and the UK’s national archives could be revisited to search for further material relating to the surveys that Maxwell planned and conducted, including his correspondence with his enumerators and their committees, and any other surviving notes and information on how he chose to appoint farmers to those positions, and on the basis for his strategy for grouping parishes into his survey districts. Towards this end, records about the enumerators and the committee members and the correspondence and notes made by them would be relevant also for attempting to gain greater insight into the spatial categories and relationships that Maxwell was able to instrumentalize, and to learn more about the changes he was drawn into making in scaling up his plan from the initial three county pilot into a national-scale exercise.

Thirdly, greater use could be made of vast amount of information relating to the official agricultural censuses that is archived as part of the administrative histories of British government agricultural departments. A more detailed study could be made of the conduct and use of the agricultural censuses in Scotland in the emergency circumstances of the Second World War. As mentioned in Chapters 2 and 6, Murdoch and Ward suggest that these war years were crucial ones in the political life of the agricultural censuses in England and Wales, especially in forming part of a National Farm Survey that provided knowledge on how land was being used and to supervise a nationalized food-crop production effort. A similar but “more limited” survey was conducted in
Scotland, for which an “abridged” report has been archived.\textsuperscript{250} A study of this report could be made in order to investigate the extent to which the changes in the conduct and use of the censuses in England and Wales were mirrored in Scotland.

Finally, the subject with which the current chapter began—i.e., with the problematic relationship between agricultural censuses and policy—is where this section now ends. A key message throughout this study has been that, although geographical referencing of agricultural statistics is not a new concern, the context in which it has been carried out has changed, most recently because of developments in digital information and communications technology. This has been reflected in recent years in the development of a range of projects and initiatives concerning the creation and development of national “spatial data infrastructures”—a rather blanket term which in its general form is an attempt to articulate a rationale for considering the challenges of data coordination and data sharing associated with extending and justifying more integrated, sustainable and efficient policy approaches. Implicit in this notion is the strategic importance of spatial referencing, in providing a common environment in which data gathering could be coordinated, different data sets joined up, and by so doing, more multi-dimensional views of spatial disparities and problems could be identified, mapped and managed. In the case of the UK, Haines-Young and Watkins (drawing on Coppock’s earlier use of the term) were the first ones apparently to advance the idea of a national rural spatial data infrastructure, including the agricultural censuses as “core” data sets. In effect they have endorsed the same potential Coppock saw in investigating the spatial

\textsuperscript{250} Using the terms of the official information leaflet; see The National Archives, \textit{National Farm Surveys of England and Wales, 1940-1943} (2002), p. 1.
and temporal variations in census data at local spatial scales, harnessing more recent developments in GIS to integrate them with other map and survey data.\textsuperscript{251}

There are some serious naiveties in these characterizations, however—perhaps none more so than the premise that those branches of national state bureaucracies which have traditionally had the responsibilities for national agricultural statistics remain in control of setting the terms of reference for future spatial data developments. Two cases point to the tenuous nature of this premise. First, the alignment of British agricultural censuses with European Commission statistical requirements suggests that other administrations outside the scope of national government dictate the terms of reference. Second, more recent pressures have resulted in a growing trend in confining census requests to data which are not required to be submitted or checked as part of the CAP producer subsidy system.

Though both of these changes may seem logical and in the interests of government efficiency, they have more serious implications also, because of the fact that “administrative data” and “statistics” embody different social relations and have quite different positions in the political and democratic processes. With the agricultural censuses, the purpose is to produce data that can be aggregated and consequently published. In contrast, data requirements for policy administration purposes relate to information about individual farmers that are not designed to be aggregated or released.

\textsuperscript{251} Although these researchers state they are interested in investigating a UK rural data infrastructure, their discussion is mostly limited to the state of data developments in England; correspondingly, much of their discussion about the agricultural censuses and the withdrawal of parish summaries from public inspection does not match the situation in Scotland. R. Haines-Young and C. Watkins, ‘The rural data infrastructure’, \textit{International Journal of Geographical Information Systems} (1996), pp. 34-35.
for wider usage. One of the problems with using the CAP administrative databases—which, to repeat, are stipulated in European Commission requirements—to populate census statistics is that it may alter and possibly erode the ability to produce statistics that might be more relevant to *national* socio-political debates and programs on Scottish farming and rural development. In short, there is a distinct possibility that the era of the “traditional” Scottish agricultural census is over, and the result may actually be that less and less relevant data are available for Scottish politicians, academics and other researchers to draw on. In short, the existing characterization of the rural data infrastructure stands to be appraised more critically. There is potential to use current technology to change ways of accessing and integrating census data. However, this technological potential ought not to be divorced from the data politics that dictate how the censuses are conducted, what requests they include, and the conditions governing provision and access to data they produce.

The justification for this critique extends also to the understanding of the censuses as sets of geographically referenced statistics. With the need to demonstrate that continued subsidy payments to farmers are also contributing towards sustaining local areas and local environments, it no longer makes sense for the census authorities to pretend that the census is not spatially referenced, or that continuing to produce statistical summaries for parishes—whose days as an important administrative unit have long since passed—will do. The value in producing these summaries could depreciate if the production of the statistics from administrative data continues, as described above. At the same time, the requirements for those administrative data over the last decade or so have led to the creation of detailed GIS-based databases in every EU member country. In
the case of Scotland, this has consisted of mapping and digitizing all land that has been registered under CAP schemes, resulting in a database of more than 400,000 separate agricultural fields and other rural land parcels. At the present time, this database stands as perhaps the most detailed source of digital spatial data on current rural land use and occupancy in Scotland. The irony that such information is being gathered by the Scottish Executive but may not be available towards its own land reform policy agenda is not easy to swallow.

To summarize, the effects of the dynamics in the geography of governance of future censuses could well impact the usage of the census statistics as sets of geographically referenced statistics for Scottish purposes. Conceptions of the censuses within a broader “rural spatial data infrastructure” may be an appealing metaphor in some ways, but the customary thinking with it tends to assume that traditional national statistical and mapping agencies remain the present-day dominant data authorities—a view which is no further forward than that in earlier geographical research on the censuses which assumed that the census authorities ought to be interested in census geography. Academic research does have a role to play, but in order to assess the need for changing the censuses and census geography, this research needs to engage more with examining and interpreting the laws and regulations defining the production of data as well as concepts of privacy and confidentiality. In addition, lessons could also be sought

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from existing research on using GIS to manage and construct small area geographies for population census statistics.

### 7.4 Closing comments

Stepping back now and considering why this part theoretical study of the spatial politics of agricultural statistics was embarked upon rather than a more conventional empirical statistical analysis, it is possible to distill a few basic reasons. The relationship between the production of agricultural statistics and their uses in regulating farming’s development is far from straightforward, (even in the case of official statistics). As Ray Thomas has argued, use of the term “policy making” often just disguises the part actually played by statistics in governance, while the tendency for the production of statistics to follow from—i.e. to support—policy administrations may actually make it difficult to use statistics to develop new policies. As this inclines thinking towards accepting that statistics are destined to reinforce existing policies, then so it is important to find ways to identify the critical assumptions about societal problems and conditions that are embedded in those policies. Identifying such assumptions is a step towards re-thinking—and, if need be escaping—them, as Thomas further points out. Theorizations have a role to play in helping identify those assumptions—as indeed I have attempted to substantiate throughout the course of this study.

