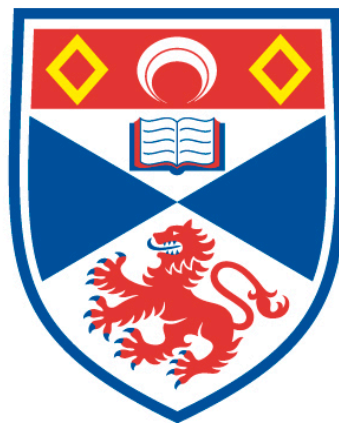


FROM WORDS TO NUMBERS: TRANSFERS, NETWORKS AND
THE TRANSFORMATION OF STATISTICAL THINKING IN
BRITAIN AND THE GERMAN LANDS, C.1750S-1840S

Adam Richard Dunn

A Thesis Submitted for the Degree of PhD
at the
University of St Andrews



2018

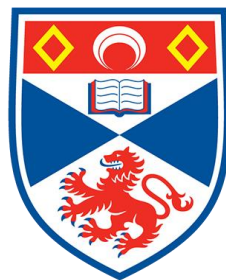
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From Words to Numbers: Transfers, Networks and the
Transformation of Statistical Thinking in Britain and the
German Lands, c.1750s-1840s

Adam Richard Dunn



University of
St Andrews

This thesis is submitted in partial fulfilment for the degree of
Doctor of Philosophy (PhD)
at the University of St Andrews

December 2018

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Abstract

This thesis explores the changes, evolution and developments of statistical thinking from the eighteenth to the nineteenth century. It maps how the perception, methodology and use of statistics shifted. It argues that statistical thought changed from a descriptive, narrative, mode to a more mathematical, scientific, and visual mode. Focusing on this evolution in Britain and the German lands this study explores the works of Sir John Sinclair and August Ludwig von Schlözer. It emphasises the crucial role of amateur statisticians, working beyond or on the margins of state mechanisms, in this development and explores an area that has been deeply neglected. It places these developments in a wider transnational framework to illuminate how networks, travels and transmission of texts between these amateur statisticians were pivotal to this evolution. The thesis argues that this evolution was founded in the works of these amateur statisticians whose ideas were born out of a number of different and intersecting trends. Their ideas increased in sophistication because they were marginal to the state and through their networks could spread more radical notions of statistical thought. By tracing these circulations and the connections of these men it highlights how their ideas became pivotal to the evolution in statistical thought and examines the transfer and transformation of these ideas and how they fit into the larger framework of statistics in the eighteenth and nineteenth century. By highlighting the role of the individual and the vast transnational networks they established it illuminates how statistics evolved from a descriptive discipline that hid the mathematics behind dense narrative to a more mathematically minded, visual discipline, that sought to use tables, maps, and numbers to illustrate its findings.

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Introduction

'I only believe in statistics that I doctored myself', is often popularly attributed to Winston Churchill.¹ The quote, itself, is unverifiable, an irony that seems to be lost on many who either recognise it or refute it. However, both its sentiment and its status (unverified) illustrate two important points about the history of statistics. First, the history of statistics is about verification, discovering the political 'truth' or 'veracity' of your argument through the creation of statistical knowledge, regardless of factual accuracy.² Second, much of what we believe modern statistics to be is built on a foundation that does not necessitate political allegiance or, at least, can transcend them. Statistics are a created phenomenon, 'doctored' out of years, even centuries, of development and evolution in thought concerning politics, economics, society and culture, mathematics and probability, governance and policing. Additionally, this evolution came out of a variety of different environments and circumstances, many of which were not held back or did not conform to state/national boundaries. The project will demonstrate that the evolution of statistics was driven by a circulation of individuals who worked at the edge or even beyond state mechanisms, perhaps best termed: a transnational evolution of statistical thought.

The overarching aim is to investigate how statistics developed from a descriptive to a mathematical discipline during the late eighteenth and early nineteenth century, emphasising that this evolution took place within a transnational framework: in relation to states, yet ultimately beyond them. It rethinks the history of statistical thought both within the history of the nation-state and the history of science, with statistics merely acting as extensions of these two historical trends. It emphasises that those working beyond or on the edge of the state or science, played a key role in this development.

The Project

The aim of this project is to trace the evolution of statistics from 1750 to 1840 as it transformed from a more descriptive, narrative based discipline, to a more mathematical, numerically and visually based science. It aims to analyse how this change took place throughout Europe, primarily exploring case studies from Great Britain and the German lands. Beyond this, it will shed new

¹ There are hosts of attributions to figures as diverse as Mark Twain, Winston Churchill, and Joseph Goebbels.

² C.f. Mary Poovey, *A History of the Modern Fact: Problems of Knowledge in the Sciences of Wealth and Society* (Chicago: The University of Chicago Press, 1998).

light on how this evolution took place, broadening the scope of inquiry beyond the state, national case studies, comparative state-based studies, or histories that focus upon the ideas but not the context of those ideas.

The project differs from previous histories of statistics in several keyways. First, while it focuses on individuals, as many works that are based on the ideas surrounding statistics have done,³ it does not remove them from their wider contexts. It will focus on the ways in which individuals' ideas were founded and how their ideas influenced others on a transnational scale. Second, the project places these individuals, their ideas and their influence(s) in a larger transnational framework, attempting to widen the focus beyond national and territorial borders. Third, linking to the first two points, it aims to reconstruct the networks and communities that made it possible for statisticians to act out and spread their ideas in a transnational framework. Fourth, this project explores a new angle in the evolution of statistics, emphasising the individual context that does not deny the state or politics but reinvigorate discussion on statistical development through greater contextualisation in a wider transnational framework.

A transnational perspective can enhance our understanding of the history of statistics. It does not wish to deny the validity of other areas or angles of inquiry, but to demonstrate how such an investigation can uncover alternative avenues of exploration and different insights for the historian. Its purpose is to investigate how a different substratum of society, the so-called amateur⁴ statisticians who worked either beyond the state, science and mathematics or at its margins, had a bigger impact on the evolution of statistics than has previously been argued. It will display the importance that transnational networks and travels had for the development of statistical thought during the *Sattelzeit*, arguing that these transnational ties were one of the major foundations of the modern statistical enterprise. These individuals are key to this process because they provide a unique insight into this evolutionary trend and represent some of the key statistical players of the period. They prove that through transnational networks and communities they were crucial to the evolution of the science of statistics as it is today.

³ C.f. Poovey, *A History*.

⁴ Throughout the thesis the terms amateur and individual will be used to describe the statisticians studied. This does not refer to a specific 'created' social category prevalent in the eighteenth century. Rather, in the context of this project, it refers actors who practice statistics outwith the state and outwith the eighteenth-century's conception of a defined science, c.f. Richard Yeo, 'Classifying the Sciences' in Roy Porter (ed.), *The Cambridge History of Science, Volume 4: Eighteenth-Century Science* (Cambridge: University of Cambridge Press, 2003), pp.241-266.

Geographically, the project will focus on actors from the British Isles, especially Scotland, and the German lands, more specifically the Hanoverian region (i.e. Göttingen and environs). The geographical scope is determined by the actors chosen as case studies as well as the notion that these areas have been understudied by previous historians. The selection of these two areas is not intended to constrain the present study to national or state limitations, it has been chosen to help concentrate the investigation on actors who have been less examined in the history of statistics.⁵ This choice will help uncover potentially new material and bringing understudied material to light. Thus, the German lands and Britain present two arenas in which to analyse the development of statistical thought. This does not and should not be taken as a sign that this is an extension of older forms of the history of statistics that consider only national/state comparisons. The focus is primarily on the effect of amateurs beyond the state who formed networks that did not work within national boundaries.

Temporally, the project analyses the period from the 1750s to the 1840s. This is the time-period that has been termed, by Reinhart Koselleck, as the *Sattelzeit*.⁶ It comprises a period that has been understudied by historians, both of statistics and in general.⁷ It was also a period of immense change in Europe, especially in the field of statistics. By focusing on this period, the project aims to track the evolution of statistics through the end of the eighteenth into the nineteenth century to give a fuller explanation of how it shifted from a descriptive mode to a more mathematical and visual one. The *Sattelzeit* was a hotbed of transnational activity and marked a

⁵ There are many examples of national or even comparative national case studies. C.f. Poovey, *A History*; Ian Hacking, *The Taming of Chance* (Cambridge: Cambridge University Press, 1990); Ian Hacking, *The Emergence of Probability: A Philosophical Study of Early Ideas about Probability, Induction and Statistical Inference* (Cambridge: Cambridge University Press, 2006); Alan Desrosières, *The Politics of Large Numbers: A History of Statistical Reasoning* (Cambridge, Mass: Harvard University Press, 2002); Lars Behrisch, *Die Berechnung der Glückseligkeit: Statistik und Politik in Deutschland und Frankreich im späten Ancien Régime* (Ostfildern: Thorbecke, 2015).

⁶ C.f. Reinhard Koselleck, *Vergangene Zukunft: Zur Semantik geschichtlicher Zeiten* (Frankfurt a.M.: Suhrkamp, 1988).

⁷ Many simply ignore the period and concentrate on the nineteenth century, c.f. Poovey, *A History*; Desrosières, *The Politics of Large Numbers*. Others end before they reach the end of the eighteenth century and the French Revolution, c.f. Behrisch, *Die Berechnung der Glückseligkeit*. Some historians begin their studies at this point and failed to fully appreciate the complexities and the influences the period had upon later statistical developments, c.f. Theodore M. Porter, *The Rise of Statistical Thinking, 1820-1900* (Princeton: Princeton University Press, 1986); Theodore M. Porter, *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life* (Princeton: Princeton University Press, 1995); Marie-Noëlle Bourguet, *Déchiffrer la France: la statistique départementale à l'époque napoléonienne* (Paris: Editions des archives contemporaines, 2001). The only major example of a historian of statistics giving the *Sattelzeit* full consideration is Keith Tribe, *Governing Economy: The Reformation of German Economic Discourse, 1750-1840* (Cambridge: Cambridge University Press, 1988).

period of 'internationalisation' for statistical development.⁸ These evolutions came about precisely because the conditions, the beginnings of industrial and agricultural advance, the shifting intellectual and political climates fostered by the Enlightenment, the revolutionary fervour or anti-fervour and the rising interest in objectivity and probability, were well-suited for an evolutionary trend in statistics that fundamentally shifted its course as a discipline. These conditions meant that statisticians were less bounded by the state or by national borders as their predecessors were and their successors would be. The ease with which they crossed borders, made connections and formed communities transnationally during the *Sattelzeit* gave statistics the platform to shift in a fundamental way.

The actors focused on are amateurs who worked beyond or at the margins of the state and the developing sciences. They are those who have been both understudied and, sometimes maligned by historians. This project wishes to rehabilitate these individuals and argues that they were important nodes of change in the statistical landscape. These under-appreciated actors demonstrate a specific juncture of entry into the history of statistics and do not represent a total overview of the historical evolution of statistics at this time. Their works, networks, ideas and influence on statistics has been more profound than have been acknowledged in the past. They also represent interesting new avenues into the history of statistics because they illuminate the 'internationalisation'/transnational trends that have not been studied in depth before.

The first actor is August Ludwig von Schlözer (1735-1809), born in southern Germany and later a prominent professor at the University of Göttingen. His contribution to the development of statistics was through journals and source books as well as the first book of statistical theory, his *Theorie der Statistik* (1804). Much ink has been spilled over Schlözer, his life and his times, with a reasonable amount of literature concerned with his statistical works.⁹ However, his statistical thought has often been treated as an extension of his historical and political thought with no consideration as to how his ideas formed a unique part of the evolution of statistics. Nor has this literature grasped the complexity of Schlözer's statistical thought, often grouping it with older

⁸ C.f. Patricia Clavin, 'Defining Transnationalism', *Contemporary European History*, 14/4, (2005), pp.421-439. Her focus is on transnationalism as an internationalising phenomenon and her point is to almost link the two terms as one. In this instance, I follow her definition but emphasize 'internationalising' statistics as a transnational movement.

⁹ Martin Peters, *Altes Reich und Europa: der Historiker, Statistiker und Publizist August Ludwig von Schlözer (1735-1809)* (Münster: LIT Verlag, 2003); Heinz Duchhart and Martin Espenhorst (eds.), *August Ludwig (von) Schlözer in Europa* (Göttingen: Vandenhoeck & Ruprecht, 2012).

forms. Additionally, he has received little to no treatment in Anglo-American and French historiography.¹⁰

The second actor is Sir John Sinclair (1754-1835) of Thurso, Scotland. His contribution came in the mammoth *Statistical Account of Scotland* published between 1791 and 1799. He has been repeatedly missed from many, especially recent, narratives in the history of statistics,¹¹ or mentioned only in passing.¹² The only major scholarship concerning Sinclair and his *Statistical Account* are a biography (1962), a modern introduction to his work as a whole (1983), a book dedicated to the contents of the statistical account (1995), and a brief article of the same (1986).¹³ None of these touch upon the impact Sinclair had on the evolution of statistical thought within Scotland, Britain or the wider European context. It is time to re-evaluate both Schlözer and Sinclair's work from a new perspective and acknowledge their thought as transformational in the 'transnationalising' evolution of statistics during the *Sattelzeit*.

Statistics, the Universe and Everything: The Historical Context

The history of statistics is multifaceted. There have been a multitude of histories written on the subject from a multitude of different angles. It may be best to describe the evolution of statistics as something off an artist's palette. Statistics, in the modern sense, is a composite of many colours. The artist mixes his various colours on his palette, each taking its own track until it reaches the swirled and mixed centre forming the fully mixed colour that we would call modern statistics,¹⁴ or it falls off the palette or remains unmixed. Many different paths, colours and mixes went into the creation of modern statistics. Even when these were aborted or never fully utilised, they form part of this palette and the resultant painting that we call statistics. The thesis takes one of these 'colours', one angle, in the evolution of statistical thought and traces its importance to the overall picture.

¹⁰ C.f. Desrosières, *The Politics of Large Numbers*; Hacking, *The Taming of Chance*.

¹¹ C.f. Desrosières, *The Politics of Large Numbers* as a prime example.

¹² C.f. Hacking, *The Taming of Chance*; Poovey, *A History*.

¹³ Rosalind Mitchison, *Agricultural Sir John: The Life of Sir John Sinclair of Ulbster, 1745-1835* (London: Geoffrey Bles, 1962); Donald J. Withrington, 'General Introduction', in *The Statistical Account of Scotland, Vol. 1 General* (Wakefield: EP Publishing, 1983), pp.ix-xlii; Maisie Steven, *Parish Life in Eighteenth-Century Scotland: A Review of the Old Statistical Account* (Aberdeen: Scottish Cultural Press, 1995); R. L. Plackett, 'The Old Statistical Account', *Journal of the Royal Statistical Society. Series A (General)*, 149/3, (1986), pp.247-251.

¹⁴ By modern statistics, I am referring to the period after the late nineteenth century, roughly from the 1890s to the present day.

A wider history of statistics could, theoretically, analyse its development from the beginning of human history. Probability, a key component in modern statistical thought, has been linked back to the earliest human societies through artefacts that have been associated with gambling.¹⁵ The idea of a census, an integral part of demography, for population control and governance is mentioned in the bible, whereby the Romans used the census for taxation purposes in Judea.¹⁶ The accuracy of this claim aside, it should be noted that this type of, what we would call today, statistical inquiry did exist long before any conception of the actual science of statistics.¹⁷ Even graphical and visual statistical representation has a history that, according to the historian Gray Funkhouser, stems back to at least the late medieval period, even as early as the eleventh century.¹⁸ However, while there is evidence for such a long-term evolution of statistical thought, the evidence is too sporadic, too incomplete, to make a significant connection between such vast spans of time.

In terms of the development of modern statistics, the main foundations lay in the sixteenth and seventeenth centuries. Poovey's *A History of the Modern Fact* traces the first attempts to create statistical knowledge to the development of double entry bookkeeping in the sixteenth century, arguing that such forms of knowledge lead to certain forms of objectivity, truth and certainty being sought not just by merchants but, by the start of the seventeenth century, men concerned with economy more generally or those attempting to get close to the centre of power.¹⁹ Indeed, this form of inquiry does have an influence on later thinkers, including the Political Arithmeticians, in the later seventeenth-century.²⁰

Hacking has illustrated, in *The Emergence of Probability*, that around the 1660s advances in probability and calculus were also making new forms of thought available to European minds, particularly influential in this process were Pascal and Huygens.²¹ He also argues that these ideas, seemingly concurrent across Europe at the time, were a key starting point for men working with actuaries and early forms of life insurance as well as the Political Arithmeticians.²² Forms of

¹⁵ Hacking, *The Emergence of Probability*, pp.1-2.

¹⁶ Luke, 2:1-5.

¹⁷ C.f. Gunnar Thorvaldsen, *Censuses and Census Takers* (London: Routledge, 2018).

¹⁸ H. Gray Funkhouser, 'Historical Development of the Graphical Representation of Statistical Data', *Osiris*, 3, (1937), pp.269-404, here pp.274-278.

¹⁹ C.f. Poovey, *A History*, pp.29-91.

²⁰ C.f. *Ibid*, pp.92-143.

²¹ Hacking, *The Emergence of Probability*, pp.11-12.

²² *Ibid*, p.12.

‘proto-statistics’²³ developed across the European landscape. Hermann Conring in the mid-seventeenth-century in the German lands set in motion the ideas that would lead to the descriptive form of state-based statistics so popular during the mid-eighteenth century and became encapsulated in the concept of *Staatsbeschreibung* (state description/reporting).²⁴ In France, the art of map making and the use of natural histories and general surveys had been used by the royal authorities since at least the early sixteenth century and were key aspects of the coming development of statistics in both France and abroad.²⁵ In Britain, there was the development of the Political Arithmetic, which was crucial in establishing the foundations for all statistical enquiry to come, thus Desrosières has argued it was the origin of expertise.²⁶

By the eighteenth century these strands had become solidified. It is notable that the idea of probability, as Hacking describes it, does not majorly influence the field of statistics until at least the early, if not the mid, nineteenth century.²⁷ This is not to say that mathematical forms of modern statistics had not started to develop. It is, however, that these forms of quantification were not explicitly attached to eighteenth century statistics.²⁸ Indeed, the more mathematical forms of modern statistics took their own path during the period. Some of these ideas, as Hacking has pointed out, fed into the process of annuity, leading on from the seventeenth century and grew in strength in the eighteenth.²⁹

The eighteenth century has been characterised as an age of the ‘quantifying spirit’.³⁰ The rising confluence of mathematics and wide range of subjects during the century has been explored in depth.³¹ Brian and Jaisson have illustrated how mathematics, particularly probability and

²³ A word that is more a convenience than the correct terminology to describe developments before the invention of the word statistics. To stress, the term denotes a time before these ideas were grouped under the umbrella term statistics.

²⁴ Paul F. Lazarsfeld, 'Notes on the History of Quantification in Sociology – Trends, Sources and Problems', *Isis*, 52/2, (1961), pp.277-333, here pp.286-292.

²⁵ Jacques Revel, 'Knowledge of the Territory', *Science in Context*, 4/1, (1991), pp.133-161, here pp.137-140, 150-153.

²⁶ Desrosières, *The Politics of Large Numbers*, p.23.

²⁷ Hacking, *The Taming of Chance*, pp.1-2.

²⁸ C.f. Tore Frängsmyr, J. L. Heilbron, and Robin E. Rider (eds.), *The Quantifying Spirit in the Eighteenth Century* (Berkeley: University of California Press, 1990).

²⁹ Hacking, *The Emergence of Probability*, pp.111-121.

³⁰ J. L. Heilbron, 'Introductory Essay', in Frängsmyr, Heilbron, Rider (eds.), *The Quantifying Spirit in the 18th Century*, pp.1-3.

³¹ C.f. Frängsmyr, Heilbron, Rider (eds.), *The Quantifying Spirit in the 18th Century*; Andrea A. Rusnock, *Vital Accounts: Quantifying Health and Population in Eighteenth-Century England and France* (Cambridge: Cambridge University Press, 2009); Johan Heilbron, *The Rise of Social Theory* (Cambridge: Polity Press, 1995); Lorraine Daston, *Classical Probability in the Enlightenment* (Princeton: Princeton University Press, 1988); Hacking, *The Emergence of Probability*; Hacking, *The Taming of Chance*; Desrosières, *The Politics of Large Numbers*; Éric Brian

analytics, became an integral part of understanding birth rates throughout the eighteenth century.³² They illuminate the intense debates that surrounded the introduction of mathematical techniques to the works of men like Süßmilch, and demonstrate the scepticism that surrounded the ability of mathematics (probability) to accurately reflect reality.³³

Much of this scepticism centred around the question whether those applying such mathematical techniques had enough information to furnish their accounts with accuracy or whether the techniques they were using could be relied on to produce accurate knowledge.³⁴ Johannisson has illustrated how similar debates were taking place within the realm of Political Economy, arguing that the implementation of mathematical methodologies that could quantify social phenomena was a daunting task.³⁵ Nevertheless, the trend throughout the eighteenth century was the quantification or mathematisation in everything from biology, botany, and chemistry to forestry, technology, and politics.³⁶

The development of statistics in the eighteenth century was no exception. However, this process was not straightforward, it was controversial and debated vigorously. Often, especially within the political realms, this mathematisation was a cautious process. While historians such as Ian Hacking, Stephan Stigler, and Lorraine Daston have argued that statistics has been a mathematical process from the very beginning, this assumption does not hold up to scrutiny.³⁷ While probability was being applied to the moral sciences and to the process of annuity and insurance, this was not a universal phenomenon, and nor did it affect the workings of statistical thought through the eighteenth century.³⁸

Statistics began as a political phenomenon and it was only slowly, through the efforts of men like Schlözer and Sinclair, that statistics became mathematised. The mathematisation of

and Marie Jaisson, *The Descent of Human Sex Ratio at Birth: A Dialogue between Mathematics, Biology and Sociology* (Dordrecht: Springer, 2007).

³² Brian and Jaisson, *The Descent of Human Sex Ratio at Birth*, pp.1-26.

³³ Ibid, pp.6-12.

³⁴ Ibid, pp.6-12.

³⁵ Karin Johannisson, 'Society in Numbers', Frängsmyr, Heilbron, Rider (eds.), *The Quantifying Spirit in the 18th Century*, pp.343-361.

³⁶ C.f. 'Part 3: Wider Applications', Frängsmyr, Heilbron, Rider (eds.), *The Quantifying Spirit in the 18th Century*, pp.243-380.

³⁷ C.f. Hacking, *The Taming of Chance*; Stephen M. Stigler, *The History of Statistics: The Measurement of Uncertainty before 1900* (Cambridge, Mass: Belknap Press of Harvard University, 1986); Daston, *Classical Probability in the Enlightenment*.

³⁸ Hacking, *The Emergence of Probability*, pp.111-121; Daston, *Classical Probability and the Enlightenment*, pp.296-305.

statistics during the eighteenth century is best defined as a slow evolutionary process that gradually changed its shape by introducing new, rather rudimentary, mathematical techniques (such as arithmetic, analysis, and quantification of data). This process opened the door for later developments such as the search for empirical and universal laws, the moral agenda of early nineteenth-century statisticians, and the introduction of more complex forms of mathematics, such as calculus and probability. This was not a linear process and involved debate and discussion about how to implement such new techniques. This project will highlight how two individuals aided this process of the mathematisation of statistics in the eighteenth century, and in this goes beyond Hacking's work by attempting to trace the beginnings of the influence of probability on statistics in the eighteenth century.

It was the other two strands, particularly Political Arithmetic (with its mathematical bent) and Conring's *Staatsbeschreibung* that had real impact on the development of statistical thought in the early to mid-eighteenth century. Recent scholarship has illustrated how this form of *Staatsbeschreibung* took hold of both the German lands and France, applying both descriptive and tabular methods of statistical thought, a form utilised by so-called enlightened monarchs.³⁹ These developments found one outlet at the University of Göttingen around 1749 when Gottfried Achenwall, himself a follower of Conring, proposed the first elucidation of *Statistik* in his *Abriß der neuesten Staatswissenschaft*.⁴⁰ This publication, combined with Achenwall's appointment as a professor at the university, led to the evolution of a 'statistical' school in Göttingen that would become a key site of development for statistics.

However, the picture is murkier than this and the Göttingen school was also heavily influenced by the thought of the Political Arithmeticians. The Arithmeticians were interested in demography and their ideas circulated in both Britain and Europe in the late-seventeenth century. The historian Joanna Innes reflects that after the death of Charles Davenant, in 1714, Political Arithmetic was less practiced in Britain.⁴¹ However, in Europe it began to influence several thinkers by the 1730s and 1740s. A driving factor was the work of Johann Peter Süßmilch, especially his *Die göttliche Ordnung* (1741), whose work was the foundation of demographic

³⁹ C.f. Behrisch, *Die Berechnung der Glückseligkeit*. An example of how statistical thought developed in France and the German lands in the eighteenth-century.

⁴⁰ Gottfried Achenwall, *Abriß der neuesten Staatswissenschaft der vornehmsten Europäischen Reiche und Republicken* (Göttingen: Schmidt, 1749).

⁴¹ Joanna Innes, *Inferior Politics: Social Problems and Social Policies in Eighteenth-Century Britain* (Oxford: Oxford University Press, 2009), pp.110-112.

thought in the eighteenth century.⁴² In Sweden, the idea of the Political Arithmeticians and the work of Süßmilch proved particularly influential.⁴³ Interest in population, the calculation of mortality, and the demographics of Süßmilch and the Political Arithmeticians was channelled through Per Wargentin who could be regarded as Sweden's first statistician.⁴⁴ Under Wargentin's stewardship the Swedish state carried out the first modern census in 1749. The Swedish crown also set up the first statistical office headed by Wargentin.⁴⁵ Political Arithmetic, *Staatsbeschreibung*, probability and new tabular forms of description were a few of the key streams of influence on statistics during the early eighteenth century.

This brief history of 'proto-statistics' demonstrates the evolution of the intellectual environment that Sinclair and Schlözer were part of towards the end of the eighteenth century. It is here that the study begins, with the work of Achenwall, Süßmilch, and Wargentin, the context of the late seventeenth-century evolution of Political Arithmetic and the works of Hermann Conring as the contextual elements.

The Historian and the Statistics: The Historiographical Context

Much like the history of statistics the historiography is not as straightforward as it would seem. Instead of a palette of trends, it is rather best described as a palette of opinions, one that does not produce a single coherent image, but instead makes up a mosaic that is continually added to.

The current state of the historiography relies heavily upon two assumptions. First, that one of the key driving factors was the state/nation/nation-state. Second, that it was individual theorems or sparks of genius that constitute the other. This project seeks to break from this tradition and refocus the history of statistics on something more nuanced. Its centres on the transnational, that is going beyond borders, as well as on the individual who worked beyond or at the margins of the state and science, natural philosophy and mathematics. Additionally, it highlights the importance of transnational transfers through the creation of statistical networks.

The tradition of writing about statistics as a historical phenomenon began in the latter half of the nineteenth century. Several texts became, for most of a century, the key reference works for

⁴² Robert A. Horváth, 'Süssmilch's Methodological Impact on European Statistics', *International Statistical Review*, 59/1, (1991), pp.59-66, here p.59.

⁴³ Tore Schweder, 'Scandinavian Statistics, Some Early Lines of Development', *Scandinavian Journal of Statistics*, 7/3, (1980), pp.113-129, here p.125.

⁴⁴ Schweder, 'Scandinavian Statistics', p.125.

⁴⁵ *Ibid*, pp.112, 125.

all future historians of statistics. One of the first was published in 1865, Isaac Todhunter's (1820-1884) *A History of the Mathematical Theory of Probability: From the Time of Pascal to that of Laplace*.⁴⁶ Until the 1970s it remained a standard reference for information on probability from 1654 to 1812.⁴⁷ It is a complex history of mathematics, one that focuses more on these sparks of genius than the whole historical field. Thus, Todhunter is concerned not with the wider implications of probability or its development, but rather with the great practitioners of the science and theories they had devised.⁴⁸ His monograph set the foundation of the assumption of the scientific genius working beyond the reach of the earthly world whose theories reveal some greater human truth. He informs us that he is concerned with estimating “carefully and impartially the character and the merit of the numerous memoirs and works which I have examined”.⁴⁹ His work, thus, becomes scientifically contextual but does not connect these advancements to wider historical developments in society or culture. He was the progenitor of the scientific method of writing about the history of statistics. Though many historians did not follow his lead by introducing a narrow focus that neglected the wider context, he did establish the trope of the theorem-building and genius analysis in the history of statistics.

Two further foundational works in the history of statistics were *Geschichte der Statistik* published in 1884 by the Swiss historian Victor John and *Geschichte, Theorie, und Technik der Statistik*, published in German in 1886 and English in 1891 by the German historian August Meitzen. Both introduced a wider scope to their historical analysis than Todhunter. Their works were not solely concerned with the individual and their ideas but attempt to contextualise statistics as a more historically grounded process.⁵⁰ Both John and Meitzen broke down their works into distinct chronological periods and, unlike Todhunter, focused these sections on historical development, not individuals of genius.⁵¹ While Meitzen did not state that he wished to place the history of statistics in the wider historical context, he was concerned to demonstrate what processes allowed the development of the science.⁵² John had a similar conception and argued that the only

⁴⁶ Isaac Todhunter, *A History of the Mathematical Theory of Probability: From the Time of Pascal to that of Laplace* (Cambridge: Macmillan and Co., 1865).

⁴⁷ Hacking, *The Emergence of Probability*, p.1.

⁴⁸ Todhunter, *A History of the Mathematical Theory of Probability*, p.v.

⁴⁹ *Ibid*, p.xi.

⁵⁰ Victor John, *Geschichte der Statistik: ein quellenmässiges Handbuch für den akademischen Gebrauch wie für den Selbstunterricht* (Stuttgart: Verlag von Ferdinand Enke, 1884); August Meitzen, *History, Theory, and Techniques of Statistics* (Philadelphia: American Academy of Political and Social Science, 1891).

⁵¹ John, *Geschichte der Statistik*, pp.XIII-XV; Meitzen, *History*, pp.9-11.

⁵² Meitzen, *History*, pp.13-15.

way one could understand the science of statistics was to understand its history, that the development of statistics was a product of its history.⁵³ These works were the first representations of how to practice the history of statistics in a wider historical context but their focus remained scientific. These three texts remained seminal for the next sixty years or so.

After the turn of the twentieth century the article by the American mathematician H. Gray Funkhouser, published in 1937,⁵⁴ and a lecture series by the statistician and biologist Karl Pearson, given between 1921 and 1933,⁵⁵ illustrate the historiographical tradition that dominated before the end of the Second World War. Both Funkhouser and Pearson focused on the so-called geniuses of their field and were much more scientific in their analysis. It was only by slow degrees and only after the Second World War with the renewed interest in statistical developments in the political, social and economic spheres that the first interpretation which privileged the nation/state in the history of statistics began to appear. This came especially with the rise of social history and the history of the social sciences in the 1960s and 1970s.⁵⁶

One of the first major contributions was Paul Lazarsfeld's 'Notes on the History of Quantification in Sociology' published in 1961.⁵⁷ It began to combine the dual approaches mentioned, concentrating on the geniuses of the field (Adolphe Quetelet, the Political Arithmeticians, and Hermann Conring) but at the same time illuminating developments within strictly national contexts.⁵⁸ While his argument was based more on the geniuses of science rather than state developments, it is the first attempt to combine both streams. Lazarsfeld thus added some comparative elements, especially to the works of Conring and Sir William Petty (1623-1687).⁵⁹ His method focused on the development of individuals and their ideas (Quetelet and LaPlay) while at the same time contextualising them as national or state actors. This approach

⁵³ John, *Geschichte der Statistik*, p.3.