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Ray Thomas, ‘Statistics and policy making.’
References

Materials consulted in The (UK) National Archives

British Parliamentary Papers (BPP)
BPP, ‘Returns Relating to Livestock in the United Kingdom’, 1866, LX.
BPP, ‘Return of the Total Number of Cattle, Sheep and Pigs, Returned by Occupiers of Land, and Estimated by Collecting Officers’, 1866, LIX.
BPP, ‘Report from the Select Committee of the House of Lords, Appointed to Inquire into the Best Mode of Obtaining Accurate Agricultural Statistics from all Parts of the United Kingdom’, 1854-1855, VIII.
BPP, ‘Copy of a Letter Addressed to the Board of Trade by the Secretary of the Highland and Agricultural Society of Scotland, Transmitting Abstract of Returns of the Agricultural Statistics of the Counties of Roxburgh, Haddington and Sutherland’, 1852-3, CI (917).

Other

Materials consulted in the National Archives of Scotland (NAS)

Records of the Department of Agriculture and Fisheries for Scotland
AF39 Agricultural Census, Parish Summaries, 1st Series, 1866-1911.
AF39/14/1 Parish Summary, 1866 Agricultural Census.
AF40/8/2 Parish Summary, 1919 Agricultural Census.
AF40/22/6 Parish Summary, 1933 Agricultural Census.
AF40/20/ Parish Summary, 1941 Agricultural Census.
AF42 Agricultural Census, Parish Summaries, 2nd Series.
AF80/1/2 Conferences of Scottish Advisory Economists, 1945-1950.
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Unpublished sources
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Maxwell, J. H., ‘1862’, autobiographical notes (no date).

Secondary Sources


Scottish Executive, Environment and Rural Affairs Department, Agricultural and Horticultural Census 1 June 2000 (questionnaire).


Wight, A., *Present State of Husbandry in Scotland, Extracted from Reports Made to Commissioners of the Annexed Estates and Published with their Authority* (Edinburgh, 1778).


Appendix A

Copy of Sinclair’s questions for the *Statistical Account of Scotland*

(Source: Sinclair, *Statistical Account* vol. 20, Appendices B & C.
Images from Statistical Accounts Online Service © University of Glasgow and University of Edinburgh.
The Statistical Accounts of Scotland are available online at http://edina.ac.uk/stat-acc-scot/.)
Copy of the QUESTIONS drawn up for the purpose of elucidating the Natural History and Political State of Scotland, which were inserted in the preceding letter.

QUESTIONS relating to the Geographical and Natural History of the Parish.

1. What is the ancient and modern name of the Parish?
2. What is the origin and etymology of the name?
3. In what county is it situated?
4. In what parishes is it bounded?
5. What is the extent and form of the parish?
6. What is its length and breadth?
7. By what parishes is it bounded?
8. What is the general appearance of the country? Is it flat or hilly, rocky or mountainous?
9. What is the nature of the soil? Is it fertile or barren, deep or shallow?
10. What is the nature of the air? Is it moist or dry, unhealthy or otherwise?
11. What are the most prevalent distempers and to what circumstances are they to be attributed?
12. Are there any mineral springs and in what diseases are they serviceable?
13. Are there any considerable lakes or rivers in the parish?
14. What species of fish do they produce? In what quantities? What prices do they fetch on the market? And in what manner are they in the greatest perfection?
15. Are the rivers navigable? Or might they be rendered useful in navigation?
16. Are there any navigable canals in the parish?
17. What is the extent of the coast?
18. Is the shore flat, sandy, high, or rocky?
20. What are the sea animals, plants, sponges, corals, shells, &c. are found on or near the coast?
21. Are there any remarkable sea weeds used for nourishing food, or curative to any other symptoms?
22. Is there any help? And what quantity, at an average, is annually made?
23. What are the courses of the rivers on the shores of or near the sea? And are there any rocks, coves, &c. worthy of notice?

24. Are there any light-houses, beacons, or land-marks? Or could any be erected that would be of service?
25. What are the names of the principal creeks, bays, harbours, headlands, headlands, headlands, near the coast?
26. Have there been any battles or sea-fights near the coast? And when did any remarkable events or accidents happen, which can give light to any historical facts?
27. Are there any remarkable mountains? And what are their heights?
28. Are the hills covered with heath, grass, or rocky?
29. Are there any volcanic appearances in the parish?
30. Are there any figured stones, or any having the impression of plants or animals upon them?
31. Are there any salt marine bodies, such as shells, corals, &c. or any petrified parts of animals? Or any petrifying springs or waters?
32. Are there any mineral springs, free-stone, chalk, or other stones? How are they got, and what use is made of them?
33. Are there any mines, particularly coal mines? What are they? To whom do they belong? And what do they produce?
34. Is any part of the parish liable to inundations or land floods? When did any remarkable event of that nature happen?
35. Have there been any remarkable matches done by thunder and lightning, water-spouts or whirlwinds?
36. Are there any remarkable echoes?
37. Have any remarkable phenomena been observed in the air?
38. Are there any remarkable caves or grottoes, natural or artificial?
39. What sandpits and peatbeds are there in the parish? What iniquitous wind, and at what times do they appear and disappear?
40. Is the parish remarkable for breeding any species of cattle, sheep, horses, hogs, or geese, of peculiar quality, fine, or valuable?

II. QUESTIONS relating to the Population of the Parish.

41. What was the ancient state of the population of the parish, before it can be traced?
42. What is now the amount of its population?
43. What is the number of males?
44. What of females?
45. How many farms in town?
46. What is the number of villages?
47. How are the inhabitants distributed?
48. What is the usual state of the parish?
49. What is the annual average of deaths?  
50. ---------------------------------- males?  
51. ---------------------------------- females?  
52. ---------------------------------- under 50 years of age?  
53. ---------------------------------- from 50 to 70?  
54. ---------------------------------- over 70?  
55. ---------------------------------- above 100?  
56. Are there any influences of long lives well authenticated?  
57. What may be the number of farmers and their families?  
58. ---------------------------------------------------- manufacturers?  
59. ---------------------------------------------------- householders?  
60. ---------------------------------------------------- seamen?  
61. ---------------------------------------------------- fishermen?  
62. ---------------------------------------------------- labourers?  
63. ---------------------------------------------------- household servants, male and female?  
64. ---------------------------------------------------- lodgers?  
65. ---------------------------------------------------- students at colleges and universities?  
66. ---------------------------------------------------- merchants, citizens or tradesmen?  
67. ---------------------------------------------------- farmers?  
68. ---------------------------------------------------- sailors?  
69. ---------------------------------------------------- seamen?  
70. ---------------------------------------------------- foreigners?  
71. ---------------------------------------------------- potters born in England, Ireland, or the British colonies?  

It is of peculiar importance to have the questions 48 and 49 distinctly answered, for it is generally understood, as least on the Continent, that the population of any district or country, may be known with sufficient accuracy, by multiplying the number of births by 20, or the number of deaths by 30. In Scotland, on the other hand, Mr. Wilkie, minister of Call, reports, that the number either of births or burials, if they are equal, should be multiplied by 48 or, if there is any difference, the half of the whole, both the births and the burials, should be multiplied by the exponent of an infant's life, subjected to the particular district, in order to ascertain its population. See Statistical Account, vol. III p. 252. It appears from Mr. Wilkie's calculations, that the expectation of a life in Scotland, is much greater than in England, or on the Continent.

56. What may be the number of persons born in other districts or parishes in Scotland?  
57. What may be the number of the celibate and their families?  
58. ---------------------------------- clergy?  
59. ---------------------------------- laity, and master or mistresses?  
60. What may be the number of physicians, surgeons, and apothecaries?  
61. ---------------------------------- the established church?  
62. ---------------------------------- freethinkers?  
63. ---------------------------------- episcopalians?  
64. ---------------------------------- Roman Catholics?  
65. Is the population of the parish materially different from what it was 10, or 25 years ago? and in what cases is the alteration attributed?  
66. What is the proportion between the annual births and the whole population?  
67. What is the proportion between the annual deaths and the whole population?  
68. What is the proportion between the births before and the married and widows' births?  
69. How many children does each marriage as an average produce?  
70. What may be the value of the population?  
71. Are there any inhabitants of political delinquents?  
72. Have any died from want?  
73. Have any married or deserted been committed?  
74. Have many emigrated from the parish?  
75. Have any been baked from it?  
76. Have any been obliged to leave the parish for want of employment?  
77. Are there any disabbed families?  
78. What may be the number of inhabited houses, and the number of persons at an average to each inhabited house?  

III. Questions respecting the Productions of the Parish.

204. What kinds of vegetables, fruits, and trees, does the parish produce?
205. What kind of meadows?
206. When an average is supposed to be the number of cattle, sheep, horses, hogs, and geese, in the district?
207. Is there any map of the parish?
208. Is there the number of acres in it?
196. How many acres at an average may be employed in raising corn, hay, etc.?  
197. What number of seeds up each of these separately, as wheat, barley,  
rye, oats, potatoes, turnip, cabbage, etc.?  
198. How many acres of land is occupied in raising hemp or flax?  
199. How many in swine or industrial grafts?  
200. How many in pasture?  
201. When do they in general sow and reap their different crops?  
202. What quantity of grain may be sown or in common?  
203. What in woods, forests, meadows, lakes, and rivers?  
204. Is there any chalk, marl, calcareous earth, potassium earth, clays, &c.?  
205. Are there any mineral, magnetic, or other substances of that nature  
found in the soil?  

IV. MEASUREMENTS QUESTIONS.  
206. Has the parish any peculiar advantages or disadvantages?  
207. What language is principally spoken in it?  
208. From what language do the names of places in the parish seem to be  
derived?  
209. What are the most remarkable instances of such derivations?  
210. What may the land rent of the parish be?  
211. What the rest of hostels, libraries, &c.?  
212. What is the value of the living, including the glebe &c., as the  
priest?  
213. Who is now minister of the parish?  
214. How long has he been settled in it?  
215. What are the names of his predecessors as far back as they can  
be traced, and the time they respectively held their offices?  
216. If the rector is an alliector, a widower, or single?  
217. If with a family, how many souls, and how many dependents?  
218. When were the church and the mate built or repaired?  
219. What is the number of houses, or buildings of landed property in  
the parish?  
220. How many of these reside in it?  
221. What is the number of the poor in the parish according also?  
222. What is the annual sum of contributions for their relief, and the  
produce of sales, legacies, or of any other fund dedicated for that purpose?  
223. What are the present or ancient prices of provisions, beef, veal,  
mutton, game, pigs, geese, ducks, chickens, calves, horses, chestnuts, wheat, barley, oats, &c.?
The following questions were enclosed with Sinclair’s second letter to the ministers in January 1791.

1. What is the state of the schools in the parish; the salary and proportions of the schoolmaster and the number of his scholars?
2. What is the number of children, just, &c., and what effect have they on the health of the parish?
3. What is the number of new houses or cottages which have been built within this two years past; and how many old ones have been pulled down, or have become uninhabitable?
4. What has been the effect of employing cottagers in agriculture, or of working up, dressed farmers in their farm?
5. What has been the number of prefugues in any jail in the district, or in the course of the year 1780; and to what cause were they imprisoned?

Tables of births, marriages, and deaths, kept in any particular parish, would be very desirable. Note also the information respecting all points connected with the population of the country, in its accounts and statistics.
Appendix B

Copy of Sinclair’s updated tables

(Source: Sinclair, *Statistical Account* vol. 20, Appendix D.
Images from Statistical Accounts Online Service © University of Glasgow and University of Edinburgh.
The Statistical Accounts of Scotland are available online at http://edina.ac.uk/stat-acc-scot/)
### STATISTICAL TABLE of the Parish of

**Number of Roman Catholics.**
1. Populated.
2. Male born out of the parish.
3. Female born.
4. Protestant births.
5. Roman Catholic births.
6. Roman Catholic deaths.
7. Protestant deaths.
8. Roman Catholic marriages.
10. Roman Catholic burials.
11. Protestant burials.

**Number of Male born farmers.**
1. Female born.
2. Died of disease.
3. Died of misadventure.
4. Died of accident.
5. Died in the Army.
6. Died in the Navy.
7. Died in the Hospital.
8. Died of age.

**Value of Stock.**
1. Number of sheep.
2. Number of oxen.
3. Number of horses.
4. Number of hogs.
5. Total value of stock.

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**Notes:**
- Populated: All persons, including visitors.
- Number of sheep: Includes both domestic and wild.
- Number of oxen: Includes both domestic and wild.
- Number of horses: Includes both domestic and wild.
- Number of hogs: Includes both domestic and wild.
- Value of stock: Sum of all livestock values.
### ANNUAL PRODUCE

<table>
<thead>
<tr>
<th>Crop</th>
<th>Number of Acres under each</th>
<th>Produce per Acre Bolls</th>
<th>Price per Boll L. S. D.</th>
<th>Total Price per Acre L. S. D.</th>
<th>Total Produce Bolls</th>
<th>Total Value L. S. D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oats</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Barley</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>黑恶</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beans</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Peas</td>
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<tr>
<td>Potatoes</td>
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<tr>
<td>Flax</td>
<td></td>
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<tr>
<td>Turnips</td>
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<tr>
<td>Meadow hay, or</td>
<td>STONES PER STONE.</td>
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<td></td>
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<tr>
<td>natural grass</td>
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<td></td>
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<tr>
<td>Sown grass</td>
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</tr>
<tr>
<td>Straw at</td>
<td></td>
<td></td>
<td></td>
<td>per bushel of corn.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fodder at</td>
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<td></td>
<td></td>
<td>per load; and</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>per sheep</td>
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<td></td>
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<tr>
<td>Annual produce of Gardens</td>
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<td></td>
<td></td>
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<td>Orchard</td>
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<tr>
<td>Woods and Plantations</td>
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<td></td>
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<tr>
<td>Pastures</td>
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<tr>
<td>Mines</td>
<td></td>
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</tr>
</tbody>
</table>