⁵⁴ Funkhouser, 'Historical Development of the Graphical Representation of Statistical Data', pp.269-404.

⁵⁵ Karl Pearson, *The History of Statistics in the 17th and 18th Centuries against the changing background of intellectual, scientific and religious thought: Lectures by Karl Pearson given at University College, London during the academic sessions 1921-1933* (London: Griffin, 1978).

⁵⁶ This is exemplified in the post-1945 works of the French Annales School, particularly Fernand Braudel, Jacques Revel and Roger Chartier, and in Germany by proponents of Karl Marx and Max Weber such as Jürgen Kocka. C.f. Peter Burke, *The French Historical Revolution: The Annales School 1929-89* (Cambridge: Polity Press, 1990), pp.32-93; Jürgen Kocka, *Sozialgeschichte: Begriff-Entwicklung-Probleme* (Göttingen: Vandenhoeck und Ruprecht, 1986).

⁵⁷ Lazarsfeld, 'Notes', pp.277-333.

⁵⁸ *Ibid*, pp.277-279.

⁵⁹ *Ibid*, p.285.

proved influential and by the end of the 1970s there was a huge increase in work on the history of statistics and probability.

Several proponents of this new approach to the history of statistics were those who worked or were influenced by work at the Centre for Interdisciplinary Research at the University of Bielefeld under Lorenz Krüger.⁶⁰ These included Ian Hacking's *The Taming of Chance* and *The Emergence of Probability*, both of which cover from the seventeenth to the nineteenth century, Stephen Stigler's *The History of Statistics: The Measurement of Uncertainty before 1900*,⁶¹ Lorraine Daston's *Classical Probability in the Enlightenment*⁶² and Theodore Porter's *The Rise of Statistical Thinking, 1820-1900*. All four historians represent major contributions to the field.

Porter's *The Rise of Statistical Thinking* combines the social, political and mathematical streams into one analysis. He approaches the subject with a veneer of mathematical aplomb, claiming that statistics was the most important invention of the sciences that had the widest and most diverse possible application.⁶³ He argues that statistics was a fluid concept and like many of the mathematical concepts had wide applications in the social and political spheres.⁶⁴ His work tries to trace the spread and influence of these mathematical concepts in the practical, political, and social world.⁶⁵ He concludes that the changes in statistics, from its 'pre-disciplinary phase' to the professionalisation during the nineteenth century, are intimately connected with the influence it had on the political and social world.⁶⁶ The combination of mathematically themed chapters with the notion of the social and the political spheres woven into his exploration constitutes a unique methodological approach. However, Porter's work strongly emphasises both the genius and the state as units of analysis in the history of statistics and despite the combination he is still working within limited spheres of exploration.

Hacking presents a philosophical approach but is still bound by the 'stable' units of comparison in the state or individual genius. *The Emergence of Probability*, a history of probability calculus, demonstrates his approach. His primary aim is to explore development of probability and statistical inference from its foundation in the seventeenth century into the eighteenth.⁶⁷ His work

⁶⁰ Hacking, *The Emergence of Probability*, p.xi.

⁶¹ Stigler, *The History of Statistics*.

⁶² Daston, *Classical Probability in the Enlightenment*.

⁶³ Porter, *The Rise of Statistical Thinking*, p.3.

⁶⁴ Porter, *The Rise of Statistical Thinking*, p.8.

⁶⁵ *Ibid*, p.9.

⁶⁶ *Ibid*, p.318.

⁶⁷ Hacking, *The Emergence of Probability*, p.6.

analyses this evolution of thought, but it remains confined to a mathematical world. Hacking concludes that probability came about through a change in opinion,⁶⁸ combined with the introduction (or invention) of concepts of evidence.⁶⁹ He argues that ideas were transmitted at the highest level of society and traces them as they flow from one big name to the next, with little regard to historical or geographical context.

Hacking's *Taming of Chance* follows a similar pattern tracing ideas from one big name to the next. He argues that from the last decades of the eighteenth and throughout the nineteenth century two vast changes in intellectual thought caused society to become more statistical: the erosion of determinism and the rise of probability.⁷⁰ He even deals with Sinclair and the Political Arithmeticians in his work, arguing that amateur statisticians played a limited role in this development.⁷¹ However, he remains attached to larger ideas and men of genius, and while giving some form of context, he explores these ideas out of context or solely in the context of their state.

Since Hacking and Porter, the work of historians of statistics has diversified but remains attached to the two tropes of state and genius. Keith Tribe and Silvana Patriarca have both developed laudable new methodological approaches to single nation studies of statistics and economy. Both have sought to analyse the development of identity, administration, statistics, and Political Economy in specific nation contexts. Tribe's *Governing Economy* is a detailed analysis of the changing economic discourses within Germany from the beginnings of *Cameralwissenschaft* (Cameral science) in the mid-eighteenth century to the shift to *Nationalökonomie* (state economics) during the nineteenth century.⁷² Patriarca's *Numbers and Nationhood*, and corresponding article 'Nation Building and the Consolidation of Regions in Italy', provides another unique methodological approach to the state-based approach. Her monograph is a detailed study of the rise of statistics in the nineteenth-century Italian states designed to illustrate the use of statistics as representational tool for the nation-state.⁷³ Her article investigates the use of statistics as a form of representation in the Italian peninsula. She argues that statistics in Italy were used as a way of representing and creating a new Italian identity, both nationally and

⁶⁸ Ibid, p.185.

⁶⁹ Ibid, p.31.

⁷⁰ Hacking, *The Taming of Chance*, pp.1-2.

⁷¹ Ibid, pp.16-27.

⁷² Tribe, *Governing Economy*, p.6.

⁷³ Silvana Patriarca, *Numbers and Nationhood: Writing Statistics in Nineteenth-Century Italy* (Cambridge: Cambridge University Press, 1996), p.12.

regionally in the lead up to unification.⁷⁴ Both Tribe and Patriarca, however, remain fixated on the nation-state as a unit of exploration and do not place these developments into wider historical contexts beyond these borders.

The works of Woolf, Perrot, Revel, and Bourguet have been particularly important in understanding the evolution of statistics in France during the eighteenth and nineteenth century. Their works examine the process of nation building and statistics role in this process. Marie-Noëlle Bourguet's *Déchiffrer la France* has become a standard reference point for the study of statistics and its development within empire and the state-run administrative offices of the nineteenth century. The work is a comprehensive study of the Napoleonic Bureau of Statistics, which was set up post revolution (1805) and designed to catalogue and order the French state.⁷⁵ She investigates the mechanisms that were created to take up the statistical work of the French administration and explores how statistical reasoning developed in France from its narrative, eighteenth century, form to the more mathematically driven form that became prevalent during the nineteenth century.⁷⁶

The works of Woolf and Perrot concentrate on the wider statistical scene in France during the eighteenth and nineteenth century.⁷⁷ Their collective works engage with the geographical aspects of statistics, their collection and uses within the political realm. Their jointly authored monograph, *State and Statistics in France, 1789-1815*, is an exploration of the history and evolution of statistics in the political sphere in France during a period of great transition. Woolf's monograph, *Napoleon's Integration of Europe*, analyses this development during the Napoleonic era and argues that statistics were used by Napoleon as a weapon to define his captured territories into an essentially distorted and unreal picture.⁷⁸ Finally, a key text by Revel adds a deeper historical context to our understanding of the evolution of statistics. Revel explores the way in which the mapping of territory changed from the medieval period up to the time of Napoleon through the development of mapping and proto-statistics.⁷⁹ These texts, too, are state focused, using France as their field of operation.

⁷⁴ Silvana Patriarca, 'Statistical Nation Building and the Consolidation of Regions in Italy', *Social Science History*, 18/3, (1994), pp.359-376, here p.363.

⁷⁵ Bourguet, *Déchiffrer la France*, p.11.

⁷⁶ *Ibid*, p.16.

⁷⁷ C.f. Jean-Claude Perrot and Stuart J. Woolf, *State and Statistics in France, 1789-1815* (Chur, Swiss.: Harwood Academic Publishers, 1984).

⁷⁸ Stuart J. Woolf, *Napoleon's Integration of Europe* (London: Routledge, 1991), p.42.

⁷⁹ Revel, 'Knowledge of Territory', p.133.

Historians like Randeraad, Wolff, Scott and Schweder have widened the scope of the history of statistics to a more international setting. Randeraad focuses mainly on the international development of statistics during the nineteenth century. He does not concentrate on the national scene, so much as on the political one in general, nor does he confine himself to a single national entity. *States and Statistics in the Nineteenth Century* is devoted to the idea that there existed a fundamental tension between the objectivity that statisticians wanted to achieve in their analysis of the social world and the demands of the political world to use these statistics for their own end.⁸⁰ By examining the statistical conferences and the interactions between the various nations attending, Randeraad desires to show how the development of statistics was not a uniform across the states of Europe.⁸¹ Through this focus on the congresses and societies that evolved around statistics in the later nineteenth century, Randeraad introduced a specifically transnational perspective to his work. A key focus of his work is on the development of these transnational hubs in statistics. This project takes a similar transnational perspective, that focuses on cross border connections, the evolution of hubs and communities of statistical actors and the foundation of wider connections and circulations that went beyond the state. However, this project applies this to an earlier period and does not focus on structures and institutions, rather individuals.

James C. Scott's *Seeing Like a State* has many similarities with Randeraad's work. Both explore the state and its development in an international context.⁸² However, Scott considers how the characterisation of the natural and political world through statistics, by states and nations, has been used to try and improve the conditions of humanity.⁸³ He argues that the failure of these projects was down to the nature of these planned social orders, which are necessarily schematic and always ignore the essential features of any real, functioning, social order.⁸⁴

Schweder illustrates an approach to the subject that remain in the political and social spheres but emphasises the role of the individual. Schweder's article, 'Scandinavian Statistics, Some Early Lines of Development', is an overview of pre-1920s Scandinavian statistical

⁸⁰ Nico Randeraad, *States and Statistics in the Nineteenth Century: Europe by Numbers* (Manchester: Manchester University Press, 2010), p.6.

⁸¹ Randeraad, *States and Statistics in the Nineteenth Century*, pp.1-2.

⁸² James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition have Failed* (New Haven, CT.: Yale University Press, 1998), p.3.

⁸³ Scott, *Seeing Like a State*, p.2.

⁸⁴ *Ibid*, p.6. C.f. Larry Wolff, *The Idea of Galicia: History and Fantasy in Hapsburg Political Culture* (Stanford: Stanford University Press, 2010).

development in the social sphere, followed by a biographical survey.⁸⁵ He concludes that Scandinavian statistics was rooted in mathematical traditions but also in a wider European intellectual tradition.⁸⁶ Again, while diversifying and increasing our knowledge of the evolution of statistical thought his remains attached to the idea of the state as a unit of exploration or comparison.

A different perspective is offered by Labbé, Kertzer and Arel, Thorvaldsen, and Behrisch and is crucial for understanding the approach of historians interested primarily in the practical side of statistics in the political realm. Their works study the ways in which statistics were collected and the changes this process underwent. They focus on the census, the methods used to collect information, the ways these changed over the years, and how this helped form identities, politically and socially.⁸⁷

Labbé's article is an examination of how the Prussian census in newly annexed Polish regions helped form senses of identity.⁸⁸ She concludes that the tension between the introduction of nationality into the census questionnaire and the development of regional identities is shown through the changes of the way in which statistical information was obtained.⁸⁹ Kertzer and Arel's *Census and Identity*, illustrates a similar point. While the majority of the work explores the nineteenth and twentieth century, they argue that by analysing the development of the census we can trace the creation of the identities, both nationally and socially.⁹⁰

Gunnar Thorvaldsen also examines this practical side of the census, analysing how population censuses developed on a global scale.⁹¹ He explores the census as a method of 'biopolitical' control, aiming to problematise the simplistic view held about its development.⁹² Lars Behrisch's work has also attempted to reinvigorate current narratives of the history of statistics. He takes the cases of Germany and France and analyses the wider, practical,

⁸⁵ Schweder, 'Scandinavian Statistics', pp.113-129.

⁸⁶ Schweder, 'Scandinavian Statistics', p.115.

⁸⁷ Benedict Anderson's work paved the way for the argument that national and racial identities could be created out of the apparatus of census taking or map making. C.f. Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (London: Verso, 2006), pp.163-186.

⁸⁸ Morgane Labbé, 'Institutionalizing the Statistics of Nationality in Prussia in the 19th Century (from local bureaucracy to state-level census of population)', *Centaurus*, 49, (2007), pp.289-306, 289.

⁸⁹ Labbé, 'Institutionalizing the Statistics of Nationality', p.303.

⁹⁰ David I. Kertzer and Dominique Arel, 'Census and Identity formation, and the struggle for political power' in David I. Kertzer and Dominique Arel (eds.), *Census and Identity: The Politics of Race, Ethnicity, and Language in National Censuses* (Cambridge: Cambridge University Press, 2004), pp.35-36.

⁹¹ Thorvaldsen, *Censuses and Census Takers*, pp.1-8.

⁹² *Ibid*, pp.5-8.

implementations of statistical ideas by governments and states.⁹³ His monograph takes this view one step further and argues that the state began to use statistical techniques not just for economic reasons in the eighteenth century but also to improve the *Glückseligkeit* (happiness) of society.⁹⁴

Finally, the works of Desrosières and Poovey explore the creation of knowledge within the context of the history of statistics. Poovey's *A History of Modern Fact* is, as the title suggests, an exploration of the development of scientific knowledge in the modern world. It is more concerned with the geniuses of statistical development, however, her work is still connected intimately with the state-based interpretation as she delimits her study to England alone.⁹⁵ She takes her methodology from English literature and critically analyses texts of the nineteenth century.⁹⁶ Her argument is that numbers have become the staples of modern fact, illustrated by the separation of numbers (statistics) and theoretical narrative analysis.⁹⁷ Desrosières' *The Politics of Large Numbers* is an exploration of the evolution of statistical thought from its origins until its professionalisation at the beginning of the twentieth century. His main aim is to illustrate how modern statistics came to be, more specifically, to trace the routes of statistical thinking from its beginnings to understand how its various strands were able to combine through history and form what we would call modern, mathematically minded, statistics.⁹⁸ As Desrosières puts it so poetically, he attempts to “reconstruct... a ‘concrete history of abstraction’”⁹⁹ and re-contextualises the abstract history of thought and epistemology within the political and social realm.¹⁰⁰ Desrosières believes that the evolution of statistical thought should be understood in a more holistic way.¹⁰¹ He, however, limits his comparison to Britain, France and Germany, remaining attached to comparative state-studies and the analysis of particular men of genius.

The Argument

This project has been designed to refocus the direction in which the history of statistics has been taken. It analyses those grey areas in the history whose presence has been neglected or, rather,

⁹³ Lars Behrisch, ‘Statistics and Politics in the 18th Century’, *Historical Social Research*, 41/2, (2016), pp.238-257, here pp.238-239.

⁹⁴ Behrisch, *Die Berechnung der Glückseligkeit*, pp.17-23.

⁹⁵ Poovey, *A History*, p.xiii-xv.

⁹⁶ *Ibid*, p.xi.

⁹⁷ *Ibid*, p.xii.

⁹⁸ Desrosières, *The Politics of Large Numbers*, pp.9-12.

⁹⁹ *Ibid*, p.323.

¹⁰⁰ *Ibid*, pp.323-324.

¹⁰¹ *Ibid*, pp.12-13, 323-327.

ignored because it does not appear to fit into the standard interpretations of the historiography. Thus, the project focuses on the individuals' whose work in statistics took place at the margins, peripheries or outwith the state or science. Their work forms a corpus that has sorely lacked attention, they have been maligned because they do not fit into the assigned notions of state actors or established men of genius (scientists). However, these men had a pivotal impact upon the history of statistics. It is their work that formed the foundation for modern statistics as a discipline that is both mathematical and political. Key to understanding these developments is to employ a transnational perspective on the history of statistics. This perspective removes the artificial limitations of national history and traces the evolution of statistics from the peripheries to the centre rather than vice versa.

This project argues that from the eighteenth century to the middle of the nineteenth century statistics underwent a long evolution in its practice, theory and methods. It changed from a descriptive and narrative dominated discipline to a more mathematically and visually minded science. The project argues that a crucial part of this evolutionary process occurred from the mid-eighteenth century to the beginning of the nineteenth century. In this period, statistics underwent several key shifts in which descriptive techniques and methods of data collecting were combined with mathematical ideas and modes of thought, particularly the combination of the descriptive German 'University Statistik' and the ideas of the Political Arithmeticians and early demographers of Europe.

A shift also occurred in the way statistics was defined. From being concerned with the best ways to rule, how the economy could function or how politics worked, it became a more socially and culturally minded science. Statisticians began to develop a social consciousness and conscience in which people believed statistics could be used to aid the poor, stop crime and generally improve society and the happiness of humankind. These trends, which have been generally ignored by historians, played a more crucial role in this process than previously thought.

The work of individuals, beyond or at the periphery of the state and conventional science, was essential to this combination of mathematical and descriptive techniques. As they could not access governmental or other information easily, they had to develop more advanced techniques and theories to better interpret the information they could obtain. They also saw a duty to society as a whole, a philanthropic enterprise of helping improve the happiness of society. It was not only

the effort of these individuals that helped to change statistics so dramatically but also the way in which these actors interacted with, used, and circulated their ideas that aided this process.

Most importantly, the project presents a transnational history of statistics, that goes beyond the state and emphasises the connections beyond boundaries. This story, with its multiple actors who acted across borders and between multiple locations, has largely been overlooked. It argues that a crucial feature in the evolution of statistics was the development and use of transnational networks created, maintained and expanded by these amateur statisticians. It demonstrates how these individuals were an essential component of the statistical evolution and that this could not have taken place without the development, maintenance and expansion of vast transnational networks of correspondence and travel through which ideas and information could spread.

The Structure

The project is divided into two parts each dedicated to a single actor: August Ludwig von Schlözer and Sir John Sinclair. These two case studies highlight how individuals, working on a transnational level, were able to influence the evolution of statistical thought at the end of the eighteenth and the start of the nineteenth century. The purpose is not to create two biographical studies. Instead, both parts focus on a single individual as well as illuminating wider evolutionary developments. Additionally, the work will conclude with a more detailed comparative synthesis to aid in the understanding of this evolutionary process. To use a metaphor borrowed from Reinhart Koselleck, this structure represents a geological stratum, a slice of the rock at a specific point in history but one that is considered vertically in the light of the strata above and below it in the evolutionary process.¹⁰² All of this adds to the basis of the relatively new transnational method in history. The two case-study approach will demonstrate the complexities of the evolution of statistics as well as the deep connection between all its actors, especially Sinclair and Schlözer.

The first part is focused upon August Ludwig von Schlözer. It primarily explores the developments around his lifetime and stretches from the early 1740s until the 1810s. It argues that, counter to the historiographical tradition,¹⁰³ the work of Schlözer was instrumental in the evolution of statistical thought and that the tradition of 'University Statistik' was not a lame duck so to speak, but an important aspect of statistic's history. Schlözer was a key component in making 'University

¹⁰² C.f. Reinhart Koselleck, *Zeitschichten: Studien zur Historik* (Frankfurt a.M.: Suhrkamp, 2003).

¹⁰³ C.f. Hacking, *The Taming of Chance*; Desrosières, *The Politics of Large Numbers*.

Statistik' into a modern science, one that combined the mathematical and the political/descriptive and attempted to add a wider social function as well. It also argues that Schlözer, and his statistics, was influenced by the work of demographers and that this influence was the catalyst to hybridisation between the political and the mathematical. Additionally, without the transnational networks Schlözer established through both his travels and correspondence he and his ideas would not have had the impact that they did. A detailed analysis of Schlözer's travel and his networks is crucial to establish the transnational nature of the statistical enterprise. It also includes the reception of Schlözer's statistical publications and their various interpretations, translations and circulations around Europe.

The second part focuses on the example of Sir John Sinclair in the period from the 1770s to just after his death in 1834. The chapter will argue that Sinclair had a much wider impact on the development of statistics than has been previously thought. His major contribution to the field, *The Statistical Account of Scotland*, had a regional, national, European, and partly global influence on the methodology, scope and definition of statistics, helping to bring a more social ideal to the working of later statisticians, while also attempting to combine the mathematical with a wide area of investigation. It demonstrates how Sinclair's travels and network helped him form and propagate these ideas. The part traces the evolutionary, statistical, context that Sinclair inhabited beginning with the later seventeenth-century Political Arithmeticians, through the descriptive traditions of the German lands and Britain and finally through the eighteenth century to Sinclair's lifetime. It emphasises the importance of being transnational in the development of statistical thought and Sinclair's role in this through his travels and his statistical network. It analyses Sinclair's statistical work, particularly *The Statistical Account*, before exploring the state of statistics, in and around Britain, after Sinclair's main work had been published and the simultaneous changes in the statistical landscape.

The Methodological Approach

To better understand the evolutionary trends that occur in the history of statistics across the *Sattelzeit*, and, especially, to understand how individuals, working at the edge of the state/science, aided this process, the project combines the methods of transnational, comparative and intellectual history. It will adapt the network analysis theory that combines the ideas of Lux and Cook and the concept of 'epistemic communities' developed by Peter Haas.

While the structure presented above may appear to lend itself to a more comparative study, it must be stressed that the comparative and the transnational work together. The comparative acts as the overarching structure, hence the separate yet interconnected dual case studies. To avoid the danger of straying into the prosopographic the transnational/network analysis approach serves to combat the confusion between narrative and explanation. The transnational approach enables the exploration of networks, their creation, development, and maintenance, which will be combined with the idea of ‘epistemic communities’. By exploring circulations, connections, and communities there is less emphasis on the overall arbitrary divisions of comparative, and especially nation-based history.

Transnational and comparative history have not often been intertwined. Both have a long history, many permutations and definitions, and many diverging practitioners.¹⁰⁴ The precepts of the comparative method, laid down by Marc Bloch in the 1920s, state that it is not only the search for similarities and differences between historical locations and times but also the search for their causes.¹⁰⁵ Modern comparative history retains much of Bloch’s vision.¹⁰⁶ It allows historians to analyse two or more phenomena and uncover ideas that may not have been visible had only one aspect been considered.¹⁰⁷ This definition holds true for the project, and the method of comparison across times and spaces is crucial for the understanding of similarities and differences between the two individual case studies. However, comparative history has been criticised for being too static and artificially separating units of comparison.¹⁰⁸ While aiming to overcome a narrow single nation analysis it has been questioned whether methodological nationalism is inherent to comparison as the spatial starting point is often, though not inherently, the nation-state.¹⁰⁹

¹⁰⁴ C.f. Pierre-Yves Saunier, *Transnational History* (Basingstoke: Palgrave MacMillan, 2013); Deborah Cohen and Maura O’Connor (eds.), *Comparison and History* (New York: Routledge, 2004); Gerhard Haupt and Jürgen Kocka (eds.), *Comparative and Transnational History: Central European Approaches and New Perspectives* (New York: Berghahn Books, 2009); Michael Werner and Bénédicte Zimmermann, ‘Beyond Comparison: *Histoire Croisée* and the Challenge of Reflexivity’, *History and Theory*, 45/1, (2006), pp.30-50; Kiran Klaus Patel, ‘An Emperor without Clothes? The Debate about Transnational History Twenty-Five Years on’, *Histoire@Politique*, 26, (2015), www.histoire-politique.fr, pp.1-16; Clavin, ‘Defining Transnationalism’; Marc Bloch, ‘Towards a Comparative History of European Societies’ in Frederic C. Lane and Jelle C. Riemersma (eds.), *Enterprise and Secular Change: Readings in Economic History* (London: George Allen and Unwin Ltd, 1953), pp.494-521.

¹⁰⁵ Bloch, ‘Towards a Comparative History of European Societies’, pp.496-498.

¹⁰⁶ Deborah Cohen and Maura O’Connor, ‘Introduction: Comparative History, Cross-National History, Transnational History-Definitions’, in Cohen and O’Connor (eds.), *Comparison and History*, p.xi.

¹⁰⁷ Peter Baldwin, ‘Comparing and Generalising: Why all History is Comparative, yet no History is Sociological’, in Cohen and O’Connor (eds.), *Comparison and History*, pp.1-22.

¹⁰⁸ Cohen and O’Connor, ‘Introduction’, *Comparison and History*, p.xvii.

¹⁰⁹ Werner and Zimmermann, ‘Beyond Comparison’, p.36. From this criticism was born *Histoire Croisée* and *Transfersgeschichte*. a good explanation of these trends can be found in the above article and Michel Espagne and

The transnational approach is a break from a strictly national framework with an aim to incorporate a wider international community without being a strict comparison. Its definition has been contentious and shifting since its introduction into the historical discipline in the early 1990s.¹¹⁰ Patel and Saunier arguably provide the best explanation of the transnational approach. Patel defines it as a research perspective (rather than a method), one that transcends the nation and nation-state, crossing boundaries and borders, and looking at interconnectedness and transfers across borders regardless of the nation they are attached to.¹¹¹ Similarly, Saunier defines it as looking at history from a specific point of view: the transnational perspective.¹¹² He also takes a more homogenising approach and argues it is less a singular methodology but more an inclusive approach that analyses the way in which transfers took place across borders.¹¹³ He adds that the aim of the transnational approach is to understand the circulations and connections that spread across borders.¹¹⁴ This approach has been taken further by historians like Patricia Clavin. For her, the overarching aims are to follow or reconstruct cross border connections and their transnational networks.¹¹⁵ Transnationalism illustrates that border crossings are increasingly important and form the basis of our understanding of the creation, development and definition of these cross-border networks.¹¹⁶ She argues that these networks are the way in which we can conceptualise the interactions of people, nations or organisations beyond nationally designed timeframes.¹¹⁷

Many proponents of a transnational approach have emphasised the ‘national’ aspect of the outlook before the ‘trans’. They argue that it is a reaction against older forms of history but retain the notion of fixed national comparison or that historical analysis has to begin with the national and work its way to the ‘trans’ element.¹¹⁸ This project aims to put the ‘trans’ before the

Michael Werner ‘La construction d’une référence culturelle allemande en France: genèse et histoire (1750-1914)’, *Annales Histoire, Sciences Sociales*, 42/4, (1987), pp.969-992. However, Kocha argues that *Histoire Croisée* and comparative history can be combined. C.f. Jürgen Kocka, ‘Comparison and Beyond’, *History and Theory*, 42/1, (2003), pp.39-44.

¹¹⁰ C.f. Saunier, *Transnational History*, pp.13-32; Patricia Clavin, ‘Time, Manner, Place: Writing Modern European History in Global, Transnational and International Contexts’, *European History Quarterly*, 40/4, (2010), pp.624-640.

¹¹¹ Patel, ‘An Emperor without Clothes?’, p.4.

¹¹² Saunier, *Transnational History*, p.4.

¹¹³ *Ibid*, pp.4-8.

¹¹⁴ C.f. Saunier, *Transnational History*, Ch.2; 3.

¹¹⁵ Clavin, ‘Defining Transnationalism’, p.421.

¹¹⁶ *Ibid*, pp.438-439.

¹¹⁷ *Ibid*, p.430.

¹¹⁸ Michael G. Müller and Cornelius Torp, ‘Conceptualising Transnational Spaces in History’, *European Review of History: Revue européenne d’histoire*, 16/5, (2009), pp.609-617, here pp.611-612.

‘national’.¹¹⁹ To do so it will utilise the concept of network analysis developed by David S. Lux and Harold J. Cook and the idea of epistemic communities as proposed by Peter Haas. Beginning with the latter, an epistemic community is a body of professionals who hold a recognized body of knowledge and expertise relevant to a certain policy area.¹²⁰ Haas’s theory states that such communities are not bound to a specific location nor are the bodies of individuals that make it up bound to a profession or aspect of life.¹²¹ Certainly, the idea of a community of expert policy makers/advisors does not fit neatly (or at all) into either of the actors that are focused on here. A community of individuals not bound by location or profession but by developing expertise through a communicative network lies at the heart of the project. It is also one important way to put the ‘trans’ before the ‘national’.

Additionally, the work of Lux and Cook informs the network analysis of the project. They suggest that scientific networks of the seventeenth century should be analysed through the framework of weak ties.¹²² Networks formed on weak ties and a more open structure explain the structural development and lack of consistency of many of the scientific communities of the early modern period as many of these communities were based on correspondence, sometimes between strangers.¹²³ For Lux and Cook, scientific networks formed out of weak ties born out of personal interaction in the form of infrequent visits or single meetings, even simple introductions through correspondences and the future exchange of correspondence that would be used in the dissemination of information.¹²⁴ These networks of weak ties and open associations work and become strong precisely because they were pluralistic, indeed such ties allowed the transfer and circulation of ideas and information that strong ties and closed networks did not.¹²⁵

¹¹⁹ In recent years a trend towards *Translokaliätät*, or Translocality, has attempted to solve this shift. While it is elegant in the sense that it serves to remove the nation or even national boundaries, its focus on the ethnographic aspects of its subjects makes it less suitable a container for this project. C.f. Margrit Pernau, *Transnationale Geschichte* (Göttingen: Vandenhoeck & Ruprecht, 2011), pp.67-75, for an introduction to the subject.

¹²⁰ Peter Haas, ‘Introduction: epistemic communities and international policy coordination’, *International Organization*, 46/1, (1992), pp.1-35, here p.3 for a definition of the term.

¹²¹ Haas, ‘Introduction’, p.3.

¹²² David S. Lux and Harold J. Cook, ‘Closed Circles or Open Networks?: Communicating at a Distance During the Scientific Revolution’, *History of Science*, 36/112, (1998), pp.179-211, here p.182.

¹²³ Lux and Cook, ‘Closed Circles or Open Networks?’, pp.182-183.

¹²⁴ *Ibid*, p.202.

¹²⁵ *Ibid*, pp.201-202.

Recent work by Dániel Margócsy has highlighted how the strength of such Early Modern networks lay in their flexibility.¹²⁶ Margócsy stresses how these networks were centred upon individuals who were, in some senses, the network themselves.¹²⁷ He argues that these networks cannot be seen as homogeneous wholes that acted in a specific way. They were vulnerable to individual fallibility but due to their flexibility, weak ties, and openness they could remain remarkably stable as long as the individual at the centre remained.¹²⁸

The various forms of network have been explored by historians attempting to dispel the notion that the networks of the eighteenth century functioned as the homogenous *Republic of Letters*.¹²⁹ For instance work by Steve Murdoch, Sarah Easterby-Smith, and Mary Terrall have demonstrated these new forms of networks in action. Murdoch's *Network North* explores how different networks functioned in the eighteenth century under different conditions, such as kinship networks, commercial networks, and covert networks.¹³⁰ Each type of network interacted and worked in different ways but were built upon trust, through exchange, and on kith and kin.¹³¹ This approach reveals the breadth of networks that existed beyond the usual exploration of networks of the social elite.¹³²

Easterby-Smith and Terrall both explore the evolution of scientific networks in the eighteenth century and, illuminate how networks functioned as conduits and creators of knowledge beyond the *Republic of Letters* format. Easterby-Smith's *Cultivating Commerce* explores the botanical networks of the eighteenth century from the perspective of plant traders and gardeners working on a transnational scope, those who have not received as much attention within the historiography.¹³³ *Cultivating Commerce* explores how these lesser known figures connected larger networks on a transnational scale and acted as conduits of knowledge in all manners of

¹²⁶ Dániel Margócsy, 'A long history of breakdowns: A historiographical review', *Social Studies of Science*, 43/3, (2017), pp.307-325, here pp.313-315.