**Total Value of Annual Produce:**

For other particulars, reference must be had either to the Quota, formerly printed, in Appendix D, or to the Actuary, referred to in the First Volume of the Statistical Account of Scotland. Though many facts may often be shortly stated in the form of a table, yet they may often require a number of explanatory observations, which may be best at the same time.
Appendix C

Copy of tables from Highland and Agricultural Society’s survey of 1853

(Source: BPP, ‘Copy of a Letter Addressed to the Board of Trade by the Secretary of the Highland and Agricultural Society of Scotland, Transmitting an Abstract of Returns of the Agricultural Statistics of the Counties of Roxburgh, Haddington and Sutherland’, 1852-3, CI (917).)
## ABSTRACT of RETURNS of the AGRICULTURAL -

### Districts:
- No. 1. Pensions of Dalkeith, Newbattle, Hermitage, Hermitage, and Southfield
- No. 2. Dalkeith, Newbattle, Hermitage, Hermitage, and Southfield
- No. 3. Dalkeith, Newbattle, Hermitage, Hermitage, and Southfield
- No. 4. Dalkeith, Newbattle, Hermitage, Hermitage, and Southfield
- No. 5. Dalkeith, Newbattle, Hermitage, Hermitage, and Southfield
- No. 6. Dalkeith, Newbattle, Hermitage, Hermitage, and Southfield
- No. 7. Dalkeith, Newbattle, Hermitage, Hermitage, and Southfield

### Imperial Acres:
<table>
<thead>
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<th>Total Acres</th>
<th>Wheat</th>
<th>Barley</th>
<th>Oats</th>
<th>Rape and Peas</th>
<th>Turnips, Daucus, Potatoes, Man-</th>
<th>Cultivated</th>
<th>Uncultivated</th>
</tr>
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<td>55,790</td>
<td>51,904</td>
<td>7,072</td>
<td>3,100</td>
<td>103</td>
<td>456</td>
<td>379</td>
<td>3,363</td>
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</table>

## ABSTRACT of RETURNS of the AGRICULTURAL -

### Districts:
- No. 1. Pensions of Dalkeith, Newbattle, Hermitage, Hermitage, and Southfield
- No. 2. Dalkeith, Newbattle, Hermitage, Hermitage, and Southfield
- No. 3. Dalkeith, Newbattle, Hermitage, Hermitage, and Southfield
- No. 4. Dalkeith, Newbattle, Hermitage, Hermitage, and Southfield
- No. 5. Dalkeith, Newbattle, Hermitage, Hermitage, and Southfield
- No. 6. Dalkeith, Newbattle, Hermitage, Hermitage, and Southfield
- No. 7. Dalkeith, Newbattle, Hermitage, Hermitage, and Southfield

### Imperial Acres:
<table>
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<th>Total Acres</th>
<th>Wheat</th>
<th>Barley</th>
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<td>3,100</td>
<td>103</td>
<td>456</td>
<td>379</td>
<td>3,363</td>
</tr>
</tbody>
</table>
## III. ABSTRACT OF RETURNS OF THE AGRICULTURAL SITUATION

### Districts

#### No. 1. Parishes of Angus, Edzellshillie, and Western Portion of Dunsinane

<table>
<thead>
<tr>
<th>Imperial Acres.</th>
<th>Number of Acres under Different Kinds of Crop.</th>
<th>Amount of Stock.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### No. 2

<table>
<thead>
<tr>
<th>Imperial Acres.</th>
<th>Number of Acres under Different Kinds of Crop.</th>
<th>Amount of Stock.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### No. 3

<table>
<thead>
<tr>
<th>Imperial Acres.</th>
<th>Number of Acres under Different Kinds of Crop.</th>
<th>Amount of Stock.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### No. 4

<table>
<thead>
<tr>
<th>Imperial Acres.</th>
<th>Number of Acres under Different Kinds of Crop.</th>
<th>Amount of Stock.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## IV. ABSTRACT OF RETURNS OF THE AGRICULTURAL SITUATION IN THE COUNTIES

### Counties

<table>
<thead>
<tr>
<th>County</th>
<th>Number of Acres under Different Kinds of Crop.</th>
<th>Amount of Stock.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Appendix I

#### ABSTRACT OF THE AGRICULTURAL SITUATION OF 1861

### Districts

#### No. 1. Parishes of Angus, Edzellshillie, and Western Portion of Dunsinane

<table>
<thead>
<tr>
<th>Number of Acres.</th>
<th>Number of Acres under Different Kinds of Crop.</th>
<th>Amount of Stock.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### No. 2

<table>
<thead>
<tr>
<th>Number of Acres.</th>
<th>Number of Acres under Different Kinds of Crop.</th>
<th>Amount of Stock.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### No. 3

<table>
<thead>
<tr>
<th>Number of Acres.</th>
<th>Number of Acres under Different Kinds of Crop.</th>
<th>Amount of Stock.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### No. 4

<table>
<thead>
<tr>
<th>Number of Acres.</th>
<th>Number of Acres under Different Kinds of Crop.</th>
<th>Amount of Stock.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Appendix II

#### AGRICULTURAL SITUATION OF 1862

### Counties

<table>
<thead>
<tr>
<th>County</th>
<th>Number of Acres under Different Kinds of Crop.</th>
<th>Amount of Stock.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Appendix I

#### CROFTS IN THE COUNTY OF Sutherland, on the 20th May 1862

<table>
<thead>
<tr>
<th>Number of Acres.</th>
<th>Number of Acres under Different Kinds of Crop.</th>
<th>Amount of Stock.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Appendix II

#### EMBASSY:

- Brazilian Ministry, Edinburgh
- Russian Ministry, Edinburgh
- Chinese Ministry, Edinburgh
- American Ministry, Edinburgh
- Turkish Ministry, Edinburgh
- German Ministry, Edinburgh
- French Ministry, Edinburgh
- Irish Ministry, Edinburgh
- Belgian Ministry, Edinburgh
Appendix D

Excerpts of parish summaries from first agricultural census in 1866

(Source: NAS, AF39/14/1. Note that these summaries are the next best thing to a copy of the actual census questionnaires, which apparently were not archived. Separate tabulations were produced for crop acreages and for livestock numbers. Each table row corresponds to a different parish. The two tables shown here include different groups of parishes, all within the eastern county of Forfar (now known as Angus). Judging by the marginalia, these summaries were created by resident local surveyors. Note the additional columns in the livestock table allowing for estimated numbers to be included, if necessary. In practice estimation was rarely required; most of the figures appear to have been derived from the figures returned by farm holding occupiers.)
<table>
<thead>
<tr>
<th>Parish</th>
<th>Other Cattle</th>
<th>Number of Cattle</th>
<th>Number of Young</th>
<th>Number of Old</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>176</td>
<td>11</td>
<td>117</td>
<td>107</td>
</tr>
<tr>
<td>South</td>
<td>176</td>
<td>11</td>
<td>117</td>
<td>107</td>
</tr>
<tr>
<td>East</td>
<td>176</td>
<td>11</td>
<td>117</td>
<td>107</td>
</tr>
<tr>
<td>West</td>
<td>176</td>
<td>11</td>
<td>117</td>
<td>107</td>
</tr>
<tr>
<td>Total</td>
<td>696</td>
<td>44</td>
<td>351</td>
<td>344</td>
</tr>
</tbody>
</table>