¹²⁷ Margócsy, 'A long history of breakdowns', p.313.

¹²⁸ Ibid, p.315.

¹²⁹ C.f. for this view of homogeneity; Anne Goldgar, *Impolite Learning: Conduct and Community in the Republic of Letters 1680-1750* (New Haven: Yale University Press, 1995); Dena Goodman, *The Republic of Letters: A Cultural History of the French Enlightenment* (Ithaca: Cornell University Press, 1994); Jürgen Habermas, *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society* (Cambridge: Polity, 1989).

¹³⁰ Steve Murdoch, *Network North: Scottish Kin, Commercial and Covert Associations in Northern Europe, 1603-1746* (Leiden: Brill, 2006), pp.3-5.

¹³¹ Murdoch, *Network North*, p.6.

¹³² Ibid, p.8; c.f. Goldgar, *Impolite Learning*; Goodman, *The Republic of Letters*.

¹³³ Sarah Easterby-Smith, *Cultivating Commerce: Cultures of Botany in Britain and France, 1760-1815* (Cambridge: Cambridge University Press, 2018), pp.2-5.

botany, from the practical to the scientific to the social.¹³⁴ Easterby-Smith illustrates that botanical networks relied on a variety of individuals with varying levels of expertise and social statuses.¹³⁵ This conception of a network is useful in the understanding of the statistical networks of Sinclair and Schlözer as it demonstrates that scientific knowledge was not necessarily simply produced by the most famous men of the era, but new types of knowledge, both practical and scientific, were produced in networks that centred around so-called ‘ordinary men’ or amateurs.

Terrall’s *Catching Nature in the Act* also demonstrates the variety of scientific network that could exist in the eighteenth century. She explores the working of a loose network of friends interested in Natural History in the early eighteenth century and attempts to explain how observing, collecting and experimenting were integrated into the lives of these people.¹³⁶ For Terrall, these networks were not close knit or homogeneous circles, rather they were a diverse intersection of various individuals interested in insect life; these networks wove observation, experimentation, and collection seamlessly into a narrative of exchange through personal interaction and correspondence.¹³⁷ Again, Terrall illustrates how eighteenth century networks of science or knowledge creation functioned beyond large institutions, the state, or famous individuals in personal laboratories.

These examples of recent literature help to refine the understanding of the intellectual and physical composition of networks in this project. They demonstrate that networks in the eighteenth century were not homogenous and did not always fit a *Republic of Letters* pattern. They illustrate how those working on a transnational scale, in networks that were centred on individuals could function throughout the period and make important contributions to scientific, or other fields of, knowledge.

The second major theme of exploration has been the nature of change in networks across the seventeenth, eighteenth, and nineteenth centuries. Historians such as Easterby-Smith, Laurence Brockliss, and Elise Lipkowitz have argued that scientific networks fundamentally changed during the latter half of the eighteenth century and the start of the nineteenth century due to the destructive

¹³⁴ Easterby-Smith, *Cultivating Commerce*, pp.2-3.

¹³⁵ *Ibid*, p.48.

¹³⁶ Mary Terrall, *Catching Nature in the Act: Réaumur and the Practice of Natural History in the Eighteenth Century* (Chicago: The University of Chicago Press, 2014), pp.18-19.

¹³⁷ Terrall, *Catching Nature in the Act*, pp.19-43

impact of the French Revolution and the Napoleonic Wars.¹³⁸ Brockliss and Easterby-Smith both assert that eighteenth-century networks were broken up by the French Revolution, particularly The Terror, and reassembled in the forge of the Napoleonic Wars into more state-centric nationalistic networks, being reoriented more towards national objectives.¹³⁹

Interestingly, as will be developed below, this was not the case for the statistical networks analysed in this project. There were no significant changes over time in the way that these networks functioned, even during the period of turmoil that characterises the end of the eighteenth century and the beginning of the nineteenth. The networks of Schlözer and Sinclair remained unaffected. However, this approach outlined above does help to refine the idea of the statistical network and to strengthen the idea that these networks were founded on weak ties, openness and plurality that allowed them to function through periods of turbulence because they were focused upon an individual who had the power to hold these networks together.

Intellectual history has also shaped the methodology, particularly Quentin Skinner and Richard Whatmore's conceptualisation of how intellectual history is practiced, and Reinhard Koselleck's concept of *Begriffsgeschichte* (conceptual history).¹⁴⁰ Whatmore defines intellectual history not as a singular philosophical standpoint of practitioners but, instead, coming from a 'particular approach to historical ideas'.¹⁴¹ For him the approach is based on the contextualisation of historical ideas,¹⁴² that focuses on the reconstruction of a particular actor/author's meaning in their ideas and texts.¹⁴³ This would make intellectual history more a search for meaning and understanding within the work of the individual actor or set of ideas, and Skinner concurs. Skinner argues that the purpose of intellectual history is not to fully reconstruct a context nor to simply analyse an actor's ideas from their text, instead, it is to determine the author's motivations for

¹³⁸ C.f. Easterby-Smith, *Cultivating Commerce*, pp.174-188; Laurence Brockliss, 'Introduction: the Republic of Letters and the French Revolution', 'I. The Life and Work of Pierre-Joseph Amoreux' in Laurence Brockliss (ed.), *From Provincial Savant to Parisian Naturalist: Recollection of Pierre-Joseph Amoreux (1741-1824)* (Oxford: Voltaire Foundation, 2017), pp.1-17, 34-54; Elise S. Lipkowitz, 'Seized natural-history collections and the redefinition of scientific cosmopolitanism in the era of the French Revolution', *The British Journal for the History of Science*, 47/1, (2014), pp.15-41.

¹³⁹ Brockliss, 'I. The Life and Work of Pierre-Joseph Amoreux', pp.34-40; Easterby-Smith, *Cultivating Commerce*, p.188.

¹⁴⁰ C.f. Richard Whatmore, *What is Intellectual History?* (Cambridge: Polity, 2016).

¹⁴¹ *Ibid.*, p.20.

¹⁴² *Ibid.*, p.18.

¹⁴³ *Ibid.*, p.99.

writing a particular text or having a particular idea.¹⁴⁴ He does not preclude the use of a textual analysis or wider historical context but argues that these should be considered secondary in understanding of ideas in history.¹⁴⁵ This method of understanding ideas and their authors combined with Whatmore's notion of the wider intellectual contextualisation of historical actors offers a way to understand the development of statistical ideas and to assess the ideas that are being produced. Combining this approach with a wider transnational perspective allows the two methods to free themselves of the criticism that both enclose themselves in stringent definitions of their practice. That is, the transnational is not confined to the nation and intellectual history is not confined to the idea or the single actor. Instead, both are liberated by an interdependent wider scope.

Finally, the concept of *Begriffsgeschichte*, developed by Reinhart Koselleck will underpin the project. 'Conceptual history' allows the historian to trace the wider concepts through changes in language, speech and text.¹⁴⁶ It explores the ways concepts mutate and the baggage (i.e. the philosophical systems, political formations, the dogma) that develops within it.¹⁴⁷ Combining this 'conceptual history' with the notions developed by Whatmore and Skinner adds a layer of complexity to the methodological approach that can aid the understanding of the development of statistics. The *Begriffsgeschichte* aspect can work also to unpack the concept of statistics further and help us understand the developments within the concept.

¹⁴⁴ Quentin Skinner, 'Meaning and Understanding in the History of Ideas', *History and Theory*, 8/1, (1969), pp.3-53, here pp.3-4.

¹⁴⁵ Skinner, 'Meaning and Understanding', p.48.

¹⁴⁶ Reinhart Koselleck, *Begriffsgeschichten: Studien zur Semantik und Pragmatik der politischen und sozialen Sprache* (Frankfurt a.M.: Suhrkamp, 2010), pp.9-30.

¹⁴⁷ *Ibid.*, pp.99-100.

Part I

Schlözer's Statistical School: The Rise of German *Statistik* and its Transnational Influence

In 1749 a professor at the University of Göttingen, Gottfried Achenwall (1719-1772), wrote a slim volume on the constitutions of Europe, entitled *Abriß der neuesten Staatswissenschaft der vornehmsten Europäischen Reiche und Republicken*. He had a clear aim: to elucidate the benefits of *Staatswissenschaft* (political science),¹⁴⁸ which he connected to statistics as the process of gathering information on a given polity to form a better opinion of the state.¹⁴⁹ This was the foundation of the tradition of German *Statistik* in the eighteenth century. At the time Achenwall was teaching at the recently founded University of Göttingen and this would lead to his foundation of a 'school of statistics' that shaped the evolution of statistical thought in the German lands¹⁵⁰ and across Europe. One of the pupils of this 'school', and perhaps its greatest proponent, would be at the forefront of this evolutionary trend: August Ludwig von Schlözer.

Historians usually assume German *Statistik* was an inflexible system of description, lacking any mathematical depth, paying little attention to wider influences in the German lands at the time.¹⁵¹ This section argues counter to this, that the theories and methodologies of the German *Statistiker* (statistician) had a large impact on the development of statistics across Europe. These individuals were an essential part of this evolutionary process, especially those working beyond the state. Three themes structure the development of a 'German statistical tradition' and its impact on the evolution of statistics: 'proto-statistics', the rise of agricultural reform, and demographics, especially in the aftermath of the Thirty Years' War. Additionally, this section shall explore the rising importance of the University of Göttingen and as a centre of statistical learning.

¹⁴⁸ Achenwall, *Abriß*, pp.1-3.

¹⁴⁹ *Ibid*, pp.1-2.

¹⁵⁰ The Holy Roman Empire was, until its dissolution in 1806, the de jure power over the various states in Central Europe. Thus, it will be termed 'the German lands' throughout.

¹⁵¹ Desrosières, *The Politics of Large Numbers*, pp.19-23.

Chapter 1

The Rise of Statistics: Hermann “the Father of Statistics” Conring and the Agricultural and Demographic traditions

The Thirty Years’ War devastated Europe, especially the German lands, and historians have argued that the latter half of the seventeenth century was an era of rebuilding both demographically and economically.¹⁵² This crisis sparked an interest in administration and organisation and led to a form of ‘proto-statistics’ developed by Hermann Conring during the seventeenth century. The eighteenth century connected it to the idea of vital statistics, particularly recording agricultural and demographic information.¹⁵³ This development, which was a crucial part of the eighteenth-century spirit of quantification, was a key element in the evolution of statistical thought.¹⁵⁴ This drive towards quantification, which Foucault labelled ‘biopolitics’,¹⁵⁵ had a profound influence on the evolution of the ‘German statistical tradition’. It became an important conduit between the *Statistiker* and the scientific, visual, and mathematical elements that merged in the early nineteenth century. This section will explore the rise of agricultural and demographic statistics in the eighteenth century as well as the work of Süßmilch in particular. It will highlight the deep connections between the agricultural and demographic movements and the evolution of statistics in the German lands from the seventeenth to the eighteenth century.

Hermann Conring was born in Norden, Ostfriesland, in November 1606, the son of a protestant Pastor.¹⁵⁶ He studied at Leiden and Helmstedt before becoming a professor of natural philosophy in 1632, medicine in 1636 and, finally, of politics in 1650. Travels to Holland were formative and sparked an intellectual curiosity, especially in the ideas of the Dutch jurist Hugo Grotius (1583-1645).¹⁵⁷ He authored works of legal history and developed theoretical ideas about

¹⁵² Ronald G. Asch, *The Thirty Years’ War: The Holy Roman Empire and Europe, 1618-1648* (Basingstoke: Macmillan, 1997), pp.185-194.

¹⁵³ C.f. Behrisch, ‘Statistics and Politics in the 18th Century’, pp.238-257. He argues that it was only in the late eighteenth century that this form of ‘vital statistics’ appeared.

¹⁵⁴ Johannisson, ‘Society in Numbers: The Debate over Quantification in 18th-Century Political Economy’, in Frängsmyr, Heilbron, Rider (eds.), *The Quantifying Spirit in the 18th Century*, pp.343-364, here pp.360-361.

¹⁵⁵ C.f. Michel Foucault, *The Birth of Biopolitics: Lectures at the College de France, 1978-79* (Basingstoke: Palgrave Macmillan, 2008); Michel Foucault, *Security, Territory, Population: Lectures at the College de France, 1977-1978* (Basingstoke: Palgrave Macmillan, 2009), pp.273-275.

¹⁵⁶ Erich Döhring, ‘Conring, Hermann’, *Neue Deutsche Biographie* 3 (1957), pp. 342-343 [Online-Version]: <https://www.deutsche-biographie.de/gnd11852190X.html#ndbcontent>. [17 September 2017].

¹⁵⁷ Lazarsfeld, ‘Notes’, p.287.

politics and policy, trade and finance, taxation and economy.¹⁵⁸ His lectures on politics put him into contact with Gottfried Wilhelm Leibniz (1646-1716), a relationship that proved both fruitful and frustrating, leading Conring to be distrustful of mathematics, he even advised Leibniz not to waste his time with them.¹⁵⁹

Possibly the key event in Conring's life was the Thirty Years' War (1618-1648). It was destructive politically, economically, and socially, and it is estimated that across the German lands the population was reduced from 16 million to around 12 million by the 1650s.¹⁶⁰ This created a drastically restrictive intellectual climate in the German lands, where the individual princes controlled the ebb and flow of professors and intellectuals to and from their various courts and universities.¹⁶¹ Because of this Conring was for most of his life in a precarious position and often begging for money for his political services.¹⁶² This witnessed devastation and the resulting precariousness of Conring's position impacted his ideas. The lack of stability created a man who was stern and showed severity in his work.¹⁶³ His attitude was influenced by the desire for peace and stability in governance with high religious and moral ideals.¹⁶⁴ He espoused a new general philosophy that gave greater importance to the state and attempted to illuminate the fundamentals underlying its construction and foundation.¹⁶⁵ Lazarsfeld succinctly summed up the situation:

All in all, the critical German problem of the time was civic reconstruction. Problems of law and of administration had high priority. The competition between principalities pressed in the same direction... International law started a few miles from everyone's house or place of business... No wonder... that it was the spirit of systematically cataloguing what existed, rather than the making of new discoveries that made for academic prestige.¹⁶⁶

Thus, Conring formed part of a generation who, out of the devastation of war, saw the need to define and delineate. Conring's interests in organising and cataloguing were born in these twin fires, one so personal and the other so public.

¹⁵⁸ Döhning, 'Conring, Hermann'.

¹⁵⁹ Lazarsfeld, 'Notes', pp.288-289.

¹⁶⁰ Asch, *The Thirty Years' War*, p.185.

¹⁶¹ Lazarsfeld, 'Notes', p.286.

¹⁶² *Ibid*, p.286.

¹⁶³ *Ibid*, p.288. For an overview of the Thirty Years' War c.f. Asch, *The Thirty Years' War*; Olas Asbach and Peter Schröder (eds.), *The Ashgate Research Companion to the Thirty Years' War* (Farnham: Ashgate, 2014); Geoffrey Parker (ed.), *The Thirty Years' War* (London: Routledge, 1997).

¹⁶⁴ Georg Lenz, 'Hermann Conring und die Deutsche Staatslehre des 17. Jahrhunderts', *Zeitschrift für die gesamte Staatswissenschaft*, 81/1, (1926), pp.128-153, here p.128.

¹⁶⁵ Lenz, 'Hermann Conring', p.139.

¹⁶⁶ Lazarsfeld, 'Notes', p.287.

Conring argued, in his two most famous works: *De origine iuris Germanici* (1643); *Discursus novus Imperatore Romano-Germanico* (1643), that the Holy Roman Empire was something different from the Roman Empire of antiquity.¹⁶⁷ His arguments were based on the theory that the German state (the Holy Roman Empire) was something new, born independent, and incompatible with Roman Law, and could not be ruled over by the Emperor of Rome or the Pope but only by the King of Germany.¹⁶⁸ Conring's ideas, Fasolt argues, formed a rift between medieval and modern forms of political thought, undermining the hegemony of universal rule in favour of something more heterogenous.¹⁶⁹ It was out of these ideas that his concern for the German polity and its administration grew. In turn this developed into his theories regarding categorisation and the understanding of the state; what we may call 'proto-statistics'.

His 'proto-statistics' were based on Aristotelian philosophy and his interest in medicine. Lazarsfeld points out that Conring's language was rather medical in nature, speaking of the health of a state and the best ways to cure it.¹⁷⁰ Similar overtures were made in the works of Political Arithmetic, especially Petty's *The Political Anatomy of Ireland*, in which he speaks of the natural body and the body politic as entities that are closely related.¹⁷¹

However, this is as far as the comparison stretches in terms of the development of these two strands of 'proto-statistics'. The Political Arithmeticians favoured quantification, while Conring chose qualification.¹⁷² Lazarsfeld argues that this led German *Statistik* to be deeply sceptical of the mathematical and induced some of its practitioners to embrace static rather than comparative analyses.¹⁷³ Such a view, however, is flawed as later German *Statistiker* were interested in mathematics and demographics and neither ignored nor disregarded these techniques.

Nevertheless, Conring did find mathematics to be unsuitable to his purposes and disregarded the more mathematical theories, unlike the Political Arithmeticians. Instead, Conring applied a specifically Aristotelian system comprised of four categories: the state as the acting body with a goal (*causa finalis*), the knowledge of people and economic goods (*causa materialis*), the

¹⁶⁷ Constantin Fasolt, 'Author and Authenticity in Conring's *New Discourse on the Roman Emperor*: A Seventeenth-Century Case Study', *Renaissance Quarterly*, 54/1, (2001), pp.188-220, here pp.188-189.

¹⁶⁸ Constantin Fasolt, 'A Question of Right: Hermann Conring's *New Discourse on the Roman-German Emperor*' *The Sixteenth Century Journal*, 28/3, (1997), pp.739-758, here pp.746-748.

¹⁶⁹ Fasolt, 'A Question of Right', p.739.

¹⁷⁰ Lazarsfeld, 'Notes', p.285.

¹⁷¹ Sir William Petty, *The Political Anatomy of Ireland* (London: D. Brown and W. Rodgers, 1697), Preface.

¹⁷² Lazarsfeld, 'Notes', p.285.

¹⁷³ *Ibid*, p.285.

constitution and laws of the country (*causa formalis*), and the concrete administration and activities of its elite (*causa efficiens*). Under each category Conring made further subdivisions to better define and identify the *causae* and illuminate the inner workings of the state.¹⁷⁴

This formula, believed by many German *Statistiker* to be the best method of understanding the mechanisms of the state, would be followed from the eighteenth century onward. Conring added to this idea a comparison between states and nations, born out of the situation of the Holy Roman Empire.¹⁷⁵ With over 300 states, the comparative method was designed to reveal relative strengths and weaknesses of a particular territory.¹⁷⁶ Conring's major test subject for the rest of his 'proto-statistical' work, however, was Spain. This generated another idea that would be crucial to statistical thought, not just in the German lands, but most of Europe, that of recording the source material.¹⁷⁷

Conring's methods set the path for statistics in the German tradition for more than a century and a half. His ideas created a system that could be used to easily understand and interpret the make-up of a state. It could also make comparisons between states and suggest how one could govern better. With the publication of his work at the start of the eighteenth century his system was being taught across the German lands.¹⁷⁸ However, two additional strands of statistical thinking came to influence the university tradition Conring developed: agriculture and demographics.

Demographics in the German lands did not begin until the early eighteenth century and reached its zenith through the work of the Prussian pastor Johann Peter Süßmilch (1707-1767) in the early 1740s. In his youth he travelled to the Netherlands where he learned Dutch and read the pioneering work of the Dutch mathematician Nicolaas Struyck (1686-1769).¹⁷⁹ His works would prove especially influential on Süßmilch's demographics.¹⁸⁰ Upon returning to Prussia in 1736

¹⁷⁴ Ibid, p.290.

¹⁷⁵ C.f. Peter H. Wilson, *The Holy Roman Empire: A Thousand Years of Europe's History* (London: Allen Land, 2016); Joachim Whaley, *Germany and the Holy Roman Empire* (Oxford: Oxford University Press, 2012).

¹⁷⁶ Lazarsfeld, 'Notes', p.291.

¹⁷⁷ Ibid, p.291.

¹⁷⁸ Ibid, p.291.

¹⁷⁹ Jacqueline Hecht, 'Johann Peter Süssmilch: A German Prophet in Foreign Countries', *Population Studies*, 1/1, (1987), pp.31-58, here pp.32-33.

¹⁸⁰ Horváth, 'Süssmilch's Methodological Impact', p.59.

Süßmilch was ordained and in 1740 he was engaged in the Silesian campaign as an army pastor.¹⁸¹ It was then that Süßmilch began work on his most influential work, *Die göttliche Ordnung*.¹⁸²

*Die göttliche Ordnung*¹⁸³ is considered by historians not only to be Süßmilch's crowning work but also the first substantial work of demography produced in Europe and one of the most influential works of eighteenth-century statistics.¹⁸⁴ He cites 'Derhmas Physico-Theologie' as inspiration for the development of his ideas.¹⁸⁵ These ideas were based on new methods of detecting and understanding the work of divine providence and proving, once and for all, that God has a plan for the world. Being a pastor and a student of theology, it was clear to Süßmilch that his work must have a theological purpose.¹⁸⁶ Therefore, the book was designed to reveal the workings of divine providence. He was searching for an order that was external to humanity, which, through its superiority could also regulate its population.¹⁸⁷ While not being inherently statistical, Süßmilch did remark that he saw the divine order as working like a body.¹⁸⁸ In fact, Süßmilch acknowledged this debt to the Political Arithmeticians, indicating that he was more than aware of Petty's and John Graunt's (1620-1674) ideas.¹⁸⁹ He was an admirer of them, particularly Graunt, going so far as to call him the pioneer of demographic inquiry.¹⁹⁰

From the theories of the Political Arithmeticians Süßmilch developed the most influential aspect of his work: the methodology. Horváth argues that Süßmilch's impact on applied mathematics and probability has been deeply underappreciated.¹⁹¹ He states that *Die göttliche Ordnung* was significant for future mathematicians and statisticians, influencing those involved in calculating annuities and life insurance right up to Adolphe Quetelet (1796-1874) and his moral

¹⁸¹ Hecht, 'Johann Peter Süssmilch', p.32.

¹⁸² von John, 'Süßmilch, Johann Peter' *Allgemeine Deutsche Biographie* 37 (1894), pp.188-195 [Online-Version] <https://www.deutsche-biographie.de/gnd118814834.html#adbcontent>. [18 September 2017].

¹⁸³ Johann Peter Süßmilch, *Die göttliche Ordnung* (Berlin: Daniel Ungult Gohls, 1742), pp.13-14. C.f. Justus Nipperdey, 'Johann Peter Süssmilch: From Divine Law to Human Intervention', *Population*, 66/3-4, (2011), pp.611-636.

¹⁸⁴ Hacking, *The Emergence of Probability*, p.113; Desrosières, *The Politics of Large Numbers*, p.74; Horváth, 'Süssmilch's Methodological Impact', pp.59-60, 64.

¹⁸⁵ Süßmilch, *Die göttliche Ordnung*, pp.13-14. William Derham (1657-1735) was an English natural theologian. His thought on the subject of God's Will as it manifested itself in the real world was influential on Süßmilch and his theory of population.

¹⁸⁶ *Ibid*, pp.19-20.

¹⁸⁷ Desrosières, *The Politics of Large Numbers*, p.74.

¹⁸⁸ *Ibid*, p.20. It could also represent influences from Conring as well.

¹⁸⁹ *Ibid*, pp.15-17.

¹⁹⁰ *Ibid*, pp.17-18; c.f. Hacking, *The Taming of Chance*, p.20.

¹⁹¹ Horváth, 'Süssmilch's Methodological Impact', p.61.

statistics.¹⁹² Horváth adds that his work was a synthesis and the first major use of the ideas of the Political Arithmeticians on the continent.¹⁹³ Süßmilch presented the largest and most comprehensive use of the theory, producing a first volume of 400 plus pages in 1741 and a further edition in the 1760s in two volumes that spans over 1400 pages. He systematically poured over church records gathering facts and produced the first major exposition of demography using mathematics and Political Arithmetic.¹⁹⁴ Süßmilch's methodology was based on understanding population control and the divine order in these mechanisms. He believed that the understanding of this divine order came from an understanding of the population itself, of the births and deaths rates, of the ratio of the sexes, and the ages at which people died.¹⁹⁵ His method was founded on the comparative, both temporally and spatially.¹⁹⁶

For instance, for Breslau, he examined the number of deaths arranged in tabular form. He presented the deaths year by year over nearly a hundred-year period before tabulating the total and presenting the reader with an average.¹⁹⁷ This is followed by a detailed analysis and explanation, specifically for the control of the population. He analysed the average population before expanding this to different years and working out the fraction of people who died in each year, to better illustrate trends and changes in population. He then explains their effect on the area.¹⁹⁸ Süßmilch's methodology was laden with mathematics (arithmetic), including averages, fractions and percentages, albeit always wrapped in a theological overcoat.

This represented a key moment in the history of statistics in Europe. Süßmilch developed the ideas of the Political Arithmeticians further to include temporal and spatial comparisons across a larger area. His work on demographics was significant to the development of statistics and a key aspect of the intellectual environment for the *Statistiker* of the later eighteenth century. Ian Hacking goes so far as to argue that *Die göttliche Ordnung* represents the beginning of Foucauldian 'biopolitics'.¹⁹⁹

¹⁹² Ibid, pp.61-64.

¹⁹³ Ibid, p.59.

¹⁹⁴ Hacking, *The Taming of Chance*, p.21.

¹⁹⁵ Süßmilch, *Die göttliche Ordnung*, p.21.

¹⁹⁶ Ibid, pp.1-67. Chapter one represents his methodological concerns.

¹⁹⁷ Ibid, pp.55-58.

¹⁹⁸ Ibid, p.58.

¹⁹⁹ Hacking, *The Taming of Chance*, pp.21-22.

Agricultural statistics, a form of Foucauldian ‘biopolitics’,²⁰⁰ began to develop around the mid-eighteenth century in the German lands and France, driven by both Cameralism and Physiocracy. The first was a form of political science, a combination of the study of politics and economy designed to aid in the administration of the state, especially in the German lands, and has been described as vague in its design.²⁰¹ Physiocracy was the science of economy made famous by François Quesnay (1694-1774) and Anne-Robert-Jacques Turgot (1727-1781).²⁰² It was popular in France, especially during the Seven Years War (1756-1763), which plunged economies and agriculture into recession due in part to the mass of land that France lost from Canada to the Caribbean.²⁰³ Physiocracy was based on the idea of the rule of nature, it stressed the need for arithmetic precision to understand and help the flow of the economy.²⁰⁴ Physiocrats stood for a free market as they believed that the economy was controlled by nature and that taxation was set by nature/natural demands which lead to heavy investment in agriculture as a means of improving the economy.²⁰⁵

The twin intellectual currents of Political Arithmetic and Political Economy play a large part in the development of agricultural statistics.²⁰⁶ It combined many of the ideas of Cameralism, Physiocracy, and *Staatswissenschaft*. Lars Behrisch argues that this form of statistics was more intimately connected to the state from the beginning, and as early as the 1760s administrators in both France and the German lands took to the idea of quantifying agricultural facts and data in

²⁰⁰ C.f. Foucault, *The Birth of Biopolitics*; Foucault, *Security, Territory, Population*. The term ‘Biopolitics’ is laden with baggage but given a full exploration here by Foucault. C.f. Andrea A. Rusnock, ‘Biopolitics: Political Arithmetic in the Enlightenment’, in William Clark, John Golinski, and Simon Schaffer (eds.), *The Sciences in Enlightened Europe* (Chicago: The University of Chicago Press, 1999), pp.49-68.

²⁰¹ C.f. Tribe, *Governing Economy*, pp.37-38; Keith Tribe, ‘Cameralism and the Science of Government’, *The Journal of Modern History*, 56/2, (1984), pp.263-284; Marcus Sandl, *Ökonomie des Raumes: Der kameralwissenschaftliche Entwurf der Staatswirtschaft im 18. Jahrhundert* (Köln: Böhlau, 1999); Jutta Brückner, *Staatswissenschaften, Kameralismus und Naturrecht: Ein Beitrag zur Geschichte der Politischen Wissenschaft in Deutschland des späten 17. und frühen 18. Jahrhunderts* (München: C.H. Beck, 1977).

²⁰² C.f. Charles S. Maier, *Once Within Borders: Territories of Power, Wealth, and Belonging since 1500* (Cambridge, Mass.: The Belknap Press, 2016), pp.133-184, for an overview of the agrarian reforms and economic principles that fuelled Physiocracy. Also c.f., Elizabeth Fox-Genovese, *The Origins of Physiocracy: Economic Revolution and Social Order in Eighteenth-Century France* (Ithaca: Cornell University Press, 1976).

²⁰³ Behrisch, ‘Statistics and Politics in the 18th Century’, pp.245-246.

²⁰⁴ Fox-Genovese, *The Origins of Physiocracy*, pp.9-10.

²⁰⁵ *Ibid*, pp.49-51.

²⁰⁶ *Ibid*, pp.242-245. C.f. Donald Winch, *Riches and Poverty: An Intellectual History of Political Economy in Britain, 1750-1834* (Cambridge: Cambridge University Press, 1996); Stefan Collini, Donald Winch, and John Burrow, *That Noble Science of Politics: A study in nineteenth-century intellectual history* (Cambridge: Cambridge University Press, 1983), especially pp.37-38 for Dugald Stewart’s definition of Political Economy as speculations on the object of the happiness and improvement of society.

order to better define their territory.²⁰⁷ One of the major catalysts for this were the agricultural and demographic problems of the earlier eighteenth century and the desire to solve concerns surrounding subsistence while legitimising and defining the state.²⁰⁸ This quantification of facts in both France and Germany was due, in large part, to the wish to see long-term economic growth.²⁰⁹

These combined elements impacted statistical thought throughout the German lands during the latter half of the eighteenth century. These statistics were disseminated and formed a discourse that helped spread this particular brand of statistical thought through newspapers, magazines and journals.²¹⁰ Behrisch points out that this discourse went through a series of different channels (whether public or private spheres),²¹¹ but they were always censured by the state. The flow of information was heavily controlled and always used to benefit the government. Its impact on statistical thought was limited, especially in terms of methodology. However, it was a key part of the intellectual environment during the rise of the Göttingen school of statistics:

[I]n both the German and the French contexts, the production and publication of ever more quantitative data stimulated discussions around them and brought them to the centre of public attention as a measuring yard of political action, success and legitimacy. Only as statistics was implemented in actual political and administrative practice, so did the idea and, indeed, the imperative of demo-economic quantification impose themselves within and beyond politics.²¹²

Behrisch's argument holds water insofar as it concerns statistics as a tool of political justification for governments or princes. Eighteenth-century agricultural statistics was a method by which a state could define its own success or failure. Governments publicised this information in an attempt to garner opinion in the state's favour.

Behrisch gives these forms of statistical practice too wide an impact upon, not only the community at large, but on the development of statistical practice too. While the by-product of this policy was that it provided amateur statisticians with some information and informed debates surrounding demographic issues within German intellectual circles,²¹³ this seems to be the farthest

²⁰⁷ Ibid, pp.248-249. C.f. Maier, *Once Within Borders*, pp.133-184.

²⁰⁸ Behrisch, *Die Berechnung der Glückseligkeit*, pp.50-52.

²⁰⁹ Behrisch, 'Statistics and Politics in the 18th Century', p.255.

²¹⁰ Behrisch, *Die Berechnung der Glückseligkeit*, pp.121-125.

²¹¹ Ibid, p.97. C.f. Habermas, *The Structural Transformation of the Public Sphere*.

²¹² Behrisch, 'Statistics and Politics in the 18th Century', p.248.

²¹³ Behrisch, *Die Berechnung der Glückseligkeit*, pp.289, 181. Schlözer gathered information on population density in the early 1780s from this agricultural information.

impact of the state-sponsored agricultural statistics.²¹⁴ The concept and ideas concerning *Staatsbeschreibung* did not aid in the development of statistics in any real way and it would be unfair to label Schlözer's statistical works under this heading. In the realms of method and theories it was individual practitioners that impacted its evolution.

One of the key actors who was influential in this change was August Ludwig Wilhelm Crome (1753-1833).²¹⁵ From 1778 to 1787 Crome was engaged as a teacher of both history and geography in Dessau. Here he developed his most revolutionary ideas regarding statistics in his *Europens Produkte: zum Gebrauch der neuen Produkten=Karte von Europa* (1782). On the back of the success of this publication Crome was offered a professorship in Statistik and Kameralwissenschaft at the University of Gießen in 1787.²¹⁶ His work, especially his maps, were influential on the development of statistical thought in the German lands and abroad.

Europens Produkte included a map,²¹⁷ which was one of the first attempts at visualisation in statistics as well as the first attempt to produce a statistical account graphically, depicting products and trade centres across Europe.²¹⁸ It went beyond the wider notion of 'thematic' maps which had been developing since the seventeenth century.²¹⁹ Crome aimed to illustrate statistical data utilising mathematical techniques to achieve the correct effect. His work continued with a country by country analysis, giving a detailed overlay of the information presented in the map.²²⁰ The format of his work is similar to many other statisticians and agriculturalists, especially Arthur Young and Gottfried Achenwall.²²¹

However, while the main body shares commonalities with many statistical monographs of the eighteenth century, the map he produced was different (see Figure 1). It illustrated the full

²¹⁴ Contrast with Mohammed Rassem and Justin Stagl (eds.), *Statistik und Staatsbeschreibung in der Neuzeit* (Paderborn: Ferdinand Schöningh, 1980); Frängsmyr, Heilbron, Rider (eds.), *The Quantifying Spirit in the 18th Century*.

²¹⁵ Rivier, 'Crome, August Friedrich Wilhelm', *Allgemeine Deutsche Biographie* 4 (1876), pp.606-607 [Online-Version]; <https://www.deutsche-biographie.de/gnd116734086.html#adbcontent>. [20 September 2017].

²¹⁶ Rivier, 'Crome, August Friedrich Wilhelm' pp.606-607.

²¹⁷ August Friedrich Wilhelm Crome, *Europens Produkte: zum Gebrauch der neuen Produkten=Karte von Europa* (Dessau: Buchhandlung Gelehrten, 1782). It is entitled: *Neue Carte von Europa welche die merkwürdigsten Producte und vornehmsten Handelsplätze nebst dem Flächen-Inhalt aller Europäischer Länder in deutschen Quadrat-Meilen enthält*.

²¹⁸ Meitzen, *History*, p.41; John, *Geschichte der Statistik*, p.88.

²¹⁹ Arthur H. Robinson and Barbara Bartz Petchenik, *The Nature of Maps: Essays towards Understanding Maps and Mapping* (Chicago: The University of Chicago Press, 1976), pp.116-117.

²²⁰ C.f. Crome, *Europens Produkte*, pp.49-76 on France.

²²¹ Ibid, p.xi. C.f. Arthur Young, *Political Arithmetic: Containing Observations on the Present State of Great Britain; and the Principles of her Policy in the Encouragement of Agriculture* (London: W. Nicoll, 1774); Achenwall, *Abriß*.

range of products, in terms of both natural resources and agricultural developments, across Europe, through a series of visual images designed to represent each area's produce. Additionally, he included a list of the countries alongside the map. This gives a detailed run down of the size of each nation in terms of its surface area and a list of all the productions. This first attempt to visualise economic and agricultural data was a key part of the statistical scene in the German lands,²²² and it paved the way for men like William Playfair in Britain.²²³

²²² Johann Georg Meusel, *Litteratur der Statistik* (Leipzig: Caspar Fritsch, 1790), p.21, 24.

²²³ Meitzen, *History*, p.41; John, *Geschichte der Statistik*, p.88.

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Spanien 9277 1/2 a. K.
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Frankreich 10000 a. K.
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Polen 576 a. K.
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Russland 11777 1/2 a. K.
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Pruzen 956 a. K.
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Irland 440 a. K.
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Sardinien 195 1/2 a. K.
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Sardinien 30507 1/2 a. K.
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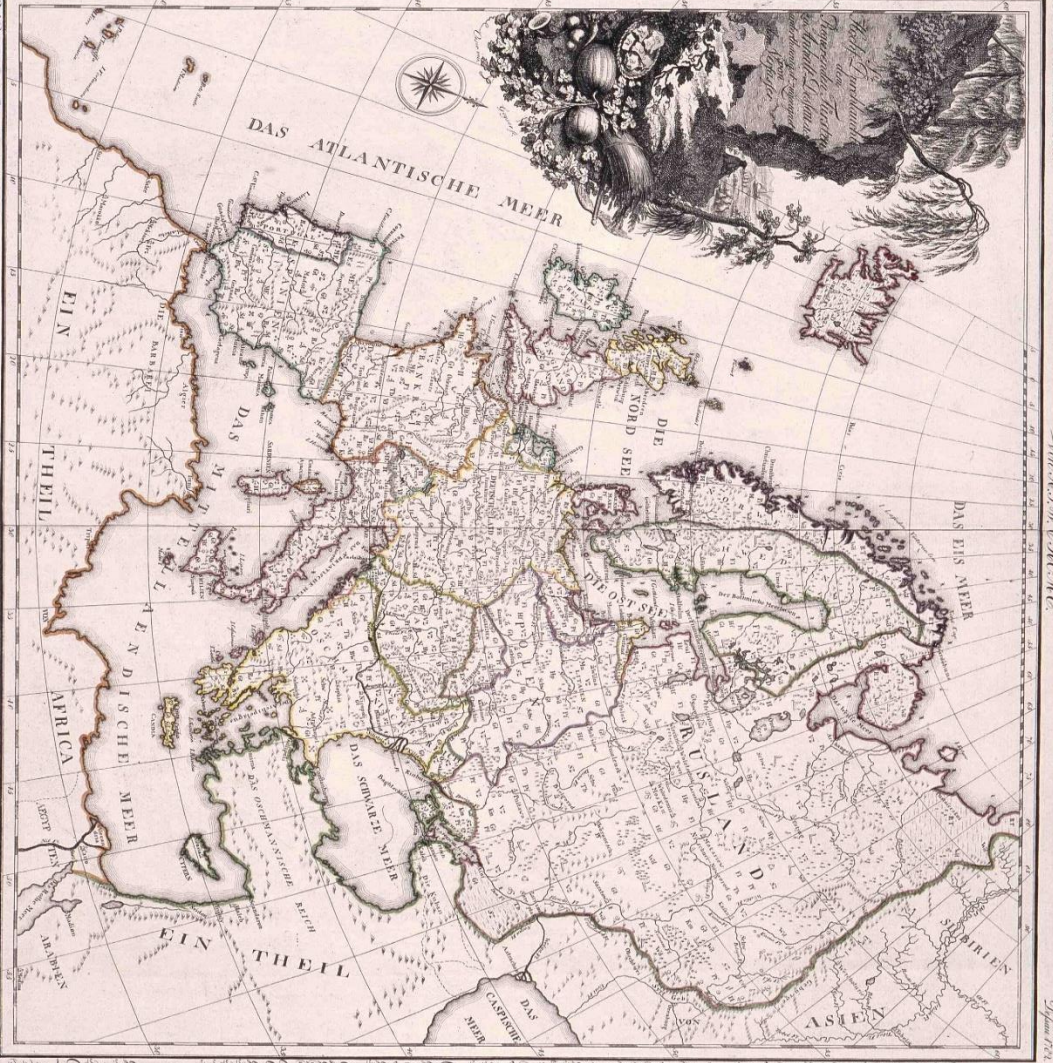
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Sardinien 635 a. K.
Alle Corporationen Licentio nicht
ihnen Vorhaben Scharh

NEUE CARTE VON EUROPA
nach den neuesten Nachrichten und den besten Karten
von A. F. W. Crome

Siehe auch: Karten von Asien, Amerika, Afrika, Australien, etc.



Erklärung der Zeichen und Buchstaben

1. Festung	10. Schiffahrt	19. Salzbergwerk	28. Seehafen
2. Seeburg	11. Handelshaus	20. Eisenbergwerk	29. Seehafen
3. Hafen	12. Schatzkammer	21. Zinnbergwerk	30. Seehafen
4. Seeort	13. Aeneas	22. Kupferbergwerk	31. Seehafen
5. Seeort	14. Seeort	23. Silberbergwerk	32. Seehafen
6. Seeort	15. Seeort	24. Goldbergwerk	33. Seehafen
7. Seeort	16. Seeort	25. Bergwerk	34. Seehafen
8. Seeort	17. Seeort	26. Bergwerk	35. Seehafen
9. Seeort	18. Seeort	27. Bergwerk	36. Seehafen

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Dänemark 1200 a. K.
Alle Corporationen Licentio nicht
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Schweden 23205 a. K.
Alle Corporationen Licentio nicht
ihnen Vorhaben Scharh

Polen 12907 1/2 a. K.
Alle Corporationen Licentio nicht
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Russland 11777 1/2 a. K.
Alle Corporationen Licentio nicht
ihnen Vorhaben Scharh

Irland 440 a. K.
Alle Corporationen Licentio nicht
ihnen Vorhaben Scharh

Sardinien 195 1/2 a. K.
Alle Corporationen Licentio nicht
ihnen Vorhaben Scharh

Sardinien 7 1/2 a. K.
Alle Corporationen Licentio nicht
ihnen Vorhaben Scharh

Sardinien 30507 1/2 a. K.
Alle Corporationen Licentio nicht
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Sardinien 1600 a. K.
Alle Corporationen Licentio nicht
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Sardinien 4420 1/2 a. K.
Alle Corporationen Licentio nicht
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Sardinien 635 a. K.
Alle Corporationen Licentio nicht
ihnen Vorhaben Scharh

Figure 1: Neue Carte von Europa ~ August Friedrich Wilhelm Crome (1782)

The rise of demographics and agrarian statistics evolved out of the Thirty Years' War which sprouted an interest in economic and demographic control throughout the eighteenth century. While perceived as imperative for survival in the seventeenth century, in the later eighteenth century it had become the concern of those seeking to define their state, to ensure economic growth, and subsistence. It followed the quantifying spirit that pervaded the Enlightenment, forming a crucial part of the statistical discourse from the 1740s onward. This movement was not entirely state-run, and two of the major influences on agrarian and demographic statistics were individuals; Süßmilch and Crome. Both used mathematics (arithmetic) to aid their work and had a profound impact on the development of statistics in the later eighteenth-century. It proved to be a large influence on the work of other *Statistiker* both at home and abroad.

Chapter 2

Göttingen and Gottfried: Achenwall and ‘University Statistik’

In 1749 Gottfried Achenwall published *Abriß der neuesten Staatswissenschaft der vornehmsten Europäischen Reiche und Republiken zum Gebrauch in seinen Academischen Vorlesungen*. It changed statistics. It was the first time the word *Statistik* had been used in a vernacular language,²²⁴ and it helped popularise the term throughout the German lands and Europe.²²⁵ It was also the foundation of a theory and methodology of statistics that would become significant throughout the eighteenth century. This section explores two key focal points in the evolution of statistical thought. First, the importance of the University of Göttingen. Second, the importance of Achenwall as the founder of the ‘statistical school’ and tradition. Both the university and Achenwall were formative for Schlözer’s statistical thought. Achenwall set the foundation stone in place for the development of this school and his work served as a model, not just in the German lands but also across Europe.

The Georg-Augustus-Universität Göttingen was founded in 1737 by George, Duke of Braunschweig-Lüneburg, prince-elect of the Holy Roman Empire as a cultural and educational centre for the state Hannover.²²⁶ For the next two centuries it was considered one of the more progressive universities in Europe.²²⁷ It was set up as an institute to rival the new humanist universities in Halle and other places.²²⁸ It was founded on the principle of the freedom to teach with an emphasis on bringing in modern ideas and new pedagogical techniques.²²⁹ It widened the curriculum of a German university at the time, offering a diverse range of subjects to study such as politics and morals, the history of literature, history, rhetoric, logic and metaphysics, oriental languages, mathematics and physics and *Cameralwissenschaft*.²³⁰ Additionally, the curriculum did not rely solely on classic texts, but incorporated new ideas and literature.²³¹ This widening of the

²²⁴ Achenwall, *Abriß*, p.1.

²²⁵ Johan van der Zande, ‘Statistik and History in the German Enlightenment’, *Journal of the History of Ideas*, 71/3, (2010), pp.411-432, here p.412.

²²⁶ Henry Steele Commager, ‘Denmark and Göttingen’, *Scandinavian Studies and Notes*, 10/8, (1929), pp.142-147, here p.142.

²²⁷ Commager, ‘Denmark and Göttingen’, p.142.

²²⁸ László Kontler, *Translations, Histories, Enlightenment: William Robertson in Germany, 1760-1795* (Basingstoke: Palgrave Macmillan, 2014), p.11; Friedrich Paulsen, *Geschichte des Gelehrten Unterrichts auf den deutschen Schulen und Universitäten* (Leipzig: Veit & Comp, 1885), pp.424-425.

²²⁹ Paulsen, *Geschichte*, pp.425-426; Kontler, *Translations, Histories, Enlightenment*, pp.9-13.

²³⁰ Paulsen, *Geschichte*, p.426. C.f. Tribe, *Governing Economy*, pp.91-119.

²³¹ Paulsen, *Geschichte*, p.433.

curriculum meant the university could attract some of the brightest scholars of the age, from Achenwall to Schlözer, Johan Christoph Gatterer (1727-1799) to Christian Gottlob Heyne (1729-1812).²³² It was a university with a modern mindset, a melting pot for erudition. This set the intellectual stage for the development of a specific brand of statistical thought to flourish.

This new, modern and exciting intellectual climate helped promote new modes of thought, among these, statistics. Crucial to the statistical drive was the university's insistence that its students had to understand the nature of travel.²³³ Travel linked a place to the outside world, to the acquisition of knowledge and to understanding the social world.²³⁴ In fact, Schlözer taught courses on how to travel well.²³⁵ In his *Briefwechsel meist Statistischen Inhalts* (1775), he notes that one of the key methods by which statistical information was collected was through travel.²³⁶ Thus, the intellectual environment at Göttingen was conducive to the development of statistics and the collection of statistical information. It provided a good place for the teaching of Conring's work, especially as one of his disciples was teaching there: Gottfried Achenwall.

Gottfried Achenwall was born in 1719 in the Polish-Prussian town of Elbing.²³⁷ In 1738 he attended the University of Jena to study philosophy, mathematics and physics, before moving to Halle in 1740 to study law and the political sciences and it is likely that here he encountered Conring's ideas.²³⁸ After receiving further qualifications from the University of Leipzig in 1746 he was appointed to a post at Marburg where he began to engage in depth with Conring and the tradition of 'proto-statistics' in a lecture series.²³⁹

Achenwall attained employment at the University of Göttingen in 1748 as a professor in both the philosophy and law departments.²⁴⁰ Here he established what is often referred to as the

²³² Ibid, p.426.

²³³ Hugh West, 'Göttingen and Weimar: The Organisation of Knowledge and Social Theory in Eighteenth-Century Germany', *Central European History*, 11/2, (1978), pp.150-161, here p.151. C.f. On the importance of travel in the eighteenth century, Justin Stagl, *A History of Curiosity: The Theory of Travel, 1550-1800* (Australia: Harwood Academic Publishing, 1995), pp.233-269; Larry Wolff, *Inventing Eastern Europe: The Map of Civilisation on the Mind of the Enlightenment* (Stanford: Stanford University Press, 1994), pp.17-49; Brian Dolan, *Exploring European Frontiers: British Travellers in the Age of Enlightenment* (Basingstoke: Palgrave Macmillan, 2000), pp.7-15.

²³⁴ West, 'Göttingen and Weimar', pp.151-152.

²³⁵ Ibid, p.151.

²³⁶ August Ludwig von Schlözer, *Briefwechsel meist Statistischen Inhalts: Gesammelt, Und zum Versuch herausgegeben* (Göttingen: bei Johann Christian Dietrich, 1775), p.2.

²³⁷ Friedrich Zahn and Ernst Meier, 'Achenwall, Gottfried', *Neue Deutsche Biographie 1*, (1953), pp.32-33 [Online-Version]; <https://www.deutsche-biographie.de/gnd118643657.html#ndbcontent>. [22 October 2017].

²³⁸ Meitzen, *History*, p.22.

²³⁹ Lazarsfeld, 'Notes', p.285; Meitzen, *History*, p.22.

²⁴⁰ Zahn and Meier, 'Achenwall, Gottfried'.

‘Göttingen school of statistics’ that would dominate the intellectual landscape for the next century.²⁴¹ He lectured and published on a wide array of subjects, including natural and international law, history and, of course, the political sciences.²⁴² However, the advances in statistics made his legacy, especially with his most important and influential pupil: August Ludwig von Schlözer. As Meitzen points out, Achenwall was the one to give statistics their scientific form and, therefore, he may have a better claim than Conring to be called ‘the father of statistics’.²⁴³

Achenwall was a synthesiser. He placed statistics into a scientific form and gave it vernacular expression. His ideas were influential beyond his immediate circle. He was able to make this version of statistics a branch of academia separate from political science or history and give the subject its own distinct flavour.²⁴⁴ In 1748 in the essay *Vorbereitung zur Staatswissenschaft der europäischen Reiche* these ideas found their first printed voice.²⁴⁵ However, this was only to be the introduction to a work that was the first major exposition of statistics in the vernacular and its first true synthesis and systemisation, his *Abriß* published in 1749. The work set the standard for German statistics for the next half a century, running through six editions, the last of which was printed in 1790.²⁴⁶

It was the first use of the word Statistik outside Latin and Achenwall underlined how complex and intricate the concept is in the first section of his introduction:

Der Begriff der sogenannten Statistic, das ist, der Staatswissenschaft einzelner Reiche wird sehr verschiedentlich angegeben, und man trifft unter der grossen Menge Schriften davon nicht leicht eine einzige an, welche in der Zahl und Ordnung ihrer Theile mit der andern überein kommen sollte. Es ist also nicht undienlich, dasjenige, was man sich unter diesem Namen eigentlich vorzustellen hat, und was in ihrem Umfange enthalten ist, zu untersuchen und die natürliche Einrichtung und Verbindung ihrer Abtheilungen fest zu setzen.²⁴⁷

²⁴¹ Ibid; Gordon M. Stewart, ‘Christoph Daniel Ebeling: America’s Friend in Eighteenth Century Germany’, *Monatshefte*, 68/2, (1976), pp.151-161, here p.152.

²⁴² Zahn and Meier, ‘Achenwall, Gottfried’.

²⁴³ Meitzen, *History*, p.22.

²⁴⁴ van der Zande, ‘Statistik and History in the German Enlightenment’, p.415.

²⁴⁵ Meitzen, *History*, p.22.

²⁴⁶ van der Zande, ‘Statistik and History in the German Enlightenment’, p.415.

²⁴⁷ Achenwall, *Abriß*, pp.1-2.

Translation: The concept of so-called statistics, that is, the political science of individual states differs widely in literature and in the vast amount of literature there is hardly one which concurs with another in number and order of its parts. It is, therefore, of service to examine what it meant by this term, and to discern the natural establishment and connection of its parts.

Achenwall introduced the concept and demonstrated that the previous tradition did not agree on much and from such a position it would be necessary to summarise the discipline which had such a wide scope. He also crucially drew a link between statistics and the state.

Achenwall explained this understanding and definition further. He argued that *Statistik* was a new method by which the inner workings of the state could be understood in order to better govern it.²⁴⁸ This argument forms the main body of his ‘new political science’.²⁴⁹ Statistics, he argued, already had a broad history as a science, however, he wished to expand it. His theory of the state differed from the traditional conceptions of it as just the body of government. The concept of the state, in statistics, was wider, incorporating more than just the government or the people, but a variety of variables that need to be studied. The key element of statistics was to understand how the state functioned in order for people to control it better.²⁵⁰ This required a genuine knowledge of the lives of the citizens:

Die Saatswissenschaft [sic] eines Reiches enthält eine gründliche Kentniß der wirklichen Merkwürdigkeiten einer bürgerlichen Gesellschaft.²⁵¹

Merkwürdigkeiten (peculiarities) were not ‘peculiarities’ in the modern sense of the word, as something strange, but rather as something significant, a desire to understand how society works in all detail. It is interesting to note that Achenwall’s language is couched in the rhetoric of science. He explicitly termed his work a science which brought knowledge and understanding. These themes became deeply entrenched in the language of statistics and were a key part of Achenwall’s influence.²⁵²

Achenwall’s understanding of the *Merkwürdigkeiten* of one’s own society did not mean collecting information on every single individual or unimportant matters, such as the poor or dispossessed or whether a government was liked or disliked.²⁵³ To Achenwall, attempts at doing so were longwinded and fruitless.²⁵⁴ His work concluded that in *Staatswissenschaft-Statistik* one

²⁴⁸ Ibid, Vorrede.

²⁴⁹ Ibid, Vorrede.

²⁵⁰ Ibid, pp.1-3.

²⁵¹ Ibid, p.4.

Translation: The political science of a state is grounded in a detailed understanding of the real peculiarities of a citizens’ society.

²⁵² C.f. Roy Porter, ‘Introduction’ in Porter (ed.), *The Cambridge History of Science, Volume 4: Eighteenth-Century Science*, pp.1-20.

²⁵³ Achenwall, *Abriß*, pp.4-5.

²⁵⁴ Ibid, p.5.

must extract, out of the infinite peculiarities, only that which was necessary.²⁵⁵ For Achenwall, *Statistik* equalled *Staatswissenschaft*. From this platform people could understand how to govern, but only with the correct and most useful information. This ambiguity with which this necessity was defined forms part of his legacy. Statistics was selective and what was necessary was always at the discretion of the *Statistiker*.

Methodologically, Achenwall stressed the need to analyse historical precedent, specifically the history of the state, to understand how it functioned in the present. All information regarding a state should be obtained through direct research and comparison:

Man betrachtet entweder ein Reich vor sich allein, oder verschiedene ein Reich mit einander. Jenes macht den eigentlichen Staat eines Reiches aus; dieses aber lehrt uns das Verhältniß der Reiche gegen einander erkennen, und muß besonders traetirt werden.²⁵⁶

Sir William Petty had used inter-state comparison in his work *Essays on Political Arithmetic* almost a century previously. Achenwall's idea, however, was more wide-ranging than Petty's. While Petty had focused more on the economic and the political, Achenwall included a vast array of categories: natural history (7-10), culture, society, conditions of the people and climate (11-12), industry, manufacturing and economy (13-15), laws and constitutions (17), diplomacy (19-20), governments, aristocratic orders and administration (20-25) and naval/merchant power (21).²⁵⁷ One of the most important aspects of *Statistik* was to analyse the population.²⁵⁸ Against the assertion of many historians this highlights the direct influence of Süßmilch on the work of Achenwall and his pupils.²⁵⁹ Indeed, Achenwall explicitly mentioned Süßmilch's *Göttliche Ordnung*.²⁶⁰ This was a clear indication that Achenwall's *Statistik* was concerned with population statistics and demography.

Achenwall also established the ground rules for the best methods of collecting statistical information:

²⁵⁵ Ibid, pp.5-6.

²⁵⁶ Ibid, p.7.

Translation: One either examines a state on its own, or different states with each other. The first observes the actual condition of a state, the latter, however, teaches us the relationship between the states and must be analysed specifically.

²⁵⁷ Ibid, pp.7-31.

²⁵⁸ Ibid, p.11.

²⁵⁹ Many scholars since Lazarsfeld's 1961 article have claimed that these works were not influenced by the Political Arithmeticians or Süßmilch. C.f. Hacking, *The Taming of Chance*; Desrosières, *The Politics of Large Numbers*.

²⁶⁰ Achenwall, *Abriß*, p.11.

Wir wollen 1) den gegenwärtigen, nicht den ehemaligen Staat kennen lernen, 2) wir suchen glaubwürdige und zuverlässige, nicht falsche und ungewisse Nachrichten. Also müssen wir 1) die neuere Schriftsteller den ältern, 2) diejenige, welche ein Reich aus eigener Erfahrung erkannt, denen, die ihre Erzählungen von andern abgeschrieben, 3) Diejenige Sammler, welche ihre Beweissthümer anführen, den übrigen vorziehen.²⁶¹

Evidence needed to be contemporary, reliable, credible, first-hand (if possible) and backed up by proof. Through this, a discerning *Statistiker* would be able to utilise this information within the framework of the new science to establish a detailed perception of the state and how best to govern it.²⁶²

Finally, Achenwall influenced the structure of statistical works. He organised each country into separate chapters with information regarding its history, natural history, the present state, society, economy, population, and the political and religious situation.²⁶³ This was broken into various subsections. It relied on descriptive narrative with a few numbers thrown in as illustration, but it remained a science dominated by description.²⁶⁴ Achenwall did, however, introduce another organisational feature that was particularly influential in the evolution of statistics: ‘footnoting’ sources that have been used to obtain information.²⁶⁵

According to Anthony Grafton (who does not refer to Achenwall) footnotes were the marker of the eighteenth-century intellectual environment.²⁶⁶ This information was not just statistical but also theoretical. Achenwall noted at the beginning and end of his introduction the names of the key influences on his statistical thought (including his mentor Conring).²⁶⁷ His example to name specific sources of information and theoretical insight sparked the production of

²⁶¹ Ibid, p.35.

Translation: We want 1) to learn about the present, not the past state, 2) we look for credible and reliable, not wrong and unclear news. Therefore, we must prefer 1) recent writers over older, 2) that which is known about a state first-hand over that which has been copied from others, 3) those collectors who present their evidence.

²⁶² C.f. on new knowledge and the methods of knowledge creation in the seventeenth and eighteenth century, Steven Shapin, *The Scientific Revolution* (Chicago: The University of Chicago Press, 1998). Achenwall’s thought could be compared to the French ‘quarrel of the ancients and the moderns’, linked to the rise of empiricism in Europe. C.f. Poovey, *A History*; Jean D’Alembert “‘Preliminary Discourse’ to the *Encyclopedia*’ in Paul Hyland, Olga Gomez, and Francesca Greensides (eds.), *The Enlightenment: A Sourcebook and Reader* (London: Routledge, 2003), pp.49-53.

²⁶³ C.f. Achenwall, *Abriß*, pp.37-70.

²⁶⁴ Johannisson, ‘Society in Numbers’, in Frängsmyr, Heilbron, Rider (eds.), *The Quantifying Spirit in the 18th Century*, pp.344-347.

²⁶⁵ C.f. Anthony Grafton, *The Footnote: A Curious History* (London: Faber & Faber, 1997), pp.94-121.

²⁶⁶ Grafton, *The Footnote*, p.121.

²⁶⁷ Achenwall, *Abriß*, pp.1, 35-36.

many books that either listed statistical information for others to use or listed the works of statistics that others could consult.²⁶⁸

Achenwall was recognised from his own lifetime onward as a key statistical thinker, especially in the German lands.²⁶⁹ His work led to the development of statistics in Göttingen and other universities around Germany.²⁷⁰ His students spread Achenwall's ideas beyond Göttingen and, attesting to the popularity of his ideas, his *Abriß* went through six editions.²⁷¹ His work was also well known outside of Germany and proved to be an influence on people such as Sir John Sinclair, who stated that Achenwall was the first to bring statistics into a unified system.²⁷² Achenwall was a codifier and a synthesiser. He was the populariser of a method, originating with Conring, that went on to influence the way statistics was practiced. However, Achenwall's biggest influence was on his most illustrious pupil who would take over from him at Göttingen: August Ludwig von Schlözer.

²⁶⁸ C.f. Meusel, *Litteratur der Statistik*; Johann Georg Meusel, *Lehrbuch der Statistik* (Leipzig: Caspar Fritsch, 1792). Again c.f. Grafton, *The Footnote*, pp.94-121.

²⁶⁹ C.f. Meitzen, *History*, pp.22-24.

²⁷⁰ Stewart, 'Christoph Daniel Ebling', p.152.

²⁷¹ van der Zande, 'Statistik and History in the German Enlightenment', p.415.

²⁷² Sir John Sinclair, *History of the Origin and Progress of the Statistical Account of Scotland* (London[?]: n.p, 1789), p.lxv.

Chapter 3

A Schlözer is Born: Schlözer's Transnational Travels and his European Network

Much ink has been spilt on the life and works of August Ludwig von Schlözer (1735-1809). Nearly every aspect of his work has been poured over, discussed and argued about.²⁷³ He was a man of many talents, turning his hands to history, the political sciences and economy, a *Publizist* (publisher) of what can be termed *politische Zeitschriften* (political journals), an early linguist and ethnographer, and a *Statistiker*.²⁷⁴ He was also a *Polyhistor*. And, while his work in statistics has been studied, usually in conjunction with other interests in his life, it has often played second fiddle to his work as a historian. The aim of this section is to rehabilitate the statistical thought of Schlözer, illustrating his importance as a conduit for statistical information to spread. It demonstrates the impact of his ideas on the evolution of statistical thought both in the German lands and further afield.

August Ludwig von Schlözer was born on the 5th July 1735 in Gaggstatt, at the time under the control of the Count von Hohenlohe-Kirchberg.²⁷⁵ His father, Johann Friedrich Schlözer, was the minister of the local church and married a woman also from a family of ministers.²⁷⁶ From an early age Schlözer demonstrated a talent for learning.²⁷⁷ He was awarded a scholarship to the University of Wittenberg in 1751.²⁷⁸ There he studied theology, with no real professional interest, being awarded a degree in natural and international law in 1754.²⁷⁹ At Wittenberg, Schlözer was introduced to a wide curriculum that fed his intellectual curiosity. After obtaining his degree Schlözer continued his studies at the University of Göttingen arriving there in 1754 and leaving shortly after in 1755.²⁸⁰

²⁷³ C.f. Duchhardt and Espenhorst (eds.), *August Ludwig (von) Schlözer in Europa*; Peters, *Altes Reich und Europa*; Bernd Warlich, *August Ludwig von Schlözer 1735-1809 zwischen Reform und Revolution: Ein Beitrag zur Pathogenese frühliberalen Staatsdenkens im späten 18. Jahrhundert* (Erlangen: Universität Erlangen-Nürnberg, 1972); Friederike Fürst, *August Ludwig von Schlözer, ein deutscher Aufklärer im 18. Jahrhundert* (Heidelberg: Carl Winters Universitätsbuchhandlung, 1928).

²⁷⁴ Peters, *Altes Reich und Europa*, p.3.

²⁷⁵ Fürst, *August Ludwig von Schlözer*, p.8.

²⁷⁶ *Ibid*, p.8.

²⁷⁷ *Ibid*, pp.8-9.

²⁷⁸ Peters, *Altes Reich und Europa*, p.37.

²⁷⁹ Dirk Fleischer, 'Schlözer, August Ludwig von' *Neue Deutsche Biographie* 23 (2007), pp.98-99 [Online-Version]; <https://www.deutsche-biographie.de/gnd118608339.html#ndbcontent>. [31 October 2017].