Note: The table provides a summary of the number of cattle and young in each parish.
Appendix E

Copy of parish summary table from 1919 agricultural census

(Source: NAS, AF40/8/2. Note that the division into separate crop and livestock tables as was done for the 1866 census no longer applied. As a result the table is very long horizontally; the pecked lines are provided as a guide to show how it has been copied across the following three pages.)
<table>
<thead>
<tr>
<th>COUNTY</th>
<th>NEIL</th>
<th>COUNTY</th>
<th>NEIL</th>
<th>COUNTY</th>
<th>NEIL</th>
<th>COUNTY</th>
<th>NEIL</th>
<th>COUNTY</th>
<th>NEIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owned</td>
<td>234</td>
<td>Owned</td>
<td>234</td>
<td>Owned</td>
<td>234</td>
<td>Owned</td>
<td>234</td>
<td>Owned</td>
<td>234</td>
</tr>
<tr>
<td>acres</td>
<td>522</td>
<td>acres</td>
<td>522</td>
<td>acres</td>
<td>522</td>
<td>acres</td>
<td>522</td>
<td>acres</td>
<td>522</td>
</tr>
<tr>
<td>rented</td>
<td>123</td>
<td>rented</td>
<td>123</td>
<td>rented</td>
<td>123</td>
<td>rented</td>
<td>123</td>
<td>rented</td>
<td>123</td>
</tr>
<tr>
<td>acres</td>
<td>123</td>
<td>acres</td>
<td>123</td>
<td>acres</td>
<td>123</td>
<td>acres</td>
<td>123</td>
<td>acres</td>
<td>123</td>
</tr>
<tr>
<td>owned</td>
<td>321</td>
<td>owned</td>
<td>321</td>
<td>owned</td>
<td>321</td>
<td>owned</td>
<td>321</td>
<td>owned</td>
<td>321</td>
</tr>
<tr>
<td>acres</td>
<td>321</td>
<td>acres</td>
<td>321</td>
<td>acres</td>
<td>321</td>
<td>acres</td>
<td>321</td>
<td>acres</td>
<td>321</td>
</tr>
<tr>
<td>rented</td>
<td>123</td>
<td>rented</td>
<td>123</td>
<td>rented</td>
<td>123</td>
<td>rented</td>
<td>123</td>
<td>rented</td>
<td>123</td>
</tr>
<tr>
<td>acres</td>
<td>123</td>
<td>acres</td>
<td>123</td>
<td>acres</td>
<td>123</td>
<td>acres</td>
<td>123</td>
<td>acres</td>
<td>123</td>
</tr>
<tr>
<td>owned</td>
<td>321</td>
<td>owned</td>
<td>321</td>
<td>owned</td>
<td>321</td>
<td>owned</td>
<td>321</td>
<td>owned</td>
<td>321</td>
</tr>
<tr>
<td>acres</td>
<td>321</td>
<td>acres</td>
<td>321</td>
<td>acres</td>
<td>321</td>
<td>acres</td>
<td>321</td>
<td>acres</td>
<td>321</td>
</tr>
<tr>
<td>No.</td>
<td>Chemical Class</td>
<td>Total</td>
<td>Quantity</td>
<td>Description</td>
<td>Notes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>----------------</td>
<td>-------</td>
<td>----------</td>
<td>-------------</td>
<td>-------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>7.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>10.46</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>6.3</td>
<td></td>
<td></td>
<td>17.38</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>7.86</td>
<td></td>
<td></td>
<td>1.77</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>7.9</td>
<td></td>
<td></td>
<td>79.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>1.66</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>2.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>1.77</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>3.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The table appears to be a record of chemical quantities and descriptions, possibly for a laboratory or industrial setting.
Appendix F

Copy of a parish sheet from the 1933 agricultural census

(Source: NAS, as shown. Note that this sheet is for a single parish only.)
### 1933 CROPS

<table>
<thead>
<tr>
<th>Crop Description</th>
<th>Statute Acres</th>
<th>Number of Holdings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat, winter</td>
<td>8882</td>
<td>33</td>
</tr>
<tr>
<td>Wheat, spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barley (including</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed Grain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rye</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beans, be harvested</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peas, be harvested</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peas, to be picked</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potatoes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turnips and Swedes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mangolds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cabbages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rape</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vetches or Tares,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lucerne</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sugar Beet (not</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhubarb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flax, grown for</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fruit, whether</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grasses and other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grasses and Clover</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timothy Meadows</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent Grass</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL (of above)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### DAIRY CATTLE

<table>
<thead>
<tr>
<th>Description</th>
<th>Statute Acres</th>
<th>Number of Holdings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulls being used for Service</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Cows in Milk</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Cows in Calv., but not in Milk</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Heifers in Calv. (i.e., with first calv.)</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Others 2 years old and above</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>1 year and under 2</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Under 1 year old (including calves)</td>
<td>19</td>
<td>19</td>
</tr>
</tbody>
</table>

### BEEF CATTLE

<table>
<thead>
<tr>
<th>Description</th>
<th>Statute Acres</th>
<th>Number of Holdings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulls kept for Breeding</td>
<td>2054</td>
<td>2054</td>
</tr>
<tr>
<td>Cows kept for Breeding (including gilts in pig)</td>
<td>1992</td>
<td>1992</td>
</tr>
<tr>
<td>Other Pigs of all ages</td>
<td>21</td>
<td>21</td>
</tr>
</tbody>
</table>

### TOTAL CATTLE

2574

### TOTAL SHEEP

2102

### TOTAL POULTRY

1052

### TOTAL EMBRACED ON HOLDING ON 4TH JUNE

212
Appendix G

Copy of a parish summary sheet from the 1941 agricultural census

(Source: NAS AF40/30. Note in this case each column corresponds with a separate parish.)
# Parish Summary