²⁸⁰ Peters, *Altes Reich und Europa*, p.38.

Schlözer's first period at Göttingen was an introduction to a number of larger intellectual currents that had been developing in the German lands during the eighteenth century. The University of Wittenberg, by contrast, was considered rather more 'orthodox' than the new 'modern' university at Göttingen and Schlözer found a burst of creativity there from the professors and the university's intellectual life.²⁸¹ He went to Göttingen to study theology; however, he quickly became a student of philology, studying under some of the greatest minds of the university in subjects as diverse as mathematics, oriental languages, biblical sources, historiography, geography, church history, and law. One of the most important intellectual currents that influenced Schlözer was statistics which he was taught by Gottfried Achenwall.²⁸² Here, Schlözer gained his first taste of statistics which was to have a lasting effect on his intellectual development.

Schlözer did not stay long in Göttingen and in 1755 moved to Sweden to act as a private secretary and tutor in Stockholm and Uppsala.²⁸³ During his time in Sweden he made many contacts, including Pehr Wargentin (1717-1783) and Carl Linnaeus (1707-1778).²⁸⁴ He returned to Göttingen in 1759 to study, this time focused on medicine, jurisprudence, and the natural and political sciences. In 1764 he was made a professor at Göttingen in absentia. From 1761 to 1769 Schlözer went to Russia, to St Petersburg, working for the Academy of Sciences.²⁸⁵ Much like Sweden, his time in Russia proved formative and he worked mainly on history and the Slavic languages making many contacts and forming ideas that would feed into his work.²⁸⁶ One of these ideas was his new historical-critical method.²⁸⁷ Upon returning to Göttingen he was made a professor of Philosophy in 1770 and then a professor in Politics in 1787. He remained in Göttingen until his death in 1809, except for two short trips to France in 1773/4 and 1781/2.²⁸⁸ It was in this latter period that Schlözer really laid his mark upon the university and beyond.

The contribution of Schlözer to the evolution of statistics in the eighteenth century has been greatly undervalued. His work and legacy must be considered a driving force behind this development. His transnational network helped create the connections that circulated these statistical ideas beyond the borders and the formative grip of the state. However, to understand

²⁸¹ Ibid, pp.38-39.

²⁸² Ibid, p.38.

²⁸³ Fleischer, 'Schlözer, August Ludwig von'.

²⁸⁴ Peters, *Altes Reich und Europa*, pp.39-41.

²⁸⁵ Fleischer, 'Schlözer, August Ludwig von'.

²⁸⁶ Peters, *Altes Reich und Europa*, pp.55-87.

²⁸⁷ Ibid, p.87.

²⁸⁸ Fleischer, 'Schlözer, August Ludwig von'. Little has survived of either of these two trips.

how these ideas formed it is crucial to examine the role travel and university education played in Schlözer's statistical development.

The difficulty in assessing influence in the history of statistics, especially amongst individuals, lies in the fact that, often, people did not leave much of a trace of their influences. Skinner's 'Meaning and Understanding' provides a potential solution to this problem.²⁸⁹ He argues against the orthodoxies of both a too context-laden interpretation of intellectual ideas and a too bookish (i.e. close reading) interpretation.²⁹⁰ Skinner advocates a more nuanced methodological approach. This would, in a way, combine the more contextual approach with a closer reading and attempt to examine what the intentions of the author were and the ways authors were understood historically.²⁹¹ However, Skinner's methodology has come under some revision, and further contextualisation is needed to better reconstruct intellectual ideas and development.²⁹²

An explicitly transnational framework would add a new perspective to the contextualisation of intellectual ideas, particularly Saunier's concept of circulation.²⁹³ He defines circulation as, not simply the movement of ideas, people, or objects but as the flow of a river that shifts and changes the object that is moving.²⁹⁴ Stephanie Gänger's recent article argues that 'circulation' has become something of a catchall, which tries to encapsulate too much in global and transnational histories.²⁹⁵ Her suggestion is that 'circulation' needs to be more rigorously defined and limited in its scope – no longer incorporating diffusion, distribution or spread – concerning itself rather with a circular, but evolving system, to become a 'useful analytical tool'.²⁹⁶ Refining Saunier's conception, it can be seen as a circulatory system with multiple points of flow that do not follow a single specific direction, but as Gänger qualifies, is circular in nature, returning to a central point.

This is further nuanced by Lissa Roberts' discussion of centralisation in the eighteenth century and its effect on the development of scientific networks in the period. Roberts argues that this process of centralisation, with various types of accumulation (knowledge, power), happens at

²⁸⁹ Skinner, 'Meaning and Understanding', pp.3-53.

²⁹⁰ Ibid, pp.3-4.

²⁹¹ Ibid, pp.48-49.

²⁹² Whatmore, *What is Intellectual History?* pp.18, 99.

²⁹³ Saunier, *Transnational History*, pp.58-63.

²⁹⁴ Ibid, pp.62-65.

²⁹⁵ Stephanie Gänger, 'Circulation: reflections on circularity, entity, and liquidity in the language of global history', *Journal of Global History*, 12, (2017), pp.303-318, here pp.303-305.

²⁹⁶ Gänger, 'Circulation', p.318.

multiple points, rather than in a central location.²⁹⁷ This has fascinating implications for circulation and the networks of accumulation and diffusion under discussion here. It implies that we cannot claim a ‘true’ centre, rather that there are multiple geographic centres that play a role in the accumulation and production of knowledge.²⁹⁸ No individual geographic ‘centre’ can be privileged above the rest.²⁹⁹

Finally, this concept of circulation and network can be refined a step further. Lux and Cook have suggested a method of viewing and analysing early modern scientific networks that applies well to Schlözer’s. They argue that the scientific networks disseminated knowledge through a proliferation of weak ties.³⁰⁰ Such ties were formed through personal interactions as well as letter writing but were predicated on the former rather than the latter.³⁰¹ Thus, travel was necessary for both Schlözer’s and Sinclair’s networks to form. These weak ties and open networks work as knowledge conduits because they were inclusive and pluralistic.³⁰² Circulation becomes a more pluralistic concept, based on weak ties and this redefined concept of centralisation and circularity. This framework can be used to analyse how ideas, networks and people flow within multiple contexts. Therefore, utilising a transnational framework, incorporating this refined conception of circulations, and the refinement of Skinner suggests the best methodological approach to Schlözer’s intellectual and statistical development.

Schlözer’s Travels

Schlözer travelled extensively during his lifetime, especially towards the east, under the influence of his tutor at the University, Johann David Michaelis (1717-1791).³⁰³ Schlözer’s travels took him to Sweden, Russia, France, Italy and, briefly, northern Germany. It has been argued by Espenhorst that Schlözer was a ‘pan-European’ whose network spread a great distance over the continent.³⁰⁴ For Espenhorst, this network, his travels, and his linguistic skill influenced his practice of both

²⁹⁷ Lissa Roberts, ‘“Le centre de toutes chose”: Constructing and managing centralization on the Isle de France’, *History of Science*, 52/3, (2014), pp.319-342, here p.320.

²⁹⁸ Roberts, ‘“Le centre de toutes chose”, p.320; Lissa Roberts, ‘Accumulation and management in global historical perspective: An introduction’, *History of Science*, 53/3, (2014), pp.227-246, here p.228.

²⁹⁹ Roberts, ‘Accumulation and management in global historical perspective’, p.228.

³⁰⁰ Lux and Cook, ‘Closed Circles or Open Networks?’, pp.182-183.

³⁰¹ *Ibid.*, p.201.

³⁰² *Ibid.*, p.202.

³⁰³ Helmut D. Schmidt, ‘Schlözer on Historiography’, *History and Theory*, 18/1, (1979), pp.37-40, here p.37.

³⁰⁴ Martin Espenhorst, ‘Der >>mobile<< Europäer: Zur historischen Konstruktion des europäischen Menschen bei August Ludwig von Schlözer’ in Espenhorst and Duchhart (eds.), *August Ludwig (von) Schlözer in Europa*, pp.197-212, 200-203.

history and statistics.³⁰⁵ It was crucial in defining how Schlözer gathered his information and his network influenced the development of his political journals.³⁰⁶ Stagl links Schlözer's work and travel to developments in anthropology and ethnography. He also connects his travel to his correspondence network in a larger way, illuminating how his correspondence fed all aspects of his thought. It also allowed him to fit in to a wider political and academic current.³⁰⁷ His travels brought him into new intellectual contexts and flows, introduced him to influences well beyond the borders of Göttingen and through these transnational travel and networks he established the statistical practices laid out in his *Theorie der Statistik*.

Staying in Uppsala and Stockholm in the 1750s put him in contact with the Swedish academies at both places.³⁰⁸ Schlözer was introduced to the statistician Pehr Wargentin (1717-1783) and the natural historian Carl Linnaeus (1707-1778) in Uppsala.³⁰⁹ He had initially travelled there as a private tutor but also wanted to study history, medicine, and the natural sciences.³¹⁰ His decision was based, primarily, on the primacy of Sweden as a hub of academic activity, especially in natural history in which it was considered to be the best in Europe thanks to the presence of Linnaeus.³¹¹ This is in direct contrast to the ideas of Barton and Wolff who have painted the northern lands as a barbarous and savage place in eighteenth-century perception.³¹² Instead, Schlözer saw it as a place at the cutting edge of scientific research. Though little manuscript material survives from this period, it was clearly formative. Peters notes that Linnaeus introduced Schlözer to the world of botany and natural history, both of which would inform the scope of statistics.³¹³ Without the influence of natural history Schlözer's statistics would never have had such a wide remit. Wargentin was also a crucial influence on Schlözer's statistical thought and they remained in correspondence for the rest of Wargentin's life.³¹⁴

³⁰⁵ Espenhorst, 'Der >>mobile<< Europäer' in Espenhorst and Duchhart (eds.), *August Ludwig (von) Schlözer in Europa*, p.202.

³⁰⁶ Ibid, pp.202-203.

³⁰⁷ C.f. Stagl, *Curiosity*, pp.244-267.

³⁰⁸ Peters, *Altes Reich und Europa*, pp.39-40.

³⁰⁹ Ibid, pp.39-40.

³¹⁰ Stagl, *Curiosity*, pp.244-246.

³¹¹ Peters, *Altes Reich und Europa*, p.39.

³¹² Wolff, *Inventing Eastern Europe*, pp.6-7; H. Arnold Barton, 'The Discovery of Norway Abroad, 1760-1905', *Scandinavian Studies*, 79/1, (2007), pp.25-44, here pp.25-37.

³¹³ Ibid, pp.41-43.

³¹⁴ Ibid, pp.44-46.

In letters to his mentor Michaelis in Göttingen, Schlözer explained the impact Swedish intellectual life had, especially in the realms of natural history and language.³¹⁵ He informed Michaelis in 1756 of his desires to write a new history of Sweden, one that would contain its natural history.³¹⁶ It highlights the foundations of his theory of history, especially the interdisciplinary approach he would incorporate at Göttingen as well as his interest in the Nordic and Slavic worlds that would mark him as the key conduit of knowledge on the region.³¹⁷ These letters also demonstrate Michaelis's role as an introducer for Schlözer, pointing him towards certain individuals he believed would be key to Schlözer's intellectual development.³¹⁸

The project on the natural history of Sweden that he discussed with Michaelis, came to fruition, of sorts, in his five volume *Neueste Geschichte der Gelehrsamkeit in Schweden* (1756).³¹⁹ The work was formative on many of his later ideas, especially statistical. It was a collection of data regarding education in Sweden devised by Schlözer as a periodical on the state of education in the country. It contained works of Swedish educators on a variety of subjects, containing summaries and explanations of these works and, of possible, with a small extract.³²⁰ And while the work may have been dedicated to his tutor Michaelis,³²¹ its structure is reminiscent of Achenwall's *Abriß*.

From the first page, Schlözer gave clear details of his source material, a tradition prevalent in German *Statistik*.³²² Each section contains an overview of the work to be discussed and a detailed explanation.³²³ Throughout the work most chapters omitted any extracts of source material. This was the basic blueprint that Schlözer's statistical method and his political journals took in his career. It is easy to see parallels between this work and his later *Briefwechsel* periodicals. The use of specific source material, too, highlights Schlözer's statistical commitments, especially to transnational sources. He included sources ranging from natural history collections,

³¹⁵ Johann Gottlieb Buhle (ed.) *Literarische Briefwechsel von Johann David Michaelis* (Leipzig: Weidmannschen Buchhandlung, 1794), pp.172-197. A number of these early letters are in Latin and I rely on Peters to decipher them. They mainly focus on the study of Arabic and the Qur'an, c.f. Peters, *Altes Reich und Europa*, p.40.

³¹⁶ Peters, *Altes Reich und Europa*, p.41; Buhle (ed.), *Literarische Briefwechsel von Johann David Michaelis*, pp.172-177.

³¹⁷ Schmidt, 'Schlözer on Historiography', pp.37-38.

³¹⁸ Buhle (ed.), *Literarische Briefwechsel von Johann David Michaelis*, pp.198-193. Letters dated 1758.

³¹⁹ August Ludwig von Schlözer, *Neueste Geschichte der Gelehrsamkeit in Schweden, Erstes Stück* (Rostock und Wismar: Berger und Boedner, 1756). The volumes were published yearly from 1756 to 1760.

³²⁰ Schlözer, *Neueste Geschichte der Gelehrsamkeit in Schweden, Erstes Stück, Vorrede*.

³²¹ *Ibid*, Frontispiece (reverse image).

³²² Schlözer, *Neueste Geschichte der Gelehrsamkeit in Schweden, Erstes Stück*, p.1. C.f. Achenwall, *Abriß*.

³²³ *Ibid*, pp.2-3, 8-33.

treaties on water, works on flora and their systematisation and reports from the Academy of Science in Sweden to illustrate a few.³²⁴ These sources were often either in Swedish or Latin and had been written by some of Sweden's most prominent academics, including Linnaeus. This illuminates exactly the kinds of transnational circulation that prompted changes in Schlözer's statistical thinking. While there is a great deal of debt to Achenwall's tradition, Schlözer was able to synthesise new material from the Swedish context into his statistical outlook. More specifically, this helped Schlözer to conceptualise a new scope for his enterprise and begin to pinpoint what material should interest the *Statistiker*.

After returning from Sweden, Schlözer did not remain long in Göttingen as in 1761 he left for Russia and would not return until 1769, only interrupted by a brief visit to the German lands in 1767. He stayed in St Petersburg, near the court of the Tsar Catherine II, and also travelled to Moscow. The period proved to be influential intellectually, especially in his development as a historian.³²⁵ He began to develop his ideas about the 'Science of History' as well as gaining the confidence of Catherine II and becoming a member of the Russian Academy.³²⁶ By 1765 he had been made a professor of history.³²⁷ He published seven books on subjects as various as historical method as well as the language and history of Russia and Poland.³²⁸ As an editor and publicist he also edited a number of journals, the most influential being the 'Nikon-Journal' published in 1767.³²⁹ The period sharpened his critical approach to history as well as influenced his ideas on the nature of history itself.

He also made a number of connections and contacts within the Russian and German expatriate communities.³³⁰ There were numerous figures that Schlözer was introduced to, however, particularly important to his development was the Russian court historiographer and previous member of the University of Göttingen, Gerhard Friedrich Müller (1705–83), who was the reason that Schlözer travelled to Russia.³³¹ Michaelis, still mentoring Schlözer, procured him the position

³²⁴ Ibid, pp.1, 33, 47, 58.

³²⁵ Schmidt, 'Schlözer on Historiography', pp.37-38.

³²⁶ Ibid, pp.37-38.

³²⁷ Ibid, p.38.

³²⁸ Peters, *Altes Reich und Europa*, pp.467-468.

³²⁹ Ibid, pp.101, 470-471.

³³⁰ Ibid, pp.55-132.

³³¹ Ibid, pp.58-66.

of Müller's adjunct at the Academy of Sciences in St Petersburg.³³² Müller's influence seems to have been crucial in finding his feet in Russia both intellectually and physically.³³³

Schlözer's time in Russia also saw the publication of two early examples of statistical enquiry.³³⁴ These two works helped cement the idea that statistics, much like history, was for Schlözer a science. The first was *Neuverändertes Rußland oder Leben Catharina der Zweyten Kayserinn von Rußland* (1767), the second was *Von der Unschädlichkeit der Pocken in Rußland und von Rußlands Bevölkerung überhaupt* (1768).

Neuverändertes Rußland (1767-1772) was Schlözer's first committed foray into political science and statistics outside of his university dissertation. It is a complex book amounting to one thousand eight hundred pages and published over a span of many years.³³⁵ It comprised fifteen larger sections containing smaller subsections on various subjects relating to different aspects of the Russian state, its social, economic, political, religious, cultural and intellectual life as well as its natural history.³³⁶ In his *Vorrede*, Schlözer explained that his goal was to collate all this information to develop a clearer picture of the state of Russia.³³⁷ He aimed to illuminate the inner workings of the polity in order that a monarch may better govern their realm. Schlözer saw the state as a machine to be maintained and the best method to achieve this was through collecting information.³³⁸ He noted that such information would improve understanding, the intention of the *statistische Nachrichten*.³³⁹ Even at this early stage of his career Schlözer had been deeply influenced not only by the statistical traditions in Germany but also the intellectual climate in Russia. The all-encompassing approach which had been incorporated into his historical thought in Russia also found its way into his statistics.

The Enlightenment's view of periphery and the debates around the new cultural and political landscape in what was considered the barbarous East have been cited as an influence on

³³² Stagl, *Curiosity*, p.246.

³³³ Peters, *Altes Reich und Europa*, pp.64-65.

³³⁴ *Ibid*, p.123.

³³⁵ August Ludwig von Schlözer, *Neuverändertes Rußland oder Leben Catharina der Zweyten Kayserinn von Rußland aus authentischen Nachrichten beschreiben, Erster Band* (Riga und Leipzig: Johann Friedrich Hartknoch, 1767).

³³⁶ C.f. Schlözer, *Neuverändertes Rußland*.

³³⁷ *Ibid*, *Vorrede*.

³³⁸ *Ibid*, *Vorrede*. Interestingly, there is no thought to control this information. Unlike 'Biopolitics', statistics' first aim was the collection and comprehension of data.

³³⁹ *Ibid*, *Vorrede*.

eighteenth-century Western European travellers.³⁴⁰ However, this was not the case for Schlözer. While Wolff and others have suggested that the east provided a barbarous blank slate on which ethnographers could work on as a measure of civilisation, Schlözer's travels, while ethnographic in nature, do not follow the same pattern. He was interested in Russia as a place to explore his historical ideas, expand his knowledge of eastern languages and to continue to explore the format of the journal.³⁴¹ To Schlözer, Russia was not in need of civilising because it was civilised already.

Schlözer's *Von der Unschädlichkeit der Pocken in Rußland und von Rußlands Bevölkerung überhaupt*, published in 1768, illustrates the continued importance of Russia in the development of his statistical thought. The book is not long but was carried out with an almost medical precision. It is composed of tables, the conclusions that can be drawn from them regarding population and the effect of smallpox,³⁴² a Latin treaty on the disease, a clarification of why the disease was harmless in Russia and a reflection on the population of Russia with a comparison to the Swedish model.³⁴³ Schlözer's work was clearly one of circulation. As Few points out, smallpox knowledge was being spread rapidly across the world at this point, shifting and changing all the time.³⁴⁴ The work is a key component of Schlözer's transnational circulatory system in which knowledge is exchanged, changed, and ideas are formed and reformed. It was also a key example of understanding statistics as politically applicable, a work he felt would be of immediate use to the Russian state, even sending a manuscript version to Catherine in 1765.³⁴⁵

Schlözer aimed to demonstrate the relative strength of the Russian population and how smallpox had little impact on its growth and stability.³⁴⁶ He wanted to understand why the Russian population developed in the ways it had and the reasons behind the relatively harmless nature of

³⁴⁰ C.f. Wolff, *Inventing Eastern Europe*, pp.17-49, 146 (for Göttingen's role in the mapping of this new territory). Also, Carla Hesse 'Towards a New Topography of Enlightenment', *European Review of History: Revue européenne d'histoire*, 13/3, (2006), pp.499-508, here pp.500-501; John Robertson, *The Case for the Enlightenment: Scotland and Naples 1680-1760* (Cambridge: Cambridge University Press, 2005), pp.47-48.

³⁴¹ Stagl, *Curiosity*, pp.244-246; Peters, *Altes Reich und Europa*, pp.58-66.

³⁴² Schlözer fits into a wider context of research on smallpox in the eighteenth century which had a transnational dimension. Martha Few argues that anti-smallpox information spread on a global scale from America to Asia to Europe (pp.519-520). C.f. Martha Few, 'Circulating Smallpox Knowledge: Guatemalan doctors, Maya Indians and designing Spain's smallpox vaccination expedition, 1780-1803', *The British Journal for the History of Science*, 43/4, (2010), pp.519-537.

³⁴³ August Ludwig von Schlözer, *Von der Unschädlichkeit der Pocken in Rußland und von Rußlands Bevölkerung überhaupt* (Göttingen und Gotha: Johann Christian Dieterich, 1768), pp.253-256.

³⁴⁴ Few, 'Circulating Smallpox Knowledge', pp.519-520.

³⁴⁵ Peters, *Altes Reich und Europa*, p.128.

³⁴⁶ Schlözer, *Von der Unschädlichkeit der Pocken*, Vorrede.

smallpox in the country.³⁴⁷ In a way, Schlözer fits into wider Enlightenment discussions of population and depopulation as he tried to explore how populations functioned as a tool of the state. However, this integration into wider discussions concerning universalism or determinism was limited as Cole has already suggested.³⁴⁸ Nevertheless, Cole's conception of Schlözer's work as a static enterprise opposed to Political Arithmetic is completely unfounded and indeed his work on smallpox was clearly shaped by Petty and Graunt.³⁴⁹ It has also been tendentiously argued (by Sinclair himself) that Schlözer's work contained something of Sinclair's moral agenda that coloured his definition of statistics.³⁵⁰ However, at no point did Schlözer state or even imply that this was to be concluded from his work. He argued that the state may benefit from a better understanding of its own population, suggesting they could rule more effectively with this type of understanding.³⁵¹ This was as far as Schlözer was interested in moral statistics at this point, firmly following the German tradition in this regard.

While his definition and aims remained closer to the older German traditions one aspect of his work was different. This was the combination of two worlds of statistical inquiry: the arithmetical and the descriptive. Schlözer was heavily influenced by the Political Arithmeticians and the early eighteenth-century European demographers, especially Süßmilch and Wargentin.³⁵² They left him with the idea that it was necessary to study populations using arithmetical techniques. The reverse of the frontispiece comes complete with a quote from a book called *Institutions Politiques* by a Mr de Bielefeld, possibly the same author (Jakob Friedrich von Bielefeld 1717-1770) read by Sir John Sinclair when he came to understand German statistics.³⁵³ It stresses the importance of Political Arithmetic as the science of understanding the state and of bringing about a better state of affairs.³⁵⁴

Schlözer's link between *Statistik* and Political Arithmetic can be highlighted through an analysis of the first section of the book. It contains tables of population and illness called "Tabellen von St Petersburg vom März biß Decemb. 1764 und Schlüsse daraus."³⁵⁵ The section comprises

³⁴⁷ Ibid, Vorrede.

³⁴⁸ Joshua Cole, *The Power of Large Numbers: Population, Politics, and Gender in Nineteenth Century France* (Ithaca: Cornell University Press, 2000), pp.26-31.

³⁴⁹ Cole, *The Power of Large Numbers*, p.26.

³⁵⁰ Sinclair, *History*, pp.v-vi.

³⁵¹ Schlözer, *Von der Unschädlichkeit der Pocken*, Vorrede.

³⁵² Ibid, Vorrede.

³⁵³ Sinclair, *History*, pp.lxv-lxvi.

³⁵⁴ Schlözer, *Von der Unschädlichkeit der Pocken*, p.114.

³⁵⁵ Ibid, pp.1-40.

of two parts, the first are the tables themselves and the second the explanation and conclusions that can be drawn from them.³⁵⁶ The tables are illustrative of the influence of the Political Arithmeticians on Schlözer. He used them to highlight birth rates within a year, the death rates detailed by month and gender, then he compared the age range to other cities across Europe such as Paris and London, before finally examining the causes of death and a European comparison.³⁵⁷ This is followed by lengthy explanation of the tables. The calculation of death rates into ratios and proportions demonstrated Schlözer's willingness to use arithmetic in his statistical enterprise.³⁵⁸

During his travels Schlözer always remained connected to Göttingen. He was in constant communication with his tutor Michaelis.³⁵⁹ As a student he was also inaugurated into Conring's statistical tradition and was almost certainly taught statistics by Achenwall.³⁶⁰ While there is no evidence linking the two in terms of correspondence or even on a physical level, there is clear evidence that Achenwall's theory of statistics was integral to Schlözer's later work. He followed the concept of a science that relied on copious explanation, description and clarification.³⁶¹ It shaped the scope Schlözer believed statistics should aspire to. It was maybe Achenwall's methodological influence that made Schlözer feel that a *Weltstatistik* (universal statistics) could be achieved.³⁶² While this kind of connection has been noted many times in the historiography, especially by Desrosières, Hacking and Cole,³⁶³ the transnational perspective adds a new dimension to our understanding of Schlözer's statistical thought. The circulation of ideas and connections Schlözer made on his travels demonstrates a much wider sphere of influence on his thought, especially from the Political Arithmeticians and what has been viewed as the more 'modern' form of statistical thought.³⁶⁴ Schlözer's statistical thought was enriched by his contacts in and beyond Göttingen and must be considered a more modern form of the science than previously thought.

Translation: Tables of St Petersburg from March to December 1764 and conclusions thereof.

³⁵⁶ Ibid, pp.1-14, 15-40.

³⁵⁷ Ibid, pp.5-14.

³⁵⁸ Ibid, pp.21-22.

³⁵⁹ C.f. Buhle (ed.), *Literarische Briefwechsel von Johann David Michaelis*, pp.172-197.

³⁶⁰ Peters, *Altes Reich und Europa*, p.38.

³⁶¹ Robert A. Horváth, 'Statistische Deskription und Nominalistische Philosophie' in Rassem and Stagl (eds.) *Statistik und Staatsbeschreibung in der Neuzeit*, pp.42-43.

³⁶² Arno Seifert, 'Staatenkunde: Eine neue Disziplin und ihr wissenschaftstheoretischer Ort' in Rassem and Stagl (eds.), *Statistik und Staatsbeschreibung in der Neuzeit*, p.219.

³⁶³ Desrosières, *The Politics of Large Numbers*, p.19; Hacking, *The Taming of Chance*, pp.23-25; Cole, *The Power of Large Numbers*, p.26.

³⁶⁴ Cole, *The Power of Large Numbers*, pp.26-29.

Schlözer's Network

Schlözer's network was a key component in the evolution and spread of his statistical ideas. It circulated and created new connections across Europe, especially in the German lands and reached as far as Russia, Sweden, Italy, and France. It was not primarily a statistical network but the convergence of numerous intellectual, political and personal interests. Schlözer used his network to spread and collect information and as he was a major publicist of his own work, he also used his personal network to deliver and receive ideas or even publish manuscript material. Thus, Schlözer's network was a crucial component in the evolution of statistical thought as it allowed the free passage of information, confirmed Schlözer's methodological approach, and spread the influence of his thoughts on statistics. It is important to point out that Schlözer's interconnectedness extended to his published works and journals which aided in the circulation of his ideas. His transnational network retained a great deal of importance throughout his life.

Evidence of Schlözer's network can be grouped into two variants. First, letter books kept at the Niedersächsische Staats- und Universitätsbibliothek Göttingen which make up the largest body of evidence. All of it is written in shorthand whose code was known only to Schlözer and must be deciphered. However, the make-up, spread and structure of his correspondence has been summed up by Henkel and helps to illustrate the vast geographical spread of the network.³⁶⁵

Second, is the evidence contained in his many journals called *Briefwechsel*.³⁶⁶ They contain vast amounts of information from across Europe. They are easier to decipher but were amassed information that was published over a number of years through the 1770s and 1780s. The difficulty lies, not only in deciphering the sources, but in disentangling what they contain. The letter books are summaries of letters that Schlözer wanted to record and were saved for a purpose. The *Briefwechsel* are similar as they were edited by Schlözer, thus he had control over their contents.

When dissecting Schlözer's web, Haas's concept of the 'epistemic community' of experts built on a transnational and trans-state level is the best methodological fit.³⁶⁷ However, this does not fully capture the complexity of Schlözer's network, especially considering Haas's communities exist as organisations and institutions designed to inform policy decisions aided by

³⁶⁵ Thomas Henkel, 'Schlözers Korrespondenz – eine Strukturanalyse' in Espenhorst and Duchhart (eds.), *August Ludwig (von) Schlözer in Europa*, pp.250-251; Stagl, *Curiosity*, pp.247-248.

³⁶⁶ Stagl, *Curiosity*, p.247.

³⁶⁷ Haas, 'Introduction', pp.32-33.

common beliefs and practices and not for the spread of influence or ideas.³⁶⁸ It may be better to express Schlözer's network as an extension of the common expertise or shared validity³⁶⁹ that were shared in a wider academic and intellectual community. Still, this is not a perfect fit, but is the best way to encapsulate Schlözer's often fluid network.

The theoretical underpinnings of Saunier, as it has been refined above, and Lux and Cook can help us better conceptualise this network. Saunier notes the fluidity of these transnational networks, advising us to analyse the connections and the circulations rather than having a fixed idea of networks in mind.³⁷⁰ He argues that one should see these circulations as a riverbed, flowing, as what he calls a 'circulatory regime'.³⁷¹ This river, with its subsequent catchment area and tributaries, must be mapped out.³⁷² Thus, these circulations are fluid following no preconceived notion of structure. Lux and Cook add a deeper understanding of the structure of this network. A network of weak ties, held together through a combination of personal interactions and infrequent or irregular correspondence built on an inclusive and pluralistic principle were the key underpinnings of the networks structure.³⁷³ It allowed for the circulation of knowledge on a transnational scale that was open to a form of 'epistemic community' who could form connections through infrequent correspondence, personal interactions and loose ties.

Schlözer's correspondence network was fluid because of this inclusivity and plurality. It has been described by Thomas Henkel as being sparsely collected, covered in his published works, letters dotted around archives, two letter books in Göttingen, his autobiography and the biography written by his son.³⁷⁴ Individual or groups of letters are held at over fifty different archives.³⁷⁵ In terms of the letter books in Göttingen, these works are densely packed folio editions containing near two hundred pages each, crammed full of minute writing in his own shorthand.³⁷⁶ Schlözer

³⁶⁸ Ibid, p.3.

³⁶⁹ Ibid, p.3.

³⁷⁰ Pierre-Yves Saunier, 'Circulations, Connexions et Espaces Transnationaux', *Genèses*, 67, (2004), pp.110-126, here p.123; Saunier, *Transnational History*, pp.58-79.

³⁷¹ Saunier, *Transnational History*, p.60.

³⁷² Ibid, p.60.

³⁷³ Lux and Cook, 'Closed Circles or Open Networks?', pp.202.

³⁷⁴ Henkel, 'Schlözers Korrespondenz – eine Strukturanalyse', in Espenhorst and Duchhart (eds.), *August Ludwig (von) Schlözer in Europa*, pp.245-246.

³⁷⁵ Ibid, p.246.

³⁷⁶ MS. Cod. A. L. Schlözer. 3: 4; MS. Cod. A. L. Schlözer. 3: 5 [Niedersächsische Staats- und Universitätsbibliothek Göttingen, hereafter Göttingen]. For a full exploration of the various archives see Peters, *Altes Reich und Europa*.

left no schema with which to decipher his own writings.³⁷⁷ The first of these copy books covers 1780 to 1788 and the second from 1792 to 1799. Additionally, there are numerous stacks of loose-leaf letters in Göttingen, across Germany and Europe.³⁷⁸ Henkel points out that Schlözer's entire correspondence covers something over 3,300 letters in total, not ordered in any particular way.³⁷⁹

Reconstructing Schlözer's network based on his correspondence is complex. The letters do not come in a structured format. They have been copied based on their perceived importance and many that were considered significant were saved for Schlözer's autobiography.³⁸⁰ The lack of order or coherence is compounded by the geographical scope of the correspondence.³⁸¹ A cursory glance at one of the letter copy books reveals that he also had contacts in Austria, the Netherlands, Switzerland, Sweden, Italy, Belgium, and many places in the German lands including Mainz, Berlin, Leipzig, Bonn, Hamburg, Lüneburg, Jena and Bielefeld.³⁸² Peters provides a detailed list of correspondents.³⁸³ It illustrates a network with considerable geographic as well as intellectual and social range, which includes ministers, intellectuals and academics, journalists, the aristocracy, friends and family.³⁸⁴ But as Henkel points out the majority of Schlözer's correspondence did not fit into the category of the eighteenth-century professional letter writers nor did they fit into the *Republic of Letters* conception of a correspondence built upon strict formulas and pre-set ideas of what letter writing should be, often modelled on classical precedent.³⁸⁵ In fact, many of the letters he wrote and received were intensely personal, and as the years passed they became even more so.³⁸⁶

There is also a divide between the printed and manuscript sources of his correspondence network. The latter takes a more personal note and the former a more professional. The former

³⁷⁷ Henkel, 'Schlözers Korrespondenz – eine Strukturanalyse', in Espenhorst and Duchhart (eds.), *August Ludwig (von) Schlözer in Europa*, p.247.

³⁷⁸ *Ibid.*, pp.246-248.

³⁷⁹ *Ibid.*, p.248.

³⁸⁰ *Ibid.*, p.247.

³⁸¹ *Ibid.*, p.250.

³⁸² MS. Cod. A. L. Schlözer. 3: 4 [Göttingen].

³⁸³ Peters, *Altes Reich und Europa*, pp.225-231.

³⁸⁴ *Ibid.*, pp.225-231.

³⁸⁵ Henkel, 'Schlözers Korrespondenz – eine Strukturanalyse', in Espenhorst and Duchhart (eds.), *August Ludwig (von) Schlözer in Europa*, p.263. On professional letter writing of the eighteenth century: Goodman, *The Republic of Letters* and the Stanford University project, Mapping the Republic of Letters at <http://republicofletters.stanford.edu/> [29 May 2018]. For the rise of the public, a key component of this *Republic of Letters* c.f. James Van Horn Melton, *The Rise of the Public in Enlightenment Europe* (Cambridge: Cambridge University Press, 2001).

³⁸⁶ Henkel, 'Schlözers Korrespondenz – eine Strukturanalyse', in Espenhorst and Duchhart (eds.), *August Ludwig (von) Schlözer in Europa*, pp.263-264.

was for the collection and dissemination of information on statistics, while the latter was for the diffusion of ideas regarding statistics and the collection of further information. This distinction is arbitrary, however, with the difficulties inherent in the reconstruction of Schlözer's network it is the best that can be made. Understanding the diffuse nature of the network as an open structure of weak ties helps to conceptualise how it functioned. The strength of knowledge transmission relied on the correspondences' diffuse and nebulous spread across Europe as it acted inclusively and with a plurality that did not, really, permit exclusion. Taking Schlözer as the central point of this community and allowing him to construct the network that grew around him illustrates how the spread of statistical knowledge took place in the eighteenth century.

Schlözer's statistical thought was heavily influenced by his academic connections. Two of the important correspondents were Johann David Michaelis and Wargentin. The former was Schlözer's mentor and formative on his early thought, even when Schlözer was not in Göttingen, and while the relationship was never dedicated to statistics it certainly had an impact on his development. A letter from Stockholm dated the 28th May 1756 details Schlözer's plan to draw up a monumental history of Sweden, for which he clearly sought his mentor's approval.³⁸⁷ It demonstrates a willingness on the part of Schlözer to air his ideas to Michaelis, and the dedication of *Neueste Geschichte der Gelehrsamkeit in Schweden* to his mentor testifies to the close relationship.³⁸⁸

As the correspondence moved on into the early 1760s,³⁸⁹ Schlözer's letters changed to a more stringent independence from his old tutor. Combined with this his letters now devoted more time to deep and detailed discussions of philology and the banalities of travel. They moved away from that of a master-pupil relationship to that of a friend. However, Michaelis remained a great influence on Schlözer's intellectual development, including providing him with a job while in Russia.

Wargentin, whom Schlözer had met while in Uppsala,³⁹⁰ was the biggest influence on the statistical thought of Schlözer outside of the German Lands. Their friendship and Wargentin's influence were not limited to Schlözer's time in Sweden as the two men maintained a friendly correspondence up to Wargentin's death in 1783. A letter dated 29th February 1768 illuminates the

³⁸⁷ Buhle (ed.), *Literarische Briefwechsel von Johann David Michaelis*, p.176.

³⁸⁸ Ibid, p.177.

³⁸⁹ Ibid, pp.199-232.

³⁹⁰ Peters, *Altes Reich und Europa*, pp.44-46.

friendly and influential nature of this correspondence.³⁹¹ Schlözer used this letter as an opportunity to send Wargentín a copy of his most recent publication; *Von der Unschädlichkeit der Pocken*.³⁹² In the return letter Wargentín urged Schlözer to move away from the arguments of his book, and rather than employing a blanket comparison to other nations he should, more particularly, compare the Russian population statistics to other nations that use saunas and sweat baths to ascertain whether there was a connection.³⁹³ The suggestion provides an interesting insight into the influence he held over Schlözer as well as the mutual respect as he gave the idea due consideration.

Wargentín was an important source of information for Schlözer. A letter dated 3rd September 1780 to Stockholm indicates that even up to this date Schlözer was still asking Wargentín for information on Sweden.³⁹⁴ At points the bond can only be hinted at, as many of the letters are in a shorthand that is often indecipherable, or the summaries of the letters are short or non-existent. In a letter dated 25th August 1782 we are given little but tantalising hints regarding the information he relayed to Wargentín about his upcoming journey to Rome.³⁹⁵ There is even one letter, dated (possibly) 24th June 1782, that is left conspicuously blank.³⁹⁶ To what these letters contained we will never know in full. However, it can be surmised that Wargentín continued to aid Schlözer in his thoughts about statistics from their first encounter in Sweden up until his death in 1783.

Next to the academic, Schlözer's network extended into the political world. Through these contacts he was able to discuss his ideas about political science and statistics with those who held some form of power and it allowed him to spread his statistical ideas to those who could potentially use it, in Schlözer's view. It was a network that spread through the German states and beyond. It traversed the political borders that had been established throughout the Holy Roman Empire,³⁹⁷ and illustrates the ways in which Schlözer attempted to influence, or was influenced by, those in a transnational political realm.³⁹⁸

³⁹¹ Ibid, p.128fn558 – the original source is in Stockholm.

³⁹² Ibid, p.128.

³⁹³ Ibid, p.128. Which Schlözer summarises in a letter to Wargentín dated 5th May 1768.

³⁹⁴ MS. Cod. A. L. Schlözer. 3: 4, 28 [Göttingen].

³⁹⁵ MS. Cod. A. L. Schlözer. 3: 4, 60 [Göttingen].

³⁹⁶ MS. Cod. A. L. Schlözer. 3: 4, 43 [Göttingen].

³⁹⁷ C.f. Christian von Schlözer, *August Ludwig von Schlözers öffentliches und Privatleben* (Leipzig: J. C. Hinrichsche Buchhandlung, 1828), which contains many of Schlözer's letters to the aristocracy or those in political power.

³⁹⁸ C.f. Saunier, *Transnational History*, pp.33-79.

One of the most fascinating connections Schlözer maintained was with Ewald Friedrich, Graf von Hertzberg (1725-1795).³⁹⁹ Hertzberg was a minister to Friedrich II as well as his successor Friedrich Wilhelm II and was influential in foreign policy, working closely with the Prussian foreign office. He also had an interest in the sciences, particularly political sciences and the art of governance.⁴⁰⁰ This seems to have led him into an active correspondence with Schlözer which lasted from around 1788 to 1793.⁴⁰¹

Their discussions cover a range of political topics. Schlözer's letter from 16th January 1788 and Hertzberg's response from 9th February 1788, discuss the matter of paper money and its effect on the economy. Schlözer enquired about an academic treatise that Hertzberg had written on paper money and its circulation.⁴⁰² The reply was a detailed explanation of how and why the paper was not as esoteric as Schlözer believed and even pointed Schlözer to the statistical 'state tables' that had been drawn up to prove the veracity of Hertzberg's argument.⁴⁰³ This demonstrates, firstly, the respect Schlözer was afforded in the realm of political science, secondly, the respect that the science of statistics was beginning to attain in the political circles and, thirdly, that Schlözer could call upon his network to gain new information on states and economy from a wide variety of sources in positions of power.

His communication with the Prince of Hohenlohe-Kirchberg, Christian Friedrich Karl (1729-1819), highlights a similar relationship. A letter dated the 22nd August 1770 from the Prince demonstrates that he was willing to listen to Schlözer, and had great respect for him, especially as he was a professor of statistics. While the prince did not wax lyrical about Schlözer's output he found what he did fascinating and enjoyed the work that Schlözer sent him (such as a description of France).⁴⁰⁴ It was not the glowing acceptance that Schlözer might have hoped for, but it emphasised a deep respect for the man. It also highlights that Schlözer was, at least in the 1770s, trying to publicise his work to those in power and attempting to influence them. The Prince showed some interest, hoping that Schlözer's enterprise to bring back useful information from his travels

³⁹⁹ Hertzberg is also in correspondence with Sinclair, however, there seems to be no overlap between the three men.

⁴⁰⁰ Stephan Skalweit, 'Hertzberg, Ewald Graf von', *Neue Deutsche Biographie* 8 (1969), pp.715-717 [Online-Version]; <https://www.deutsche-biographie.de/gnd116754974.html#ndbcontent>. [6 November 2017].

⁴⁰¹ Schlözer, *August Ludwig von Schlözers öffentliches und Privatleben*, pp.9-25. Though it possibly could have been active before this date.

⁴⁰² *Ibid.*, pp.9-11.

⁴⁰³ *Ibid.*, pp.10-11.

⁴⁰⁴ *Ibid.*, pp.195-196.

to France went well and asked to be kept abreast of new information.⁴⁰⁵ The interest in Schlözer's work continued throughout their correspondence as a letter from the 18th February 1804 suggests.⁴⁰⁶ The Prince was eager to hear information about the Russian state as well as providing Schlözer with information on the political situation back home. It illuminates a relationship that combined mutual respect and interest. Much as with Hertzberg, Schlözer was participating in a correspondence of information exchange and influence. There is no greater illustration of this than a letter from the Prince dated 20th February 1806 in which he asked if his son could attend the winter semester to be taught by Schlözer.⁴⁰⁷

Schlözer maintained another important relationship with Woldemar Friedrich, Graf von Schmettau (1749-1794). He was a diplomat and an adjutant to the Danish monarch as well as an author and translator.⁴⁰⁸ The correspondence seems to have begun sometime around 1780 and ended with the death of Schmettau in 1794.⁴⁰⁹ Their contact was both prolific and friendly. In its course it also turned to the topic of statistics. Schmettau was willing to help Schlözer gather information on his statistical and historical enterprise.⁴¹⁰ In the letter dated 12th December 1783 he provided him with information regarding the state of Speier, the place Schmettau was staying.⁴¹¹ He noted that in the archives there, history and statistics were not mentioned at all, but many people had questions about the science and wished to learn.⁴¹²

The concept of statistics was an active part of Schlözer's correspondence. Both ideas reappeared in a letter of 9th August 1790, when Schmettau was in Plön. The letter concerns many topics, and again is packed full of information on a variety of political and academic themes, including the French Revolution as well as information on the latest publications, news from Göttingen and Plön. Again, the letter presents a window into how Schlözer used his network for the purpose of collecting information on everything from politics, to local news to history and academic news. In the context of the ongoing financial crisis during the Revolution, Schmettau wrote that the situation was in dire need of a statistician (“den Statistiker absolut nothig”) to

⁴⁰⁵ Ibid, p.197.

⁴⁰⁶ Ibid, pp.200-202.

⁴⁰⁷ Ibid, pp.204-205.

⁴⁰⁸ Bernhard von Poten, ‘Schmettau, Woldemar Graf von’ *Allgemeine Deutsche Biographie* 31 (1890), pp.647-648 [Online-Version]; <https://www.deutsche-biographie.de/gnd117457132.html#adbcontent>. [6 November 2017].

⁴⁰⁹ Schlözer, *August Ludwig von Schlözers öffentliches und Privatleben*, pp.102-190.

⁴¹⁰ Ibid, pp.141-143.

⁴¹¹ Ibid, p.141.

⁴¹² Ibid, p.142.

improve the circumstances.⁴¹³ He explained that the finances would work best under a German model using statistical ideas.⁴¹⁴ Schlözer's ideas had clearly entered the political arena, and Schmettau's analysis demonstrate not only his high regard for Schlözer's idea of statistics but also that it was not just Schlözer alone who believed that statistics could benefit politics, finance and economics.

This was not often stated explicitly in Schlözer's correspondence network. However, here its benefits are extolled. In a letter dated 23rd February 1794, Schmettau reiterated:

Soll statistik vervollkommnet werden, so müssen, das sehe ich jetzt zu spät ein, Patrioten ohne Scheu, sich und andere nennen. Ich war vormals zu bedenklich.⁴¹⁵

Schmettau explicitly linked Schlözer and his form of statistics to a patriotic cause. Entering the political realm Schlözer's ideas began to mutate, as Schlözer himself did not directly connect his statistics at this point to a patriotic or nationalistic cause. It is particularly interesting that Schmettau was a diplomat serving the Danish crown acknowledging the benefit of Schlözer's brand of statistics.⁴¹⁶ Indeed, interest in statistics in Denmark was high and the country had undertaken a full count population census in 1769 and then again in 1787.⁴¹⁷ The motivation behind these censuses was economic, but was deeply impacted by Enlightenment ideas regarding state reform and the improvement of society and how it was governed.⁴¹⁸ This helps to indicate why Schlözer's statistical ideas were so appealing to those connected to the Danish crown. Men like Schmettau were hunting for ideas that could aid this process of reform.

Of particular interest is how Schlözer's interaction with Schmettau demonstrate a continuity in the workings of Schlözer's correspondence network. The nature of its weak ties and inclusive method of circulation did not depend on regular forms of connection. While it has been argued that the forms of network changed with the coming of the French Revolution and the Napoleonic wars in Europe, especially in terms of mathematical and scientific networks, this does

⁴¹³ Ibid, p.174.

⁴¹⁴ Ibid, pp.173-175.

⁴¹⁵ Schlözer, *August Ludwig von Schlözers öffentliches und Privatleben*, pp.189-190.

Translation: Should statistics be perfected so patriots must, I realise this now too late, without embarrassment confess themselves and others. I was too reluctant before.

⁴¹⁶ Poter, 'Schmettau, Woldemar Graf von'; c.f. Commager, 'Denmark and Gottingen', for a more detailed exploration of the connection between the two.

⁴¹⁷ Thorvaldsen, *Censuses and Census Takers*, pp.35-39.

⁴¹⁸ Ibid, pp.38-39.

not seem to have been the case for Schlözer.⁴¹⁹ Rather his network was not disrupted and, as will be explored below, his work had a large impact on the development of the French Bureau of Statistic under Napoleon through the circulation of his work and his numerous contacts in France.

However, the predominant aspects of Schlözer's network was its use for the collection of information and the spread of his own statistical thought. Two crucial elements were the journals he published through the 1770s and 1780s. Stagl points out that the publication not only increased Schlözer's fame but also his correspondence network.⁴²⁰ The first was *Briefwechsel meist statistischen Inhalts* in 1775 and the second was *Briefwechsel meist historischen und politischen Inhalts* published in ten volumes between 1776 and 1782.

His *Briefwechsel meist statistischen Inhalts* illustrated the reach of Schlözer's network to collect information and his ability to codify and publish it.⁴²¹ It represents the circulations of his transnational network in action as his work sought to gather ideas and information, assimilate and change them all simultaneously. In his *Vorrede* he explained the importance of correspondence in the collection of statistical data.⁴²² He stressed the importance of travel, books, the book trade, and newspapers in the collection of his account.⁴²³ It is made explicit that his numerous travels helped him develop a network which allowed him to amass the amounts of information necessary to sustain his statistical account.⁴²⁴

The *Briefwechsel*, despite the name, was not just a work full of letters but instead contained only a few dotted throughout.⁴²⁵ One such letter concerning the collection and dissemination of information is dated 10th July 1774 from a Mr d'Ansse de Villoison. It illustrates a willingness to expand his network and create new contacts across borders. Mr Villoison's correspondence provided information on the publication of a journal in Paris and asked Schlözer if he knew other academics willing to present findings to the latest issue, much like a call for papers.⁴²⁶ It reveals not only that Schlözer mined every correspondence for information but also that he wished others

⁴¹⁹ For an introduction to the disruption of cosmopolitan scientific networks and the effects of such disruptions and breakages during the French Revolution and the Napoleonic era c.f. Easterby-Smith, *Cultivating Commerce*, pp.174-188; Elise S. Lipkowitz, 'Seized natural-history collections and the redefinition of scientific cosmopolitanism in the era of the French Revolution', *The British Journal for the History of Science*, 47/1, (2014), pp.15-41; Margócsy, 'A long history of breakdowns', pp.313-315.

⁴²⁰ C.f. Stagl, *Curiosity*, p.247.

⁴²¹ C.f. Schlözer, *Briefwechsel meist statistischen Inhalts*.

⁴²² Schlözer, *Briefwechsel meist statistischen Inhalts*, *Vorrede*.

⁴²³ *Ibid*, *Vorrede*.

⁴²⁴ *Ibid*, *Vorrede*.

⁴²⁵ C.f. Schlözer, *Briefwechsel meist statistischen Inhalts*, pp.47-48.

⁴²⁶ *Ibid*, pp.47-48.

to engage in this activity, a hint that Schlözer did not view statistics as a one man show. It highlights the importance of the variety of connections. Mr Villoison's letter appears to be only a singular instance, while other correspondents in the collection were represented with longer, denser and often multiple letters. Yet still Schlözer was willing to court every possible connection and make the most of the flow of information and ideas no matter how loose the ties.

Another example for the scope of information is a report, dated December 1773, containing a detailed exposition of Nancy in Lorraine, including population figures, geographic information and a history.⁴²⁷ The second half of the letter contains details of the university, its faculties and faculty members. There are vast descriptive elements of the university faculties, such as the faculty of philosophy, or medicine. This is contrasted with numerical accounts of the population and how it had changed over the years.⁴²⁸ Schlözer collected both descriptive and numerical information from his network. His first *Briefwechsel* was an indicator of the transnational scope of Schlözer's network, illuminating its connections and circulations from Russia to England to Holland to France to Italy to Sweden and beyond.⁴²⁹ It highlights how Schlözer's ideas about statistics were evolving, this correspondence was, for him, only a part of the larger framework of statistical research.⁴³⁰

A key specimen of how Schlözer used correspondence to gather information was his communication with historian and statistician Johann Georg Meusel (1743-1820). He was an integral component in Schlözer's information network. Not only did Meusel produce a key work, *Litteratur der Statistik*, but he helped Schlözer with information for his *Briefwechsel*. Several letters to Meusel contain explicit thanks for such information and the completion of the *Briefwechsel*, one dated 4th June 1780 and another dated 14th July 1782.⁴³¹ Their correspondence appears to have lasted from the 1780s well into the 1790s, with the last letter being sent by Schlözer on 2nd April 1797.⁴³²

Many of these letters were either requests for information or information being transmitted by Schlözer. It was a mutual exchange for both men, a way for Schlözer to gain information but also to keep Meusel up to date on how his work progressed and any new information that he had

⁴²⁷ Ibid, pp.18-25.

⁴²⁸ Ibid, pp.20-25.

⁴²⁹ C.f. Schlözer, *Briefwechsel meist statistischen Inhalts*.

⁴³⁰ Schlözer, *Briefwechsel meist statistischen Inhalts*, Vorrede.

⁴³¹ MS. Cod. A. L. Schlözer. 3: 4, 23; Cod. A. L. Schlözer. 3: 4, 57 [Göttingen].

⁴³² MS. Cod. A. L. Schlözer. 3: 5, 84 [Göttingen].

acquired. One such letter, dated 25th April 1784,⁴³³ informed Meusel of the sources Schlözer used in the course of his work, amongst others, Achenwall's statistical works. Schlözer included for Meusel specific page numbers and passages that he considered to be important.

Another such instance is a letter from Schlözer to Meusel on 18th May 1783.⁴³⁴ He pointed Meusel to a specific work, which he obviously found important, citing page references and the edition number. Of course, as this is in Schlözer's shorthand it is near impossible to tell what book he was referring to but based on the two men's overlapping interest it seems most likely to be a work of historical or statistical inquiry. Again, Schlözer mentioned Gottfried Achenwall which would suggest they were discussing the topic of political science or statistics.⁴³⁵ It reveals a continued and thorough exchange of information between the two men for over a decade. The network was the heart of a circulatory body that could disseminate information and ideas both to and from Schlözer. Its transnational nature is a crucial aspect in the development of Schlözer's statistical thought as it was only through these channels and flows that he could found his model of statistics.

Schlözer's *Briefwechsel meist historischen und politischen Inhalts* continued and expanded this process. The journal came out in ten separate editions from 1776 to 1782. Like his previous *Briefwechsel* it took much the same format. They were vast collections of statistics that aimed to give its reader access to as much information as possible on a variety of political and historical topics. Additionally, the first two sub-sections of the first edition were tabular calculations of population (divided by gender in parts) for both Austria and the Ukraine.⁴³⁶

As with his previous *Briefwechsel*, Schlözer utilised his correspondence network to provide much of the information. Individuals were active participants in this collection.⁴³⁷ Peters, in his work *Altes Reich und Europa*, provides a fully furnished list of all correspondence, named and with their place of origin, broken down thematically and by geographic area. The list contains state ministers, lords, many of his family and friends, functionaries of the governments of the German states, Russia, France, and Austria, academics in Göttingen, judges and legal experts from all over

⁴³³ MS. Cod. A. L. Schlözer. 3: 4, 114 [Göttingen].

⁴³⁴ MS. Cod. A. L. Schlözer. 3: 4, 71 [Göttingen].

⁴³⁵ Ibid.

⁴³⁶ August Ludwig von Schlözer, *Briefwechsel meist historischen und politischen Inhalts, Erster Theil* (Göttingen: Vandenhoeckschen Buchhandlung, 1778), pp.1-4.

⁴³⁷ Peters, *Altes Reich und Europa*, p.317.

the German states, authors from Russia, Hungary, Sweden, and Switzerland.⁴³⁸ Peters notes that Schlözer was in contact with three *Statistiker*: Johann Heinrich Waser (1742-1780) from Zurich, Ignaz de Luca (1746-1799) from Vienna, and Christian Friedrich Pfeffel (1726-1807) in Paris.⁴³⁹

The vast number of names and their divergent and diverse interests and occupations is instructive of the diffuse nature of Schlözer's network. Schlözer was more than willing to reproduce large tracts of letters he or others had received to provide his readers with the required information.⁴⁴⁰ Many letters he received find a place here, printed sometimes verbatim.⁴⁴¹ They are set out like journalistic reports, giving day by day rundowns of information.⁴⁴² The *Briefwechsel* and Schlözer's network demonstrate his connection to wider Enlightenment discourses. Stagl suggests that during the period from 1600 to 1800 there was an increase in social research and desire to close the gap between scientific methods and empirical knowledge.⁴⁴³ Schlözer was an essential part of this trend, especially helping the development of ethnography and anthropology in Göttingen and Europe through his travels to Russia and the east.⁴⁴⁴ Stagl points out that the large correspondence network Schlözer amassed also benefited his thought about political and social matters.⁴⁴⁵ His ideas about statistics formed part of this trend of travel and correspondence networks that were designed to share ethnographic and social research. This was common practice in the eighteenth century and the idea of gathering information, mapping and, as Wolff argues, 'inventing' political and social identities was a key feature of Enlightenment discourse.⁴⁴⁶ Schlözer played an active role in these discussions and his statistics was certainly, in parts, born out of this social and political research and ethnographic discussions.

Further, Schlözer's network and travels played into the notion of quantification. The rise of and curiosity in new methods of social research and natural science dependent on empirical evidence found a release in statistical thought.⁴⁴⁷ Quantification was certainly one of Schlözer's

⁴³⁸ Ibid, pp.225-231.

⁴³⁹ Ibid, pp.229-230. Little remains of these correspondences linking them to Schlözer.

⁴⁴⁰ C.f. Schlözer, *Briefwechsel meist historischen und politischen Inhalts*.

⁴⁴¹ Schlözer, *Briefwechsel meist historischen und politischen Inhalt, Erster Theil*, pp.117-125, 357-370.

⁴⁴² Ibid, pp.117-125.

⁴⁴³ Stagl, *Curiosity*, pp.1-2, 46.

⁴⁴⁴ Schlözer, *Briefwechsel meist historischen und politischen Inhalt, Erster Theil*, pp.233-268.

⁴⁴⁵ Ibid, p.247.

⁴⁴⁶ Wolff, *Inventing Eastern Europe*, pp.17-49 on travel; pp.144-194 for mapping Eastern Europe and Russia.

⁴⁴⁷ C.f. Poovey, *A History*, p.xii-xv; Mary Fissell and Roger Cooter, 'Exploring Natural Knowledge: Science and the Popular', in Porter (ed.), *The Cambridge History of Science, Volume 4: Eighteenth-Century Science*, pp.129-158, which argues that eighteenth-century science was founded on both the abstract and the empirical; Heilbron, 'Introductory Essay', in Frängsmyr, Heilbron, Rider (eds.), *The Quantifying Spirit in the 18th Century*, pp.1-3.

concerns. This ‘quantifying spirit’ permeated the eighteenth-century development of scientific transfer as a means of spreading knowledge, which came in a variety of forms, from travel to correspondence.⁴⁴⁸ While it could be argued that this network was tangentially connected to the *Republic of Letters*, designed for the transfer of information and opinion that developed in France (and around Europe) from the sixteenth-century onward, Schlözer’s travels and correspondence went well beyond this and its fixed ideas of sociability.⁴⁴⁹ He was more attached to quantification and social/political research for the sake of science and understanding. His correspondence network held more similarities with scientific networks described by Lux and Cook, formed of weak ties and inclusivity in the search for knowledge and its validation.⁴⁵⁰ Schlözer’s position illuminates that this kind of Enlightenment thought was happening outside the perceived centre of the Enlightenment in Paris.⁴⁵¹ Thus, Schlözer, his network, and his statistics were firmly placed within Enlightenment thought adding to the discourse on the collection of empirical evidence and political research.

Beyond the context of the Enlightenment, Schlözer’s network and travels reveal a modernity of thought and purpose in his statistical thinking. It uncovers something more of Robertson’s case for the Enlightenment and Kontler’s peripheral Enlightenments or Desrosières, Cole and Hacking’s static interpretation of the *Statistiker*. Schlözer’s thought should not and cannot stand on the periphery of intellectual developments in statistics or the Enlightenment. The transnational network he created which spanned across Europe acted as a conduit for the development of his own unique version of statistical thought. Through his various connections and circulations, he not only spread his ideas and information but received new ideas and information from all over Europe. An analysis of Schlözer’s network and travels reveals that he was heavily influenced by the Political Arithmeticians and the demographers. His work was not anti-

⁴⁴⁸ Heilbron, ‘Introductory Essay’, in Frängsmyr, Heilbron, Rider (eds.), *The Quantifying Spirit in the 18th Century*, p.2; Veronica Lipphardt and David Ludwig, ‘Knowledge Transfer and Science Transfer’ *European History Online (EGO)*, (2011), <http://www.ieg-ego.eu/lipphardtvludwigd-2011-en> URN: urn:nbn:de:0159-2011121229, pp.39-40.

⁴⁴⁹ Goodman, *The Republic of Letters*, pp.1-4.

⁴⁵⁰ Lux and Cook, ‘Closed Circles or Open Networks?’, p.202.

⁴⁵¹ Work has been done to dispel this idea of the Enlightenment, especially Gay’s presentation of the Enlightenment as a small flock of *philosophes*. C.f. Robertson, *The Case for the Enlightenment*; Kontler, *Translations, Histories, Enlightenment*; László Kontler, ‘What is the (Historians’) Enlightenment Today?’, *European Review of History: Revue europeenne d’histoire*, 13/3, (2007), pp.357-371; Fania Oz-Salzberger, *Translating the Enlightenment: Scottish Civic Discourse in Eighteenth-Century Germany* (Oxford: Clarendon Press, 1995); Hesse ‘Towards a New Topography of Enlightenment’; Sebastian Conrad, ‘Enlightenment in Global History: A Historiographical Critique’, *American Historical Review*, 117/4 (2012), pp.999-1027; Peter Gay, *The Enlightenment: An Interpretation, 1: The Rise of Modern Paganism* (London: Wildwood House, 1970).

mathematical but instead embraced a wide array of statistical ideas. It highlights that Schlözer was able to use the circulation of information to inform the scale and scope of his statistical enterprise. Through his travels and interactions in Sweden, Russia and the German lands Schlözer was able to devise a version of statistics that would incorporate the world of natural science, political history and ethnography. His network demonstrates that Schlözer stands directly in the centre of the development of statistical thought in the eighteenth century and cannot be viewed as a peripheral figure in its development. Nowhere can this be more clearly demonstrated than in his published works.

Chapter 4

A Theory of Statistics: Schlözer's Published Works and their Influence

In 1804 August Ludwig von Schlözer published a work on political science, the *Theorie der Statistik: Nebst Ideen über das Studium der Politik überhaupt*.⁴⁵² It was the culmination of a life of work and learning on the subject of statistics and it has been considered the natural successor to the work of Achenwall.⁴⁵³ According to the most recent literature, the natural evolutionary point from Achenwall's initial systematisation and made clear that statistics was a science that was a deeply regimented and organised science.⁴⁵⁴ Nearly all works on Schlözer's statistics make this evolution explicit, portraying it as a direct route from one to the other and viewing Schlözer's statistics as the natural progression of the discipline to a 'full-blown' science.⁴⁵⁵

Despite tentative efforts to map out the landscape of Schlözer's statistical thought his work has often been interpreted as a thinly veiled reboot of Achenwall's scientific *Staatsbeschreibung*.⁴⁵⁶ Historians have consistently tried to demonstrate that Schlözer's work was static and followed the descriptive pattern laid down by his predecessors.⁴⁵⁷ This chapter, however, argues that his work was more nuanced, and Schlözer developed a new way of practicing and theorising about statistics. His statistical thought was influenced by his connections across Europe, especially the mathematical works of the demographers and the Political Arithmeticians. Schlözer's published works demonstrate the importance of the transnational network in the development of statistical thought from descriptive to mathematical from the eighteenth to the nineteenth century. The various connections helped make Schlözer's published work innovative

⁴⁵² August Ludwig von Schlözer, *Theorie der Statistik: Nebst Ideen über das Studium der Politik überhaupt* (Göttingen: Vandenhoeck- und Ruprecht'schem Verlag, 1804).