<table>
<thead>
<tr>
<th>Crop</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>136.5</td>
</tr>
<tr>
<td>Oats</td>
<td>28.7</td>
</tr>
<tr>
<td>Mixed Grain</td>
<td>3.3</td>
</tr>
<tr>
<td>Beans, for stock feeding or seed</td>
<td>2.9</td>
</tr>
<tr>
<td>Beans, for market or oomitting</td>
<td>2.5</td>
</tr>
<tr>
<td>Peas, for stock feeding or seed</td>
<td>6.0</td>
</tr>
<tr>
<td>Peas, for cleaning or picketing, green or dried</td>
<td>1.0</td>
</tr>
<tr>
<td>Green Peas, for market</td>
<td>1.0</td>
</tr>
<tr>
<td>Potatoes</td>
<td>3.4</td>
</tr>
<tr>
<td>Turnips and Swedes, for stock feeding or seed</td>
<td>1.7</td>
</tr>
<tr>
<td>Turnips and Swedes, for human consumption</td>
<td>0.8</td>
</tr>
<tr>
<td>Mangel</td>
<td>0.3</td>
</tr>
<tr>
<td>Cabbage</td>
<td>0.3</td>
</tr>
<tr>
<td>Rape</td>
<td>2.0</td>
</tr>
<tr>
<td>Kale</td>
<td>0.5</td>
</tr>
<tr>
<td>Vetches and Tares, for seed</td>
<td>0.1</td>
</tr>
<tr>
<td>Vetches, Tares, Mashium, Etc.</td>
<td>0.1</td>
</tr>
<tr>
<td>Sugar Beet, not ordinary Beet-Rent</td>
<td>0.1</td>
</tr>
<tr>
<td>Carrots</td>
<td>0.1</td>
</tr>
<tr>
<td>Onions</td>
<td>0.1</td>
</tr>
<tr>
<td>Rhubarb</td>
<td>0.1</td>
</tr>
<tr>
<td>Flax, known for fiber</td>
<td>0.1</td>
</tr>
<tr>
<td>Flax, grown for linseed</td>
<td>0.1</td>
</tr>
<tr>
<td>Strawberries</td>
<td>0.1</td>
</tr>
<tr>
<td>Raspberries</td>
<td>0.1</td>
</tr>
<tr>
<td>Currants and Gooseberries</td>
<td>0.1</td>
</tr>
<tr>
<td>Other Kinds</td>
<td>0.1</td>
</tr>
<tr>
<td>Other crops, not named above</td>
<td>0.1</td>
</tr>
<tr>
<td>Barley</td>
<td>0.1</td>
</tr>
<tr>
<td>Rye Grass and other rotation grasses and clover, not for mowing this season</td>
<td>0.1</td>
</tr>
<tr>
<td>Rye Grass and other rotation grasses and clover, not for mowing this season</td>
<td>0.1</td>
</tr>
<tr>
<td>Timothy Grass, for mowing</td>
<td>0.1</td>
</tr>
<tr>
<td>Permanent Grass, not for mowing this season, including grass in orchards, but not including Mangel and Heath land</td>
<td>0.1</td>
</tr>
<tr>
<td>Permanent Grass, not for mowing this season, including grass in orchards, but not including Mangel and Heath land</td>
<td>0.1</td>
</tr>
<tr>
<td>Total</td>
<td>2.2962</td>
</tr>
</tbody>
</table>

---

How many acres of the above land are owned by the Occupier?
- 70.1

Rough grazings - Mountain and Heath land used for grazing not included above
- 1.174

Cast
- 8.4

Checked
- 1.5
<table>
<thead>
<tr>
<th>JUNE 1941</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ITEMS 57-70)</td>
</tr>
<tr>
<td><strong>PARISH SUMMARY.</strong></td>
</tr>
<tr>
<td>County</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td><strong>LIVE STOCK</strong></td>
</tr>
<tr>
<td>Horses not for Agricultural or Market (not including Young colts)</td>
</tr>
<tr>
<td>Unbroken Horses, 1 year old</td>
</tr>
<tr>
<td>Light Horses, 1 year old</td>
</tr>
<tr>
<td>Heavy Horses, 1 year old</td>
</tr>
<tr>
<td>All Other Horses (all ages and sexes)</td>
</tr>
<tr>
<td><strong>TOTAL Horses</strong></td>
</tr>
</tbody>
</table>

**TOTAL Cattle (Beef and Dairy)**

<table>
<thead>
<tr>
<th>Item</th>
<th>No.</th>
<th>No.</th>
<th>No.</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy Cattle</td>
<td>35</td>
<td>55</td>
<td>60</td>
<td>65</td>
</tr>
<tr>
<td>Beef Cattle</td>
<td>35</td>
<td>55</td>
<td>60</td>
<td>65</td>
</tr>
<tr>
<td>Total Cattle</td>
<td>35</td>
<td>55</td>
<td>60</td>
<td>65</td>
</tr>
</tbody>
</table>

**TOTAL Sheep (including Lambs)**

<table>
<thead>
<tr>
<th>Item</th>
<th>No.</th>
<th>No.</th>
<th>No.</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheared Sheep</td>
<td>35</td>
<td>55</td>
<td>60</td>
<td>65</td>
</tr>
<tr>
<td>Total Sheep</td>
<td>35</td>
<td>55</td>
<td>60</td>
<td>65</td>
</tr>
</tbody>
</table>

**TOTAL Pigs**

<table>
<thead>
<tr>
<th>Item</th>
<th>No.</th>
<th>No.</th>
<th>No.</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sows in Pig</td>
<td>35</td>
<td>55</td>
<td>60</td>
<td>65</td>
</tr>
<tr>
<td>Total Pigs</td>
<td>35</td>
<td>55</td>
<td>60</td>
<td>65</td>
</tr>
</tbody>
</table>

**CATTLE being Fastened for Slaughter before 30th November 1941.**

<table>
<thead>
<tr>
<th>Item</th>
<th>No.</th>
<th>No.</th>
<th>No.</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steers and Heifers</td>
<td>35</td>
<td>55</td>
<td>60</td>
<td>65</td>
</tr>
<tr>
<td>Total Cattle</td>
<td>35</td>
<td>55</td>
<td>60</td>
<td>65</td>
</tr>
</tbody>
</table>

**Cattle**

<table>
<thead>
<tr>
<th>Item</th>
<th>No.</th>
<th>No.</th>
<th>No.</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>35</td>
<td>55</td>
<td>60</td>
<td>65</td>
</tr>
</tbody>
</table>

**TOTAL**

<table>
<thead>
<tr>
<th>Item</th>
<th>No.</th>
<th>No.</th>
<th>No.</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>35</td>
<td>55</td>
<td>60</td>
<td>65</td>
</tr>
</tbody>
</table>
## JUNE 1941

### PARISH SUMMARY

<table>
<thead>
<tr>
<th>Parish Code No.</th>
<th>25</th>
<th>30</th>
<th>40</th>
<th>60</th>
<th>70</th>
<th>71</th>
<th>72</th>
<th>73</th>
<th>74</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>114</td>
<td>116</td>
<td>118</td>
<td>120</td>
<td>122</td>
<td>124</td>
<td>126</td>
<td>128</td>
<td>130</td>
<td>132</td>
</tr>
</tbody>
</table>

#### Livestock

<table>
<thead>
<tr>
<th>Item</th>
<th>Over 6 months old</th>
<th>Under 6 months old</th>
</tr>
</thead>
<tbody>
<tr>
<td>71</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>72</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td>73</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>74</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Poultry

<table>
<thead>
<tr>
<th>Item</th>
<th>Over 6 months old</th>
<th>Under 6 months old</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Labour Employed

<table>
<thead>
<tr>
<th>Item</th>
<th>Regular Workers</th>
<th>Casual Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Whole Time Family Workers

<table>
<thead>
<tr>
<th>Item</th>
<th>Male 50 years old and over</th>
<th>Male 40-50 years old</th>
<th>Male 30-40 years old</th>
<th>Male 20-30 years old</th>
<th>Women and Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Orichards

<table>
<thead>
<tr>
<th>Item</th>
<th>Acres</th>
<th>Acres</th>
<th>Acres</th>
<th>Acres</th>
<th>Acres</th>
<th>Acres</th>
<th>Acres</th>
<th>Acres</th>
<th>Acres</th>
<th>Acres</th>
<th>Acres</th>
</tr>
</thead>
</table>

#### Stocks of Grain and Feeding Stuffs on Holding on 6th June

- **(a) Grown on the Holding**
  - Wheat (Grain only)
  - Barley (Grain only)
  - Oats (Grain only)
  - Oil Cakes and Oils (Oats)
  - Compound Cakes and Meals

- **(b) Purchased by the Occupier**
  - Cereals and Cereal Products
  - Other Purchased Feeding Stuffs (Total Sugar Beet, Fats, Nuts, Fish and Meat, etc.)

#### Rent or Assessed Annual Value of Holding

- **£**

### Checked
<table>
<thead>
<tr>
<th>Parish Code No.</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FERTILISERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>91 Compound Fertilisers</td>
<td>11%</td>
<td>24%</td>
<td>39%</td>
<td>30%</td>
<td>50%</td>
<td>50%</td>
<td>40%</td>
<td>30%</td>
<td>40%</td>
<td>20%</td>
<td>30%</td>
<td>50%</td>
<td>40%</td>
<td>30%</td>
<td>40%</td>
<td>20%</td>
<td>30%</td>
</tr>
<tr>
<td>92 Nitrogenous Fertilisers</td>
<td>3%</td>
<td>6%</td>
<td>9%</td>
<td>12%</td>
<td>15%</td>
<td>18%</td>
<td>21%</td>
<td>24%</td>
<td>27%</td>
<td>30%</td>
<td>33%</td>
<td>36%</td>
<td>39%</td>
<td>42%</td>
<td>45%</td>
<td>48%</td>
<td>51%</td>
</tr>
<tr>
<td>93 Phosphatic Fertilisers</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
<td>4%</td>
<td>5%</td>
<td>6%</td>
<td>7%</td>
<td>8%</td>
<td>9%</td>
<td>10%</td>
<td>11%</td>
<td>12%</td>
<td>13%</td>
<td>14%</td>
<td>15%</td>
<td>16%</td>
<td>17%</td>
</tr>
<tr>
<td>94 Potassic Fertilisers</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
<td>4%</td>
<td>5%</td>
<td>6%</td>
<td>7%</td>
<td>8%</td>
<td>9%</td>
<td>10%</td>
<td>11%</td>
<td>12%</td>
<td>13%</td>
<td>14%</td>
<td>15%</td>
<td>16%</td>
<td>17%</td>
</tr>
<tr>
<td>95 Lime</td>
<td>1%</td>
<td>2%</td>
<td>3%</td>
<td>4%</td>
<td>5%</td>
<td>6%</td>
<td>7%</td>
<td>8%</td>
<td>9%</td>
<td>10%</td>
<td>11%</td>
<td>12%</td>
<td>13%</td>
<td>14%</td>
<td>15%</td>
<td>16%</td>
<td>17%</td>
</tr>
</tbody>
</table>

**MOTIVE POWER**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>96 Water Wheels or Turbines in present use</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>97 Water Wheels not in use, but easily repairable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>98 Steam Engines</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99 Gas Engines</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100 Oil or Petrol Engines</td>
<td>11</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>35</td>
<td>40</td>
<td>45</td>
<td>50</td>
</tr>
<tr>
<td>101 Electric Motors</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>9</td>
<td>11</td>
<td>13</td>
<td>15</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>102 Others (state)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TRACTORS**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>103</td>
<td>5</td>
<td>13</td>
<td>18</td>
<td>14</td>
<td>10</td>
<td>20</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>104</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**Track Laying Tractors**

<table>
<thead>
<tr>
<th>[Tractors for railway work only]</th>
<th>No.</th>
<th>No.</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>105</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: Subject to the Special Querying No. 97. Engines or tractors that have been disemployed or worn out should not be included.

**BINDERS**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>106</td>
<td>3</td>
<td>7</td>
<td>12</td>
<td>17</td>
<td>22</td>
<td>27</td>
<td>32</td>
<td>37</td>
</tr>
<tr>
<td>107</td>
<td>18</td>
<td>23</td>
<td>28</td>
<td>33</td>
<td>38</td>
<td>43</td>
<td>48</td>
<td>53</td>
</tr>
</tbody>
</table>

Checked
Appendix H

Copy of questionnaire for agricultural census of 2000

(Source: Scottish Executive, Environment and Rural Affairs Department.)
### Page 1

#### 1. Recorded area of holding (see note 2)

<table>
<thead>
<tr>
<th>Area</th>
<th>Hectares (to nearest 0.01)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area you own</td>
<td>1</td>
</tr>
<tr>
<td>Area you rent from another person under a tenancy</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL AREA</td>
<td>2</td>
</tr>
</tbody>
</table>

#### 2. Area of LPA and non-LPA land (see note 3)

<table>
<thead>
<tr>
<th>Area of LPA Land</th>
<th>Hectares (to nearest 0.01)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area of LPA Deseeded Land</td>
<td>2</td>
</tr>
<tr>
<td>Area of LPA Foreclosed Land</td>
<td>3</td>
</tr>
</tbody>
</table>

#### 3. Actual area of holding (see note 4)

<table>
<thead>
<tr>
<th>Area</th>
<th>Hectares (to nearest 0.01)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area you own</td>
<td>1</td>
</tr>
<tr>
<td>Area you rent from another person under a tenancy</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL AREA</td>
<td>2</td>
</tr>
</tbody>
</table>

#### 4. Changes in area of holding (see note 5)

If the area entered in section 4 differs from that recorded on your holding, please list DRA of any changes below to account for any changes in the area of your holding. If there are more than one reason for change, please supply the additional details on a sheet of paper.

<table>
<thead>
<tr>
<th>Note</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T.</td>
<td>Turnips</td>
</tr>
<tr>
<td>G.</td>
<td>Grass up land</td>
</tr>
<tr>
<td>T.</td>
<td>Total area</td>
</tr>
</tbody>
</table>

If you have taken over land because of an inheritance, have you farmed it yet?

- [ ] Yes
- [x] No

If you have been given / taken over land, please supply:

- Name of land
- Holding No.
- Telephone No.