⁴⁵³ Merio Scattola, 'August Ludwig Schlözer und die Staatswissenschaften des 18. Jahrhunderts' in Espenhorst and Duchhart (eds.), *August Ludwig (von) Schlözer in Europa*, p.104; Morgane Labbé, 'L'arithmétique politique en Allemagne au début du 19e siècle: réceptions et polémiques', *Journ@l Electornique d'histoire des Probabilités de la Statistique*, 4/1, (2005), pp.1-23, here p.5.

⁴⁵⁴ Scattola, 'Schlözer und die Staatswissenschaften' in Espenhorst and Duchhart (eds.), *August Ludwig (von) Schlözer in Europa*, pp.104-106.

⁴⁵⁵ C.f. Scattola, 'Schlözer und die Staatswissenschaften' in Espenhorst and Duchhart (eds.), *August Ludwig (von) Schlözer in Europa*; Peters, *Altes Reich und Europa*; Behrisch, *Die Berechnung der Glückseligkeit*; Labbé, 'L'arithmétique politique'; Rassem and Stagl (eds.), *Statistik und Staatsbeschreibung in der Neuzeit*. Other scholars have dismissed Schlözer as nothing but a part of the descriptive brand of statistics, c.f. Hacking, *Taming of Chance*; Hacking, *The Emergence of Probability*; Desrosières, *The Politics of Large Numbers*; Rassem and Stagl (eds.), *Statistik und Staatsbeschreibung in der Neuzeit*.

⁴⁵⁶ C.f. Hacking, *The Taming of Chance*; Desrosières, *The Politics of Large Numbers*; Rassem and Stagl (eds.), *Statistik und Staatsbeschreibung in der Neuzeit*.

⁴⁵⁷ Cole, *The Power of Large Numbers*, p.26; Horváth, 'Statistische Deskription und Nominalistische Philosophie', in Rassem and Stagl (eds.), *Statistik und Staatsbeschreibung in der Neuzeit*, pp.41-45.

and analyse the uniqueness of Schlözer's approach exploring its novel innovations in both methodology and theory. Schlözer was one of the first to argue that statistics could be a science in its own right, combining mathematical techniques with descriptive ones, but also the first to publish a theoretical exposition on the subject. This section explores and analyses how Schlözer's published works evolved and became the polished *Theorie* which proposed a radical new interpretation of the science of statistics. It traces and analyses this evolution from its earliest iteration in his Swedish and Russian journals to his larger historical, statistical and political journals in the 1770s and 1780s and finally to the maturity of his statistical ideas.

Schlözer's Early Works

Schlözer did not write a work of practical statistics in his lifetime. He never produced a work that could be comparable to Achenwall's *Abriß*. Instead, Schlözer's statistical ideas were presented in different ways, unfolding through his work on history, politics, literature, and languages.

During his time in Sweden and Russia from the mid-1750s to the late 1760s Schlözer published, amongst other publications, three works that have a direct bearing on his statistical development. They were the *Neueste Geschichte der Gelehrsamkeit in Schweden* (two volumes: 1756 and 1757), *Neuverändertes Rußland* (1767), and, finally, *Von der Unschädlichkeit der Pocken* (1768). While the above publications have been touched upon briefly it is crucial to return to them now to chart more fully the evolution of his statistical thought. The works highlight the groundwork of his statistical methodology, illuminating trends that would become instrumental to practising new forms of statistics.

The earliest of these publications, *Neueste Geschichte der Gelehrsamkeit in Schweden*, is illustrative of wider trends in the statistical traditions. One trend that fed into Schlözer's wider thoughts on statistics was the art of collection and classification to obtain an overview of a nation's condition.⁴⁵⁸ Achenwall's influence is clear as Schlözer still attempted to link his concept of collection and classification with statecraft. Indeed, the motivation for the book was that it was a valuable compendium of scientific information.⁴⁵⁹ He added that it should also be supplementary to an earlier encyclopaedia of Swedish academia.⁴⁶⁰ Still, Schlözer was heavily influenced by the

⁴⁵⁸ Schlözer, *Neueste Geschichte der Gelehrsamkeit in Schweden, Erstes Stück*, Vorrede.

⁴⁵⁹ Ibid, Vorrede.

⁴⁶⁰ Ibid, Vorrede.

academic world at this stage, particularly the Swedish academy,⁴⁶¹ as well as the major figures of Swedish intellectual life, including Linnaeus.⁴⁶² The format of the encyclopaedia (or Lexicon) would directly inform his statistics. The eighteenth century had seen the rise of encyclopaedias as a method of knowledge diffusion connected to the concept of the rationalisation of thought and human experience born out of the Enlightenment, especially with the *Encyclopédie* in France.⁴⁶³ The collection and organisation of information into a compendium would be a cornerstone of Schlözer's method for the rest of his life.

Schlözer's conscious act of editing helped shape his statistical thought. The majority of the information is given in the form of small excerpts or summaries of certain texts. For example, Schlözer provides the full title and then a short page summary of the Linnaeus's work and its background.⁴⁶⁴ Often, however, there are only a few entries that contain extracts of the work in question, such as the first chapter on the collection of natural objects.⁴⁶⁵ Of thirty-two pages the excerpt is only six pages long, the remaining pages are filled with detailed description.⁴⁶⁶ This illuminates a methodological choice that Schlözer continued to refine for the rest of his career: the art of editing, synthesis and summary. It was something that he saw as key to his work as a statistician, journal editor and historian.

It is clear from his *Vorrede* that Schlözer used the work of the greatest Swedish minds as his primary source material. This consisted of works by men such as Linnaeus who makes up three of the entries in the first volume alone (out of thirteen).⁴⁶⁷ Additionally, he included news reports and the proceedings of the academies.⁴⁶⁸ It highlights the expanding scope of his statistical methodology, especially in the political sphere. Schlözer attempted to create a narrative of information in his encyclopaedia, one which could be read as both a guide to the subject and its contextualisation. This method, according to Schlözer, could create a better understanding of how things work and how they may be improved.⁴⁶⁹

⁴⁶¹ Ibid, Vorrede.

⁴⁶² Peters, *Altes Reich und Europa*, pp.39-52.

⁴⁶³ Daniel Roche, 'Encyclopedias and the diffusion of knowledge' in Mark Goldie and Robert Wokler (eds.), *The Cambridge History of Eighteenth-Century Political Thought*, (Cambridge: Cambridge University Press, 2006), pp.172-194.

⁴⁶⁴ Schlözer, *Neueste Geschichte der Gelehrsamkeit in Schweden, Erstes Stück*, pp.47-50.

⁴⁶⁵ Ibid, pp.1-33.

⁴⁶⁶ Ibid, pp.1-7, 8-33.

⁴⁶⁷ Ibid, pp.175-176 (Inhalt).

⁴⁶⁸ Ibid, pp.175-176 (Inhalt).

⁴⁶⁹ Ibid, Vorrede.

Two of his Russian publications embody this continuing evolution of his statistical thought. They reveal many of the same ideas found in the *Neueste Geschichte* as well as new influences and a clarification of older ideas. *Neuverändertes Rußland* and *Unschädlichkeit der Pocken in Rußland*, while each being different in nature, highlight the influences from earlier traditions, especially the Political Arithmeticians and Achenwall. Certainly, in *Unschädlichkeit* Schlözer demonstrates the uniqueness of method and theory that would characterise his later abstract theorising on Statistik.

Schlözer's *Neuverändertes Rußland* (1767) was one of his first explorations of the link between statistics and history:

Jener, der Mensch, hat so wie andre Menschen seine Privatgeschichte und seine häuslichen Umstände, die für die allgemeinen Jahrbücher der Welt nicht groß genug, und der Kenntniß der Zukunft unwerth sind.... Dieser hingegen, der Monarch, hat keine andre Geschichte, als diejenige seines Staats.⁴⁷⁰

He made the connection between monarch and state essential. For him the monarch was the state and through their history one could understand how it worked.⁴⁷¹ Thus, he warned not to confuse the lives of common people with the information necessary to this understanding. It follows that there needed to be a methodology for understanding the state.⁴⁷²

It was the science of *Staatskunst*⁴⁷³ (that would later be equated with the science of *Statistik*, much as Achenwall had wished for and anticipated) which was the best science for understanding statecraft. He clarified that this can be achieved through “Beobachtungen, Versuchen, und Schluessen....”⁴⁷⁴ The collection of information, the understanding of history and the necessity to observe the whole picture were crucial elements to properly comprehend the state. He intimately connected history with political science and statistics. For it to work correctly it had to be

⁴⁷⁰ Schlözer, *Neuverändertes Rußland*, Vorrede.

Translation: Every human being has, like other human beings, their own private history and domestic circumstances, which are not big enough for the general world chronicles and are unimportant for the understanding of the future.... The monarch, however, has no other history than that of his state.

⁴⁷¹ Ibid, Vorrede.

⁴⁷² Ibid, Vorrede.

⁴⁷³ Schlözer is vague on the spelling of the word ‘Staat’. Frequently, it is ‘Stat’ with one ‘a’ but sometimes it is ‘Staat’ especially early in his career.

⁴⁷⁴ Schlözer, *Neuverändertes Rußland*, Vorrede.

Translation: Observations, experiments, and conclusions....

understood correctly in all its aspects. There appears to be a hint of Hobbes' conception of the state as a machine or functioning body in Schlözer's description.⁴⁷⁵

Schlözer's methodology to achieve his goal was the collection of information over long periods of time.⁴⁷⁶ The vehicle was the *statistische Nachrichten*, statistical news that could be used to better understand state mechanisms. The purpose of gathering this information was part of the method of enlightening the hidden elements of the state.⁴⁷⁷ The temporal element in Schlözer's methodological thought led to the proliferation of arithmetical ideas because it allowed for cross-temporal comparison. This technique became clearer in his mind through his publications on the Russian state.

These ideas were, seemingly, laid aside in his *Unschädlichkeit der Pocken in Rußland*. The work has been almost neglected by historians of statistics,⁴⁷⁸ but it is crucial to the evolution of Schlözer's statistical thought. It marks a departure from his earlier work and is not just a large assortment of information. It is, instead, a detailed exploration of a single phenomenon, smallpox, and its effect on Russia, and an exposition of the population in connection with this phenomenon.⁴⁷⁹

It illustrates a major feature of Schlözer's statistical work that has been sorely understudied: the influence of the Political Arithmeticians and the demographers Süßmilch and Wargentin. First, Schlözer noted that his work was not designed to announce well-known phenomenon but instead to clarify and add precise information about the effectiveness of smallpox (or lack thereof) in Russia. He stated that he could demonstrate his conclusions through tables of information he had collected in St Petersburg.⁴⁸⁰ While Schlözer does not mention the Political Arithmeticians explicitly until much later in his work, the idea can be connected with their works, such as Graunt's use of the Bills of Mortality.⁴⁸¹ Much as in Graunt's work, Schlözer uses a mixture of information; ascertained from tables, narrative and, most crucially, calculations.⁴⁸² From his tables of the

⁴⁷⁵ C.f. Thomas Hobbes, *Leviathan*, (Cambridge: Cambridge University Press, 1996), pp.120-121. More needs to be done on Hobbes' impact on the development of statistics, especially as the idea of the body politic as a machine was in common circulation amongst early statisticians and Political Arithmeticians, Lazarsfeld, 'Notes', p.285.

⁴⁷⁶ Schlözer, *Neuverändertes Rußland*, Vorrede.

⁴⁷⁷ Ibid, Vorrede.

⁴⁷⁸ C.f. Hacking, *The Taming of Chance*; Desrosières, *The Politics of Large Numbers*; Scattola, 'Schlözer und die Staatswissenschaften' in Espenhorst and Duchhart (eds.), *August Ludwig (von) Schlözer in Europa*.

⁴⁷⁹ C.f. Schlözer, *Von der Unschädlichkeit der Pocken*.

⁴⁸⁰ Ibid, Vorrede.

⁴⁸¹ C.f. John Graunt, *Natural and Political Observations: Mentioned in a following Index, and made upon the Bills of Mortality* (London: The Roycroft, 1662).

⁴⁸² C.f. Schlözer, *Von der Unschädlichkeit der Pocken*, pp.7-8.

number of deaths in a year Schlözer calculated the total for each month, the number of male and female deaths, and the grand total for the year.⁴⁸³

Though it is not the height of mathematical sophistication it demonstrates a willingness to engage in a theory that did not deny the importance of mathematics. Indeed, as the *Vorrede* makes clear, this type of statistics was able give a clear picture of the nature of reality. Schlözer could draw out conclusions about mortality rates in a more exact manner which could be incorporated into his statistical methodology to make it more precise.⁴⁸⁴ Still, a great deal of the work relies on description and evidently Schlözer was not prepared to jettison the need to describe from his statistics as it was too important.

However, the use of tabular inquiry took its precedent from the Political Arithmeticians and the demographers. Schlözer states:

Bei den Schlüssen, die ich aus diesen Tabellen gezogen, habe ich überall die Süßmilchische und Wargentinische Schriften vorausgesetzt ohne sie jedesmal namentlich anzuführen.⁴⁸⁵

Schlözer was so indebted to both Süßmilch and Wargentin that he does not even have the space to cite their works as sources. Rather they permeate Schlözer's work at every single level. The second to last section of the work, on Russia's population depicted in tables is the perfect example of this.⁴⁸⁶ Schlözer, first, discussed the size of Russia and its importance as a state, then explained how the people were the source of the power, happiness, and rule of the state.⁴⁸⁷ His attempt to prove the importance and power understanding its population is crucial to Schlözer:

Rußland ist reich, fruchtbar, und mächtig: was selet [sic] ihm, um noch reicher, noch freuctbarer [sic], noch mächtiger zu werden? - Menschen.⁴⁸⁸

He pinned his theoretical preferences to the mast. His desire to devise a better method of understanding the state of the Russian population came from Schlözer's preoccupation with how

⁴⁸³ Ibid, p.7.

⁴⁸⁴ Ibid, Vorrede.

⁴⁸⁵ Ibid, Vorrede.

Translation: For these conclusions, that I have derived from these tables, I have used the precedent set by the works of Süßmilch and Wargentin without naming them explicitly every time.

⁴⁸⁶ Ibid, pp.113-148.

⁴⁸⁷ Ibid, pp.115-116.

⁴⁸⁸ Ibid, p.120.

Translation: Russia is rich, fertile, and powerful: what is missing, to become even richer, more fertile, more powerful? – People.

populations worked and its link to the power of the state. Demography was already at this early stage a key element of his statistical theory.⁴⁸⁹

This also has precedent in the work of Petty, Graunt, Süßmilch, and Wargentin. Schlözer highlighted not only the abstract and theoretical benefits to demography but also its practical benefits and applications.⁴⁹⁰ Russia could potentially more than double its population, especially if new methods of population management were implemented.⁴⁹¹ He noted the necessity of annually recording births, deaths, marriages, ages of people and illnesses in these tables. From this a further category, the total population could be derived.⁴⁹² This would make spotting trends and changes in population easier and allow more efficient and effective rule. In this context he connected methods beyond borders, discussing how the Swedish tables should be taken as a model for these Russian tables.⁴⁹³

Schlözer made explicit the connection with Political Arithmetic/demography, in what he terms *Staats=Rechenkunst*:

Die alte Welt Kannte dieses Mittel nicht. Man zälte zwar, aber man zälte nur Köpfe: dadurch erhielt man bloße Facta, und nicht die Ursachen derselben. Zur Ehre unsrer Zeiten hat das vorige Jahrhundert ein weit vortrefflichers Mittel erfunden; und das gegenwärtige hat daraus eine eigne Wissenschaft erschaffen. England, die Mutter dieser Wissenschaft, gab ihr den Namen Political Arithmetic, Calcul politique, Stats-Rechenkunst. Der Ritter Graunt zog die ersten Grundsätze derselben aus den Londner Bills of Mortality, die biß auf seinen Zeit aus ganz andern Absichten waren gehalten worden. Petty wandte sie näher zum Gebrauch im State an. Halley, Struyk, Rerseboom, Deparcieur, und andere, bereicherten sie die durch mühsam gesammelte Verzeichnisse. Süßmilch aber und Wargentin, durch die Preußische und Schwedische Regierungen unterstützt, brachten sie zu einer Art von Vollkommenheit.⁴⁹⁴

Schlözer's evident interest in demographics has not been studied before. He highlighted the benefit of the study of demographics and the possibility of the state becoming more actively involved in

⁴⁸⁹ C.f. Wolff, *Inventing Eastern Europe*, pp.5-6. Schlözer's ideas of a state being built upon its people, especially Russia, seems to fit well with Wolff's the concept of identity in Eastern Europe.

⁴⁹⁰ Schlözer, *Von der Unschädlichkeit der Pocken*, p.137.

⁴⁹¹ Ibid, p.136.

⁴⁹² Ibid, p.141.

⁴⁹³ Ibid, pp.142-143.

⁴⁹⁴ Ibid, p.139.

Translation: The old world did not know this medium. One did count but one only counted head: in this way one obtained mere facts and not the causation of these. To the honour of our times the past century has invented a much better medium; and the present has made its own science out of it. England, the mother of this science, named it Political Arithmetic.... The knight Graunt derived the first foundations from the London Bills of Mortality which had been kept up to his time for completely different purposes. Petty applied them to the use of the state. Halley, Struyk, Rerseboom, Deparcieur and others enriched them through laboured collected enumerations. Süßmilch, however, and Wargentin supported by the Prussian and Swedish brought it to a kind of perfection.

the process of statistics. While he did not draw this out explicitly, he hints at the fact that the state would benefit from such participation. This is another indication of Schlözer attempting to influence those in power. By praising the study of demographics and exploring its usefulness to the state he attempted to put his own ideas and work into the limelight as a method by which the state could best govern itself.

Schlözer was not trying to establish a new method of Political Arithmetic, he was incorporating it into his vision of statistics. He was also the first proponent of this method at Göttingen. Achenwall had been influenced by Süßmilch's demography but he did not integrate it fully into his own statistics. Schlözer took it further, asserting that information needed to come from multiple years to develop proper conclusions about population management.⁴⁹⁵ He maintained that Political Arithmetic was the best methodological tool with which to carry out these calculations.⁴⁹⁶

Schlözer's two Russian publications demonstrate an evolution of his statistical thought towards the mathematical. Many of the features that would later appear were beginning to crystallise in these works. The influence of both Achenwall and the Political Arithmeticians started to cement in his statistical theory. These were the first steps in the evolution of his definition of statistics, taken from Achenwall mainly but also others (especially Rousseau, as will be explored later). Statistics was becoming the science of the state.

Schlözer's Briefwechsel

In 1775 Schlözer published his *Briefwechsel meist statistischen Inhalts*. The journal was the first named work of statistics that Schlözer had ever produced and led to a period of intense productivity in his editorial career. A year later he would begin his *Briefwechsel meist historischen und politischen Inhalts*, a project spanning ten editions with the final edition published in 1782. While these appear to be works of general reference and information gathering, they play an important role in the evolution of Schlözer's statistical thought.

Schlözer's statistical *Briefwechsel* was designed to help those wishing to trace the ebb and flow of states, to produce accurate descriptions of them and to practice statistics properly.⁴⁹⁷ He wanted to illustrate the correct method of describing changes within a state:

⁴⁹⁵ Ibid, pp.138-139.

⁴⁹⁶ Ibid, p.139.

⁴⁹⁷ Schlözer, *Briefwechsel meist statistischen Inhalts*, Vorrede. C.f. Stagl, *Curiosity*, p.247.

Der Weg des I. Buchhandels, und der II. Zeitungen, ist hiezu nicht völlig hinlänglich: es gehören entweder III. Reisen, oder wenigstens IV. Correspondenz dazu.⁴⁹⁸

Schlözer's ideas about the collection of information for the statistician reveal the difficulty of the relationship between early statisticians and the state. While the result adhered to national borders, statisticians were transnational, their collection went beyond borders and formed connections that had little regard for the control of the state. Schlözer never seemed to reflect on this point explicitly, but from this and the way he conceptualises the *Statistiker* in his *Theorie*, it appears that the statistician was firmly at the margins of the state acting beyond borders and only infrequently attempting to influence those in power.

In the remainder of the *Vorrede* he told of his journeys to Sweden, Russia and France and explained their crucial importance to his work as a statistician as well as the role his correspondence network played in this. He stressed the importance of language skills, highlighting the fact that much of the information might not come in German.⁴⁹⁹ Each source of information was important for the statistician as every new update of it “macht ganze Kapitel der vorjaerigen Beschreibung unrichtig”.⁵⁰⁰ For Schlözer, statistical information had to be kept up-to-date or risk it becoming out-of-date.

Schlözer's scope and his methodology attempted to be all encompassing. It surpassed the methodologies of his predecessors. The Political Arithmeticians and early demographers would analyse one or two pieces of evidence, such as the mortality records or the tables of population created by the state. Achenwall and others would use newspapers and books. Schlözer, however, suggested something methodologically advanced, in terms of data collection. His aim was to amass information that could be corroborated by experience, correspondence or by the news, or books, it is a symbiotic relationship between all source material.

Schlözer made it clear that this work was for the dedicated *Statistiker*. He stated that it was not for him to give endless commentary, and often he condensed and summarised information because he knew the true *Statistiker* would understand the importance of the information he

⁴⁹⁸ Schlözer, *Briefwechsel meist statistischen Inhalts*, Vorrede.

Translation: The method of I. the book trade, and II. Newspapers is not entirely enough: there must be added either III. travels or at least IV. correspondence.

⁴⁹⁹ Ibid, Vorrede. C.f. Stagl, *Curiosity*, pp.244-246.

⁵⁰⁰ Schlözer, *Briefwechsel meist statistischen Inhalts*, Vorrede.

Translation: Makes entire chapters of the previous year's descriptions obsolete.

presented.⁵⁰¹ The work, as Schlözer saw it, was only for those dedicated and educated.⁵⁰² This echoes Heilbron's rise of the professionalisation of statistics as a science, where it became necessary to hold specialist training to participate. It supports the argument that a 'predisciplinary' phase of the social sciences was moving into a disciplinary phase around the turn of the nineteenth century.⁵⁰³ Schlözer's work was shifting to a more professional mindset in which only those who were initiated would fathom the importance of the information presented. Schlözer's case highlights that this drive towards professionalism was occurring on a transnational scale. It also evidences the degree of specialisation as Schlözer relied on his fellow *Statistiker* to discern the purpose behind the information served without him explicitly stating why or where he has got the information from or in what way it could be useful.⁵⁰⁴

Additionally, the work highlights the essentially collaborative aspects of statistics that Schlözer believed important. Statistics needed information and he wished to provide it for his fellow statisticians. It was also the first illustration of his theories of information collection. He aimed to demonstrate that he could collect new unknown, useful, and important information for the *Statistiker*. The *Briefwechsel* was a collection of data not designed to extend a certain idea of statistics, but instead one which illustrated the practical aspects of information collection.⁵⁰⁵

The collection of information in the *Briefwechsel* is an interesting mix of political, economic, social, military and historical information. His forty first section on the Spanish navy provides evidence of his new methodological concerns at work, being a combination of source extracts and summary. The document is in Spanish, presenting information on everything from the number of marinas, ports and their locations, to the number of ministers, a hierarchical breakdown of the Spanish navy, to a breakdown of the administration of hospitals. It is interspersed with German words and phrases, serving as expiatory remarks or clarifications on the Spanish or summaries of certain sections.⁵⁰⁶ Three points can be taken from this, one, that Schlözer was preoccupied with a wide variety of information in a number of languages. Two, he found it necessary to summarise the information he had found to only convey the most useful sections. Three, that he had particular ideas about what information was necessary. It needed to be relevant,

⁵⁰¹ Ibid, Vorrede.

⁵⁰² Ibid, Vorrede.

⁵⁰³ Heilbron, *The Rise of Social Theory*, pp.2-4.

⁵⁰⁴ Schlözer, *Briefwechsel meist statistischen Inhalts*, Vorrede.

⁵⁰⁵ Ibid, Vorrede.

⁵⁰⁶ Ibid, pp.122-127.

easy to grasp, include summaries and breakdowns of information, as well as elements that would facilitate comparison with other nations or with historical precedents.⁵⁰⁷

Schlözer's statistical thought was centred around comparison across time and space. It differed from the work of men like Achenwall and Conring who sought only static pictures of the world. Instead, Schlözer combined the ideas of the early demographers and the Political Arithmeticians with Achenwall's descriptive Statistik. There is never a moment in the evolution of Schlözer's thought from his earliest works on Sweden to this *Theorie* that he strayed too far from this descriptive tradition. An example from the second chapter illustrates this combination in action.

Section ten is a series of tables drawn up to illustrate the population of Strasbourg over a twenty-year period.⁵⁰⁸ It stretches from 1754 to 1773, and contains a great deal of information.⁵⁰⁹ Schlözer provided us with a key as to how the information was broken down, he divided it between the three religious groups of the city (Catholics, Lutherans and Calvinists) and in each of these three religious categories he split the information into births, deaths and marriages.⁵¹⁰ Each year contains a table broken down in this fashion with a totals tally, listing the total births, deaths and marriages.⁵¹¹ His use of Strasbourg as an example is also emblematic of this combination of transnational influences and the pan-European spirit of information collection that was central to Schlözer statistics. Strasbourg was a city at the centre of many economic, political and cultural crossroads.⁵¹² It had become French in 1681 after Louis XIV seized it as a defensive measure against the threat of an invasion from the German lands.⁵¹³ It was also on an economic and cultural crossroads and while ostensibly French retained much of its German characteristics throughout the eighteenth century at the same time as being forcibly assimilated into the French nation.⁵¹⁴

⁵⁰⁷ C.f. Few, 'Circulating Smallpox Knowledge', pp.519-537. It could be argued that there was a link between this kind of knowledge dissemination from Spain and Spanish America to the statistician's heavy use of Spanish information, especially regarding health and hospitals.

⁵⁰⁸ Schlözer, *Briefwechsel meist statistischen Inhalts*, pp.25-27.

⁵⁰⁹ *Ibid*, pp.25-27.

⁵¹⁰ *Ibid*, p.25.

⁵¹¹ *Ibid*, pp.25-27.

⁵¹² On Alsatian history through the ages and its shifting regional and national identity c.f. Rainer Babel and Jean-Marie Moeglin (eds.), *Identité régionale et conscience nationale en France et en Allemagne du Moyen Age à l'époque moderne* (Sigmaringen: Thorbecke, 1997).

⁵¹³ John A. Lynn, *The Wars of Louis XIV 1667-1714* (London: Longman, 1999), pp.36-37.

⁵¹⁴ David A. Bell, 'Nation-Building and Cultural Particularism in Eighteenth-Century France: The Case of Alsace', *Eighteenth-Century Studies*, 21/4, (1998), pp.472-490, here pp.472-473.

Though Schlözer never made explicit his reasons for either picking the information or the order he put it in, Strasbourg appears particularly apt for his purposes. Its makeup, the political, cultural and economic situation provide information for Schlözer's brand of statistics. Similarities can be brought with his use of the Spanish navy above, as both examples are not only descriptive but also numerical. They lead not only to a better understanding of another polity or state, but also provide units for comparison across space and time. Schlözer was an integral component in the circulation of knowledge that would be useful for understanding states on a broader, more comparative, scale.

His second *Briefwechsel* was concerned with political and historical matters. The introduction states:

Hier erfülle ich mein Versprechen, oder vielmer [sic] meine Pflicht, und zeige meine in- und ausländische gedruckte statistische Quellen an.⁵¹⁵

While this is not an explicit statement of intent it reveals how Schlözer understood the information he collected for political and historical purposes. They were all statistical sources for him. However, he did not give a clear explanation of the purpose of the *Briefwechsel*.⁵¹⁶ Instead Schlözer implied that such a work was important to the learned men of Germany.⁵¹⁷ It was necessary for him to present the information to a learned audience, but he did not predict how they would use this information. It is implied by his use of the word *statistische* (statistical) that the information was designed to reveal the inner mechanisms of the state.

What the journal does illuminate, however, is the balance Schlözer struck between static description in the tradition of Achenwall and the mathematical methods of the Political Arithmeticians/demographers. The first two sections of the *Briefwechsel* are clear examples of this.⁵¹⁸ Both regard the populations of nations. The first concerns Austria and is a simple division of peoples living in certain areas of the nation followed by a short explanation.⁵¹⁹ The second section contains population statistics for the Ukraine. It is more detailed, analysing the number of

⁵¹⁵ Schlözer, *Briefwechsel meist historischen und politischen Inhalts, Erster Theil* (1778), p.385.

Translation: Here I fulfil my promise, or rather my duty, and display my domestic and foreign printed statistical sources.

⁵¹⁶ Ibid, pp.385-386.

⁵¹⁷ Ibid, p.385.

⁵¹⁸ Ibid, pp.1-4. This was first published in 1778 shortly after the First Partition of Poland in 1772. This may have sparked Schlözer's interest in obtaining information on the two nations.

⁵¹⁹ Ibid, pp.1-2.

births, deaths and marriages in 1772 for several different areas in the state.⁵²⁰ This is followed by detailed explanation and calculation. Schlözer calculated the total number of marriages as well as births and deaths divided by gender.

While Schlözer provided no justification for choosing these two places, there is a distinct possibility that his interest was born out of the recent Partition of Poland in 1772. The seizure of land, population, and resources by Prussia, Russia, and Austria from the Poland-Lithuania Commonwealth had meant a large shift in demographic, economic, and political resources.⁵²¹ Such a shift in the powers of central Europe, with Austria seizing almost 32,000 square miles and 2.65 million new subjects, and Russia having already annexed what would be modern day Ukraine from the Commonwealth in the seventeenth century, taking near 36,000 square miles around the river Dnieper, gave an interest to information on the region that Schlözer could not have ignored, especially considering his connections to Russia.⁵²² Unfortunately, the nature of the *Briefwechsel* does not allow for the reconstruction of the circulation of Schlözer's information with any exactness as the origins of the material are either never stated or only mentioned with a brief comment that cannot be followed up. However, the assimilation of methodologies combined with the interest in a situation so fresh in the contemporary mind illuminates Schlözer's first attempts to create a more scientific statistics using immediate information on key political events.

It also highlights his desire to improve its accuracy and power to analyse statecraft. Again, Schlözer's choice of Austria and the Ukraine demonstrates how important he thought statistics could be to the political context. The continued negotiating and renegotiating of power, peoples and places⁵²³ created a need for reliable information. Schlözer's aim was to provide this type of information to budding statisticians and administrators. Schlözer actively engaged in this imagining of state apparatus, as Foucault termed it, that could conceivably keep track of any part of a monarch's territory.⁵²⁴ Schlözer formed his statistics as a *Staatswissenschaft* and his *Briefwechsel* was a method by which he could achieve this.

⁵²⁰ Ibid, pp.2-3.

⁵²¹ Jerzy Lukowski, *Liberty's Folly: The Polish-Lithuanian Commonwealth in the Eighteenth Century* (London: Routledge, 1991), pp.202-204.

⁵²² H. M. Scott, *The Emergence of the Eastern Powers, 1756-1755* (Cambridge: Cambridge University Press, 2001), pp.218-220.

⁵²³ Scott, *The Emergence of the Eastern Powers*, pp.187-224.

⁵²⁴ Foucault, *Security, Territory, Population*, p.274. The emphasis is still on information collection and not control over it.