#### 5. Seasonal rents (see note 6)

<table>
<thead>
<tr>
<th>Area of land (you have seasonally to another person)</th>
<th>Hectares (to nearest 0.01)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area of land that you rent seasonally to another person</td>
<td>1</td>
</tr>
</tbody>
</table>

Please insert the figures for the following:

- No. of tenants
- Rent per acre
- TOTAL SEASONAL RENT

### Page 2

#### 6. Cropping (see note 7)

<table>
<thead>
<tr>
<th>Crop(s)</th>
<th>Hectares (to nearest 0.01)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land set aside under the (include rotational fallow (see note 7))</td>
<td>1</td>
</tr>
<tr>
<td>Wheat for sowing</td>
<td>2</td>
</tr>
<tr>
<td>Trifoliate for sowing</td>
<td>3</td>
</tr>
<tr>
<td>Flax for sowing</td>
<td>4</td>
</tr>
<tr>
<td>Oats for sowing</td>
<td>5</td>
</tr>
<tr>
<td>Mixed Grain for sowing (includes wheat, barley and oats or any crop on or any 2 of these)</td>
<td>6</td>
</tr>
<tr>
<td>Hay for cattle</td>
<td>7</td>
</tr>
<tr>
<td>Hay for rabbits</td>
<td>8</td>
</tr>
<tr>
<td>TOTAL CROPS AND GRASS</td>
<td>9</td>
</tr>
</tbody>
</table>

#### 7. Grazing (see note 8)

<table>
<thead>
<tr>
<th>Grazing land</th>
<th>Hectares (to nearest 0.01)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 5 years old (including grass within a year)</td>
<td>1</td>
</tr>
<tr>
<td>5 years grass or older (i.e. given in 10048 or without)</td>
<td>2</td>
</tr>
<tr>
<td>For grazing this year</td>
<td>3</td>
</tr>
<tr>
<td>For grazing next year</td>
<td>4</td>
</tr>
<tr>
<td>TOTAL CROPS AND GRASS</td>
<td>5</td>
</tr>
</tbody>
</table>

#### 8. Vegetables for human consumption (see note 9)

<table>
<thead>
<tr>
<th>Vegetables for human consumption</th>
<th>Hectares (to nearest 0.01)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potato, sweet potato, turnip, swede, kohlrabi, chicory or similar</td>
<td>1</td>
</tr>
<tr>
<td>Other vegetables - carrots, beets, radishes, celery, etc.</td>
<td>2</td>
</tr>
</tbody>
</table>

#### 9. Other vegetables - grown in the open

<table>
<thead>
<tr>
<th>Other vegetables - grown in the open</th>
<th>Hectares (to nearest 0.01)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miscellaneous vegetables - root crops which are too small to be recorded elsewhere</td>
<td>1</td>
</tr>
</tbody>
</table>

TOTAL VEGETABLES | 15                          |
### Livestock (see note 12)

#### Cattle

<table>
<thead>
<tr>
<th>Age and Breed</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy</td>
<td>1</td>
</tr>
<tr>
<td>Beef</td>
<td>2</td>
</tr>
<tr>
<td>2 years old</td>
<td>3</td>
</tr>
<tr>
<td>1 year old</td>
<td>4</td>
</tr>
<tr>
<td>1 year old</td>
<td>5</td>
</tr>
<tr>
<td>2 years old</td>
<td>6</td>
</tr>
<tr>
<td>1 year old</td>
<td>7</td>
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<td>1 year old</td>
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<td>1 year old</td>
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<td>2 years old</td>
<td>21</td>
</tr>
<tr>
<td>1 year old</td>
<td>22</td>
</tr>
<tr>
<td>1 year old</td>
<td>23</td>
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</tbody>
</table>

#### Sheep

<table>
<thead>
<tr>
<th>Age and Breed</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 6 months old</td>
<td>24</td>
</tr>
<tr>
<td>6 months old and under 1 year</td>
<td>25</td>
</tr>
<tr>
<td>1 year old and under 2</td>
<td>26</td>
</tr>
<tr>
<td>2 years old and over</td>
<td>27</td>
</tr>
<tr>
<td>1 year old and under 2</td>
<td>28</td>
</tr>
<tr>
<td>2 years old and over</td>
<td>29</td>
</tr>
</tbody>
</table>

#### Pigs

<table>
<thead>
<tr>
<th>Age and Breed</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sows in pig</td>
<td>1</td>
</tr>
<tr>
<td>Gilts in pig</td>
<td>2</td>
</tr>
<tr>
<td>Other sows for breeding</td>
<td>3</td>
</tr>
<tr>
<td>Barn swine for fattening</td>
<td>4</td>
</tr>
<tr>
<td>Gilts 50kg and under, not in pig, but expected to be used for breeding</td>
<td>5</td>
</tr>
<tr>
<td>Boars being used for service</td>
<td>6</td>
</tr>
<tr>
<td>110kg liveweight and over</td>
<td>7</td>
</tr>
<tr>
<td>90kg and under 110kg liveweight</td>
<td>8</td>
</tr>
<tr>
<td>80kg and under 90kg liveweight</td>
<td>9</td>
</tr>
<tr>
<td>70kg and under 80kg liveweight</td>
<td>10</td>
</tr>
<tr>
<td>Under 20kg liveweight</td>
<td>11</td>
</tr>
</tbody>
</table>

#### Birds

<table>
<thead>
<tr>
<th>Age and Breed</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicks (1 to 5 weeks)</td>
<td>12</td>
</tr>
</tbody>
</table>

### Labour

- **Occupier**: 1
- **Occupier and family partner**: 2
- **Occupier and other partner(s) in legal partnership**: 3
- **An individual (e.g., hospital, school, church, or a limited liability company)**: 4

#### National Agricultural Advisory Service

- **All other livestock not mentioned elsewhere**: 5

- **Other livestock not employed on this farm (see note 19)**: 6

### Farm Diversification/Holding Management (see note)

- **Do you run any other commercial enterprises on this farm?** (see note 19)
  - **Tick all boxes that apply**
  - **Handicraft**
  - **Processing of farm produce**
  - **Wood processing**
  - **Contracting/other services**
  - **Aquaculture**
  - **Renewable energy production**
  - **Other commercial activities**

- **If you enter details here (e.g., Farm Shop, riding stables, etc.)**

### Declaration by occupier

I, the occupier, declare that the information I have given is true in so far as it concerns the best of my knowledge and belief.

Signature of occupier

Date

Telephone Number (include area code)

E-Mail

For Office Use Only:

Expiry Date:  

Page 4
Vita - Alistair Geddes

Education

2006 **Doctor of Philosophy:** Geography, *The Pennsylvania State University.*
Areas of specialization: Farming and Agrarian Change; Census Geography.
Dissertation Title: Statistically Modified Farming: The Spatial Politics in Scottish Agricultural Census Taking
Advisor: Dr. Cindy Brewer

1994 **Master of Science:** Geographical Information Systems, *The University of Edinburgh* (awarded with distinction).

1992 **Batchelor of Science:** Geography, *The University of Edinburgh.*

Awards and Scholarships

2004 College of Earth and Mineral Sciences Centennial Research Award.
2003 Dawson Scholarship, St. Andrew’s Society of Washington DC.

Publications and Proceedings