Both *Briefwechsel* stand for an evolution of Schlözer's statistical methodology, hardening his presupposition that statistics was a science founded on gathering a wide variety of information with a large temporal and spatial scope for the purpose of comparison. However, this comparison went beyond the static nature of Achenwall's spatial comparison as well as the demographic approach of temporal comparison in a singular location. Instead, Schlözer amalgamated the two positions, not only in his methodology but also in range. Beyond the traditional conceptions envisioned by Desrosières, Porter, Stigler and Hacking, Schlözer's use of the German traditions offered more to the evolution of statistical thought.⁵²⁵ Statistical evolution happened beyond the boundaries of the state and of the sciences in a transnational arena where information could be shared readily and methodologies were flexible and ever changing. Schlözer's *Briefwechsel* is evidence of how his statistics formed a rising 'social science'.⁵²⁶ This trend was substantiated well before Porter's starting date of 1820 and was not limited to influences from just the Political Arithmeticians.⁵²⁷ Schlözer's newly developed methodology signifies earlier developments in the statistical narrative than previously thought, indeed, his work illustrates that the mathematical and the political trends were becoming interlinked well before the rise of Quetelet and other major statisticians of the nineteenth century.⁵²⁸

Later Statistical Works and Theorie der Statistik

After the publication of the *Briefwechsel* Schlözer's statistical work was all but put on hold. However, there are a few publications and manuscript sources that are worth analysing and although they were either not published or had no statistical intent, they illuminate the maturity that had become steadfast in Schlözer's statistics. The journal *Staats=Anzeigen* which ran to eighteen editions (1782-1793) and the *Allgemeines Statsrecht und Statsverfassungslere* published in 1793 highlight the extent to which Schlözer's statistical thought had permeated his political science. Yet they did not engage heavily in statistics nor did they add to its overall development. However, two manuscript sources written around the 1790s, a manuscript book called *Statistik*,⁵²⁹

⁵²⁵ C.f. Desrosières, *The Politics of Large Numbers*; Porter, *The Rise of Statistical Thinking*; Stigler, *The History of Statistics*; Hacking, *The Taming of Chance*.

⁵²⁶ Porter, *The Rise of Statistical Thinking*, pp.18-39.

⁵²⁷ Ibid, pp.18-25.

⁵²⁸ Ibid, pp.23-39.

⁵²⁹ MS. Cod. 2007. 4/1, *Statistik* [Göttingen]. This was held in a private collection until 2007 when it was purchased by the archive. I have dated it based on internal reference points.

and a note entitled *Elemens de Statistique*,⁵³⁰ demonstrate Schlözer's continued interest in statistics and its further development, an aspect of his continued thought that has been largely overlooked.

Schlözer's statistical manuscripts were written, possibly, in the 1790s and are compelling expositions of his continued interest in the subject. His manuscript book entitled *Statistik* (undated but certainly written after the 1790s) demonstrates Schlözer's interest in the statistical tradition of Achenwall. The layout, in which the work goes from a general introduction, to a chapter on general statistics, to a country by country run down (from Spain, Portugal, Great Britain and France), is almost a carbon copy of the works produced by Achenwall.⁵³¹ An interesting feature of the work is that Schlözer listed some of his influences, from the work of Necker in France,⁵³² to Sprengel, who helped collect information,⁵³³ to the Political Arithmeticians Sir William Petty and John Graunt.⁵³⁴ It illuminates both a continuing commitment to the subject and the methodological approach that favoured spatial comparisons.

The second manuscript source illustrates the opposing influence and continued interest in Political Arithmetic up to Süßmilch. The four-page notation entitled *Elemens de Statistique. Anhang. Erste Notizen von der Arithmetique politique, nach Susmilch*, is a brief history of the practice of Political Arithmetic, the terminology and works of its key players.⁵³⁵ It includes a discussion of the key themes of Political Arithmetic such as public health and population growth. Oddly there is little to no mention of a social component, suggesting Schlözer's predominant concern with methodology and the impact that these ideas could have on the state. In keeping with the Political Arithmeticians Schlözer discussed how to prove that order existed in the world and how humanity could come to understand it.⁵³⁶ Even this fragmentary notation demonstrates that Schlözer still actively engaged with the ideas of the early demographers.

These later works, while unpublished or not explicitly statistically minded, highlight that throughout his working life his statistical thought never stopped evolving. These later works are illustrations of this continued interest and the influence of statistical ideas on his work, especially

⁵³⁰ MS. Cod. A. L. Schlözer 2, 2:10 'Elemens de Statistique' [Göttingen]. This is a small note scrap and has no date. Based on internal references it is best dated to the late 1790s.

⁵³¹ MS. Cod. 2007. 4/1, *Statistik* [Göttingen]. C.f. Achenwall, *Abriß*.

⁵³² MS. Cod. 2007. 4/1, *Statistik* [Göttingen], pp.1-2. (My own page numbers are given for this document).

⁵³³ *Ibid*, p.2.

⁵³⁴ *Ibid*, pp.22-23.

⁵³⁵ MS. Cod. A. L. Schlözer 2, 2:10 'Elemens de Statistique' [Göttingen].

⁵³⁶ *Ibid*.

in the realm of what he called *Staatskunde*. This lasted to the end of his life and the publication of his last major work.

Theorie der Statistik (1804) is a unique book and appears to be the first book to explicitly theorise about the nature of statistics as a discipline or science.⁵³⁷ It was the culmination of Schlözer's thought regarding statistics. The *Theorie* had been in progress for many years and Schlözer had mulled over producing a work similar in nature, called *Theorie der Statskunde*, which never got off the ground.⁵³⁸ He stated in his *Vorrede*, dedicated to the French philosopher Charles de Villers (1765-1815), that his enthusiasm for the science which he obtained during his stay in France with Mr de Villers in 1773-74 had returned and the work contained all of the research that both men had engaged in during this period.⁵³⁹ Indeed, de Villers later became intimately connected with Göttingen after fleeing the Revolutionary armies; he became a student of the university in 1796. He was also intimately connected to Schlözer's daughter Dorothea.⁵⁴⁰ Schlözer made clear early on that the work was the product of decades of statistical inquiry. He asserted the importance of the Society of Statistics in France and its journal for releasing previously unpublished information from the state, as well as the ways in which it aided the development of the science.⁵⁴¹

Much of the development of statistics in France in the eighteenth century strongly influenced Schlözer's own thought. He asserted that while many saw French and German statistical methods and concepts being different, they were in fact more closely matched than expected.⁵⁴² However, the French connection is neither discussed elsewhere in Schlözer's work

⁵³⁷ There is no evidence of works drawn up before this date that expand on the theoretical aspects of statistics explicitly.

⁵³⁸ Schlözer, *Theorie der Statistik*, *Vorrede*.

⁵³⁹ *Ibid*, *Vorrede*. Schlözer has left very little evidence for this journey at all and what little has been left is dealt with in Peters, *Altes Reich und Europa*, pp.211-216. Peters highlights that this was only a small tour of France but labels it a 'statistical' journey. He argues that Schlözer went deliberately to gather information necessary for statistical work. However, while it is likely that Schlözer went to France for 'statistical reasons' no hard evidence backs this claim and Peters' case appears lacklustre. There is no mention of de Villers at all or his activities in Paris with the proto-statistical societies. Voss also covers this period and states that Schlözer travelled to France to collect information for his *Reise-Collegio* but does not associate the trip with any particular statistical purpose. There is also no mention of de Villers either implying that any information regarding their connection in Paris is lost. C.f. Jürgen Voss, 'Die Bedeutung Frankreichs im Leben und Wirken August Ludwig von Schlözers' in Duchhart and Espenhorst (eds.), *August Ludwig (von) Schlözer in Europa*, pp.230-235.

⁵⁴⁰ Sander, 'Villers, Charles', *Allgemeine Deutsche Biographie* 39 (1895), pp.708-714 [Online-Version]; <https://www.deutsche-biographie.de/pnd118627031.html#adbcontent>. [28 November 2017].

⁵⁴¹ Schlözer, *Theorie der Statistik*. C.f. Antoine Falguerolles, "'Les Précurseurs de la Société de Statistique de Paris" de Fernand Faure (1909)', *Journ@l Electronique d'Histoire des Probabilités et de la Statistique*, 6/2, (2010), pp.1-38, next pp.8-13. The Journal ran from 1802-1829.

⁵⁴² Schlözer, *Theorie der Statistik*, *Vorrede*.

nor the historiographical context. Behrisch's work on the cross-border influence between France and the German lands introduces this cross-border connection and is perhaps the only conscious effort to try and describe this impact.⁵⁴³ Voss's article on the influence of France on Schlözer explores the context of his French travels in 1773/74 as a fact finding mission and Peters states that his travels were 'statistical' in nature, however, so little direct evidence of this exists that it is conjecture as to the true nature of his French journey.⁵⁴⁴ Voss argues in no more than half a paragraph that de Villers was a bridge for Schlözer between both France and Germany, however, he presents little evidence for this and again it appears conjectural.⁵⁴⁵ While it appears that de Villers and Schlözer were on good terms there is little to back this up. It is clear, however, that Schlözer made a lot of this connection as de Villiers seems to have been an important player in the scientific scene at Göttingen.⁵⁴⁶

Nevertheless, the *Theorie* served a different purpose for Schlözer:

So bald wir über den Begriff der Statistik einig sind, der bestimmen muß, was hinein gehöre, und nicht hinein gehöre... so handle ich im zweiten Heft die Grundmacht ab, teile Modelle und Tabellen mit, und gebe einen Auszug aus Süßmilchs classischem Buche.⁵⁴⁷

Schlözer aimed to create a complete definition and set of practices for statistics. Importantly, he states the centrality of Süßmilch to his work, as well as the use of statistical tables and models to analyse data. Beyond this Schlözer remarks that the book is for those who are new to the science, and, more specifically, Germans.⁵⁴⁸ His audience was German and were supposed to use *Theorie* as manual of statistics for those new to the science to learn. His theorising was a compilation of older theories and practices under one umbrella. It was Schlözer's attempt to cement his brand of statistics as a science.⁵⁴⁹

⁵⁴³ Behrisch, *Die Berechnung der Glückseligkeit*, pp.56-83; Behrisch, 'Statistics and Politics in the 18th Century', pp.238-240.

⁵⁴⁴ Voss, 'Die Bedeutung Frankreichs im Leben und Wirken August Ludwig von Schlözers' in Duchhart and Espenhorst (eds.), *August Ludwig (von) Schlözer in Europa*, pp.230-235; Peters, *Altes Reich und Europa*, pp.211-216.

⁵⁴⁵ Voss, 'Die Bedeutung Frankreichs im Leben und Wirken August Ludwig von Schlözers' in Duchhart and Espenhorst (eds.), *August Ludwig (von) Schlözer in Europa*, p.242.

⁵⁴⁶ C.f. Schlözer, *Theorie*, Vorrede.

⁵⁴⁷ *Ibid*, Vorrede.

Translation: As soon as we have agreed on the concept of statistics, which must determine what belongs and what does not belong to it... I will in the second part lay the foundations, displayed models and tables and offer an excerpt from Süßmilch's classic book.

⁵⁴⁸ *Ibid*, Vorrede.

⁵⁴⁹ C.f. Porter, *The Rise of Statistical Thinking*, pp.18-39 on how statistics could be considered a 'social science'. Also, Heilbron, *The Rise of Social Theory* on how the 'social sciences' developed in the eighteenth century.

The table of contents illustrates a detailed exploration of the manifold theories and practices of statistical inquiry that Schlözer wished to narrow down into a precise science.⁵⁵⁰ In his opening chapter, he attempted to define the word, and through this the science itself:⁵⁵¹

Statistik, eine, dem Namen wie der Sache nach, ganz neue Wissenschaft. Ihre Materie existirte schon Stückweise, seitdem Regirungen, Geschichte, und Reise-Beschreibungen gibt. Aber der zerstreuten Materie eine scientivische Form zu geben, eine Menge von heterogenen, aber zum gegebenen Zweck unentberlichen Datis unter Einen Gesichts Punct zu vereinen, und diese Data in Ordnung, in ein geschlossenes System, zu bringen, wodurch diese Wissenschaft eine wichtige Gehilfin der erhabnen RegirungsWissenschaft wurde: dazu hat erst Achenwall, mein Lerer, und dessen Nachfolger im Amte ich, seit 1772, zu seyn die Ehre habe, in Göttingen im J. 1749 einen Anfang gemacht.⁵⁵²

The quote gives a sense of Schlözer's view of statistics and his own role in it. It seems he was guided here by the Enlightenment thought of men like Linnaeus, whose taxonomic work in the natural sciences had become a popular form of the systematisation of knowledge in the later eighteenth century or the systematising attempts of the Encyclopaedists in France whose 'Système Figuré des Connoissances Humaines' (1751) strove to map out human understanding.⁵⁵³ Schlözer stated that it had only been recently that the new science came to find some order.⁵⁵⁴ Achenwall was the first to give it form, but Schlözer was the one to really put it on the map. The fact that his previous work had imposed no fixed order on statistical information is in curious discrepancy to the way he saw his own role looking back on his life in 1804.

Taking stock, he wondered why this new science was burdened with such a 'barbarisches Wort!' (barbaric word).⁵⁵⁵ For him *Statistik* was a hybrid birthed out of Latin, German, and French, a term he believed was unbecoming such a noble science.⁵⁵⁶ As he stated in *Allgemeines StatsRecht*,

⁵⁵⁰ Schlözer, *Theorie*, Inhalt.

⁵⁵¹ Ibid, pp.1-4.

⁵⁵² Ibid, pp.1-2.

Translation: Statistics, both in name and content, a completely new science. Its matter has existed in parts as long as there has been governments, history and travel narratives. But to give the diffuse matter a scientific form, to combine the mass of heterogeneous, but for the purpose, necessary data under one focus, and to bring this data in order, in a closed system, through which this science became an important aid to the noble governmental science: this has only begun by Achenwall, my teacher, in Göttingen in 1749 and continued by his successor that I have the honour to be since 1772.

⁵⁵³ C.f. Yeo, 'Classifying the Sciences' in Porter (ed.), *The Cambridge History of Science, Volume 4: Eighteenth-Century Science*, p.146; 'Système Figuré des Connoissances Humaines' in Jean Le Rond d'Alambert, *Discours Préliminaire*, (1751), <http://encyclopedie.uchicago.edu/node/88> [29 September 2018].

⁵⁵⁴ C.f. Yeo, 'Classifying the Sciences' in Porter (ed.), *The Cambridge History of Science, Volume 4: Eighteenth-Century Science*, p.146. Again, it is possible Schlözer is also thinking of the more taxonomic developments in the Natural Sciences.

⁵⁵⁵ Schlözer, *Theorie*, p.2.

⁵⁵⁶ Ibid, pp.2-3.

it would benefit from a rebranding/renaming as *Statskunde*.⁵⁵⁷ To Schlözer this was highest priority in order to better preserve the accuracy and meaning of the word in German. He went so far as to complain about the use of the word ‘Staat’ as being exotic asking why the spelling ‘Stat’ was not good enough, even mockingly questioning why Germans would not use the word ‘Daame’ instead of ‘Dame’ (lady) or ‘Naase’ instead of ‘Nase’ (nose).⁵⁵⁸ While this could seem like the rather pointless indulgences of a man made bitter by a portmanteau, it illustrated a wider concern Schlözer had, and one which did not affect his predecessors. He desired accuracy, not just in definition, but in the whole of this new science.

His chapter on the worth and use of statistics is a continuation of this desire for accuracy. In fact, Schlözer made no attempt to determine the worth of the science for himself, instead pointing out the odd discrepancies of it in its current state. He referred to the muddled way in which governments use statistics and how, if implemented correctly, it could make an excellent tool for statecraft.⁵⁵⁹ He wondered if it was possible for governments to obtain a full overview of their states which would allow them to come to better conclusions about its administration. Never too far from this was the ideas of *Polizeiwissenschaft* (the science of order/policing), *Staatswissenschaft/Cameralwissenschaft*. The former, as Foucault describes it, was the science of policing that had developed in the German universities in the eighteenth century which he links to a better understanding and control of the population through surveillance and policing.⁵⁶⁰ The latter a development of the German universities to aid in the administration of the territorial state.⁵⁶¹ Both appear as spectres in Schlözer’s narrative as they inform his desire for a science of statistics. These sciences of state helped determine the place of statistics and the need for it to adjust and fit into existing mechanisms. To implement this statistical enterprise into these existing state mechanisms, he admitted, could be difficult and would need a firm understanding of the science.⁵⁶²

Before he could present his own theory, he thought it beneficial to reflect on the new science as it had reached him and through these reflections find the methods to adjust the accuracy of his ideas.⁵⁶³ The desire to determine what was necessary within statistics, what information was

⁵⁵⁷ Ibid, p.3.

⁵⁵⁸ Ibid, pp.3-4.

⁵⁵⁹ Ibid, pp.4-6.

⁵⁶⁰ Foucault, *Security, Territory, Population*, pp.318-328.

⁵⁶¹ Keith Tribe, ‘Cameralism and the sciences of the state’ in Goldie and Wokler (eds.), *The Cambridge History of Eighteenth-Century Political Thought*, p.536.

⁵⁶² Schlözer, *Theorie*, p.5.

⁵⁶³ Ibid, p.5.

within its scope, and how to define statistics is another illustration of the need he felt for accuracy in the science.⁵⁶⁴

Schlözer's theorising introduced a unique aspect of statistics: the idea of critical self-reflection. There were no authors who had reflected upon statistics in this way before. He presented an overview of the science in a comparative and critical model and from this derived conclusions as to the best method of practising statistics. He gave a critical and scientific method to the understanding of statistics, essentially writing a statistical account of statistics.

When Schlözer turned his critical eye to the 'rest' of the statistical world he did not only survey Germanic authors. His approach was transnational. Schlözer asserts that he had used information from Meusel's *Litteratur der Statistik* (1790),⁵⁶⁵ a work concerned with collecting information from all over Europe and beyond that could be connected to statistics.⁵⁶⁶ What is revealing is Schlözer's idea of the collection of 'useful knowledge', a concept that is culturally conditioned and inherently transnational.⁵⁶⁷ It should be no surprise that his theoretical work on the subject has such a wide scope. It was his attempt to make statistics a science in its own right, by considering all the available ideas, theories and methods to determine which was the most accurate and from this setting boundaries and a clear definition.

Therefore, Schlözer considered the work of the most important European statisticians of his time. Achenwall, and his disciples, are presented one by one, including Meusel and Sprengel, two of Schlözer's near contemporaries and friends with whom he was in frequent contact.⁵⁶⁸ He concluded that Achenwall and his disciples were at best foundational figures and at worst men not able to advance the science far enough.⁵⁶⁹ Schlözer also analysed the theories of another of his close correspondences: Count von Hertzberg. He demolished Hertzberg's theory of statistics almost

⁵⁶⁴ The history of statistics goes some way to exploring how the natural sciences affected the changes and evolution of political thought, but more could be done. Schlözer's desire to make statistics a science indicates such a trend. On the question of the development of the social sciences: Heilbron, *The Rise of Social Theory*. On the quantifying spirit and the development of sciences and political thought: Frängsmyr, Heilbron, Rider (eds.), *The Quantifying Spirit in the Eighteenth Century*.

⁵⁶⁵ Schlözer, *Theorie*, p.6.

⁵⁶⁶ C.f. Meusel, *Litteratur der Statistik*, which is concerned with the collection and coalition of the major works of statistics from around Europe. It is essentially a statistician's encyclopaedia, connected to ideas regarding collection and the quantifying spirit of the Enlightenment. C.f. Heilbron, 'Introductory Essay', in Frängsmyr, Heilbron, Rider (eds.), *The Quantifying Spirit in the Eighteenth Century*, pp.1-23; Wolff, *Inventing Eastern Europe*; Sarah Easterby-Smith and Emily Senior, 'The Cultural Production of Natural Knowledge', *Journal for Eighteenth-Century Studies*, 36/4, (2013), pp.471-476.

⁵⁶⁷ Easterby-Smith and Senior 'The Cultural Production of Natural Knowledge', pp.471-476.

⁵⁶⁸ Schlözer, *Theorie der Statistik*, pp.7-8.

⁵⁶⁹ *Ibid*, p.8.

line by line,⁵⁷⁰ illustrating its general weakness in illuminating the important aspects of a nation and how to rule it sufficiently:

Das ganze Mas der Glückseligkeit eines Volkes zu bestimmen, fordert noch weit mer Data...: eine vollständige StatsKunde muß sie alle beachten und finden lernen.⁵⁷¹

Clearly, he thought that Hertzberg's approaches, which were expressed at a lecture to the Academy of Science in Berlin in 1782, while admirable in some ways did not live up to the standards of a statistical science. One of the most important aspects missing from Hertzberg's idea was the collection of 'mer Data'.

Interestingly the idea of mass data collection has been raised in discussions over 'Big Data' and its impact on the modern world.⁵⁷² Schlözer's idea for statistics, of course, predates 'Big Data' but the principle of collection large amounts of information (data) to understand and analyse society and the economy was something that statisticians have been incorporating into their work since their science took shape. Schlözer's conception of 'mer Data' as a heuristic tool about society and how to improve it is something that 'Big Data' analysts and businesses are now doing.⁵⁷³ His transnational network which could circulate data saw the emergence of modern data collection and the growing faith in numbers in the later eighteenth century.

Hertzberg's example is important for another reason that also links with the following section exploring the works of Sir John Sinclair,⁵⁷⁴ as it is the first time that Schlözer openly mentions a concrete theoretical idea about the definition of statistics. Schlözer noted that a good statistician would take a whole 'Mas der Glückseligkeit eines Volkes' (measure of the happiness of a people). For Schlözer, the science of statistics was a measure of the happiness of the people and from here the methods by which this could be achieved and improved. This sentiment is present in Sinclair's work too. Discussing these Schlözer was even more willing to offer an insight into the definition and purpose of statistics. Referring to a short extract from Sinclair's history,

⁵⁷⁰ Ibid, pp.12-16.

⁵⁷¹ Ibid, pp.15-16.

⁵⁷² C.f. Sander Klous and Nart Wielaard, *We are Big Data: The Future of the Information Society* (Paris: Atlantis Press, 2016); Viktor Mayer-Schönberger and Kenneth Cukier, *Big Data: A Revolution That Will Transform How we Live, Work and Think* (London: John Murray, 2013).

⁵⁷³ Mayer-Schönberger and Cukier, *Big Data*, pp.1-18.

⁵⁷⁴ Schlözer, *Theorie*, pp.16-18.

specifically the section dedicated to Sinclair's definition of the statistical science, (containing reference to 'German statistics').⁵⁷⁵

Schlözer was disparaging of his ideas, asserting that Sinclair had never picked up a "deutsches Handbuch... der Statistik" ("German handbook... of statistics").⁵⁷⁶ Schlözer felt he had to correct Sinclair's definition and, in the process, present his new science. Schlözer affirmed ascertaining state power was only one of the purposes of statistics and Sinclair had misunderstood the meaning of what state power was in German statistics. Statistics was given a much wider scope, including economics and public well-being and was presented as being more expansive than Sinclair's definition.⁵⁷⁷ As he explored the ideas of others Schlözer's statistics crystallised. Again, he aimed for an accurate science of the state, designed to determine nearly every aspect of its welfare, from the happiness of its people to its military might.

Schlözer continued in a similar vein analysing the works of several famous French statisticians. He introduced Denis François Donnant (1769-18.?) as well as several major French journals and authors who had published on statistics throughout the eighteenth and nineteenth century presenting each theory and definition only to methodically take them apart.⁵⁷⁸ Schlözer aimed to highlight how his conception of statistics differed from those that came before, declaring that his work had more accuracy or poignancy than his predecessors. It also demonstrates the influence from well beyond the German lands, Süßmilch and Wargentín, a confluence of ideas that although he rejected them served to mould and shape the final statistical product.⁵⁷⁹ It also illuminates the shifting ways in which ideas and theories were utilised by thinkers in the eighteenth and nineteenth century.⁵⁸⁰

The remainder of the *Theorie* was the culmination of this process, an attempt to discover a concept, methodology and way of studying statistics that fits his ideas and theories.⁵⁸¹ The pages are scattered with references to his predecessors and their influence on his work. Particularly telling is a reference to Sinclair and his definition of statistics as ascertaining the 'quantum of

⁵⁷⁵ Ibid, pp.16-17.

⁵⁷⁶ Ibid, p.17.

⁵⁷⁷ Ibid, pp.17-18.

⁵⁷⁸ Ibid, pp.18-26.

⁵⁷⁹ On knowledge transfer in the eighteenth century, c.f. Few, 'Circulating Smallpox Knowledge', pp.519-537; Lipphardt and Ludwig, 'Knowledge Transfer and Science Transfer'; Saunier, *Transnational History*, pp.33-79.

⁵⁸⁰ C.f. Oz-Salzberger, *Translating the Enlightenment*, pp.229-256; Labbé, 'L'arithmétique politique', pp.1-23.

⁵⁸¹ C.f. Schlözer, *Theorie der Statistik*, p.26-150.

happiness enjoyed by the inhabitants'.⁵⁸² It demonstrates the circulation of Sinclair's ideas into German statistical thought, particularly Schlözer's.

Some of these influences, such as Wargentin and Süßmilch, he felt he did not have to mention as their work penetrated every level of his theory. But there are other underlying currents that he did not acknowledge. For example, his section aiming to discover a concept of statistics opens with "Der Mensch der Natur ist der Mensch der Gesellschaft" ("The man of nature is the man of society").⁵⁸³ The phrase echoes Jean-Jacques Rousseau's (1712-1778) work on the foundation and functions of society, in particular *Le Contrat social* (1762).⁵⁸⁴ Schlözer proceeded to discuss the nature of the social contract, how societies formed, specifically out of familial units and how out of these grew the state and modern society.⁵⁸⁵ Schlözer turns to Rousseau, as a kind of 'social scientist',⁵⁸⁶ to add credence and accuracy to his conceptualisation of statistics as a science.

Schlözer also devoted attention to an in-depth exploration of the potential of statistics as an applied science. He explored how it should work in practice and how it should be taught. However, as with most of Schlözer's work, he did not offer a straightforward definition of his statistical enterprise. Instead he presented it as a science that was far-reaching, accurate and effective. He described in detail the functions of the state, as connected to the development of its people, going so far as to argue that statistics would comprise a sort of static history of the state.⁵⁸⁷ He spent the rest of the chapter defining how this might be done, never quite reaching the point of a definitive, snappy definition but proposing a statistical enterprise that would combine the varying strands of Political Arithmetic with older forms of statistics founded on Achenwall's work.⁵⁸⁸

Schlözer was emphatic that for the accuracy of his new system a statistician's data had to fall into twenty categories. These were varied in their scope, spreading over a number of subjects that could at first appear unrelated. They covered everything from geography, the physical science, population change, manufacturing and industry, science and academic/intellectual life,

⁵⁸² Ibid, pp.35-36.

⁵⁸³ Ibid, p.27.

⁵⁸⁴ C.f. Jean-Jacques Rousseau, *Écrits politiques* (Paris: Le Livre de Poche, 1992), pp.245-259. Not enough work has been done on the link between Schlözer and Rousseau.

⁵⁸⁵ Schlözer, *Theorie der Statistik*, pp.27-29.

⁵⁸⁶ C.f. Heilbron, *The Rise of Social Theory*, pp.4, 11-15, he argues that the eighteenth century represented a 'pre-disciplinary' stage in the social sciences where concepts were more fluid but starting to take a more permanent shape.

⁵⁸⁷ Schlözer, *Theorie der Statistik*, pp.27-30.

⁵⁸⁸ Ibid, pp.30-55.

governmental systems, and the military.⁵⁸⁹ They were designed to provide the statistician with the widest scope possible and present the reader with the deepest view of the state possible. These *SpecialBeschreibungen*, as he termed them, are oddly familiar. They were evident in the work of Achenwall and, even, Sinclair. However, this was the first exposition that such categories were necessary to complete a well-rounded picture of the workings of the state as well as a new useful method for the would-be state bureaucrat.⁵⁹⁰ Indeed, Schlözer's statistics fit into the traditions of Cameralism as the principle subject taught to would-be government officials.⁵⁹¹ This also included population change over time as well as a desire to make statistics moral and turn it to the happiness of the people.⁵⁹²

Schlözer stated that these categories required a distinct plan to make them an effective methodology.⁵⁹³ No one before had envisioned the necessity of mapping a course of action for statistical work. Schlözer gave his statistics a scientific edge, one sharpened by a drive to be accurate in data collection, methodology, planning and execution:

Ordnung, Plan, und vollständiges System, müssen seyn, wenn unsre Wissenschaft das Problem auflösen soll, das Glück der Völker, und ihr Vorrücken oder ihren RückFall darinn, zu messen. Wer nur einzele Data über VolksMenge, über Cultur, LandWirtschaft tc. aufsammelt diese fortlaufend, aber Ordnungslos, neben einander stellt, und sie dann unter der Firma Statistik beim Publico oder seinen Obern einreicht; der vertilgt allen Charakter von Wissenschaft und Einheit.⁵⁹⁴

Schlözer thought that the order, planning and system (methodology) had to be in place before carrying out the work of statistics. If one's data was *Ordnungslos* then one undermined and destroyed the foundation of the science.⁵⁹⁵ Indeed, such a desire for order had been brewing in the eighteenth century in the natural sciences with Linnaeus and the implementation of his biological

⁵⁸⁹ Ibid, pp.30-34.

⁵⁹⁰ C.f. Tribe, *Governing Economy*, pp.35-54.

⁵⁹¹ Ibid, pp.35-54.

⁵⁹² Schlözer, *Theorie der Statistik*, pp.35-36.

⁵⁹³ Ibid, p.34.

⁵⁹⁴ Ibid, p.58.

Translation: Order, plan, and complete system are necessary if our science should solve the problem of measuring the happiness of peoples and their progress or regress in this endeavour. One who only collects individual data about demographics, culture, agriculture, etc, lists them continuously but without order and then submits them to the general statistical audience or his superior, this person eradicates all characteristics of science and unity.

⁵⁹⁵ C.f. Michel Foucault's argument that by the end of the eighteenth-century a new method of ordering the world had emerged that linked to the rise of natural sciences. Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (London: Routledge, 2002), pp.136-179.

taxonomic system being a prime example.⁵⁹⁶ Schlözer brought this idea, from the natural sciences, to a conclusion in his political thought, especially in his statistics.⁵⁹⁷

This order in statistics had to be in place to better understand and evaluate the happiness of the people as well as its ebb and flow. His theory foreshadows nineteenth-century moral statistics and the rising tide of social improvers. But, as always with Schlözer he was rather coy about the matter. In the succeeding section he came as close as he possibly could to a full definition and explanation of what his statistics could mean:

Das Wesen eines jeden Stats druckt sich vollkommen durch die formul aus: Vires - Unitae - Agunt. Und alle nur erdenkliche Verschiedenheiten der Staten lassen sich ganz ungezwungen unter diese 3 Rubriken, nicht mer und nicht weniger, bringen.⁵⁹⁸

This is by no means a full definition of the science of statistics, however, if added to the notion of ascertaining the happiness of the people, this qualification of the state with the formula of strength, unity, and order is the closest Schlözer came to a definition. He argued that all was subordinate to the state with its basis in civil (natural) society and improving society came through understanding the state. Hence, all other aspects of the inspections and investigations of the statistician were subordinate. Thus, this relationship was the key paradigm to Schlözer's statistical enterprise.

The tripartite relationship of strength, unity, and order mirrors Schlözer's argument that planning, order, and a clear methodology were key to a statistical science. Planning enabled the statistician to detect the state as the most important aspect of statistics and, thus, to improving society. Schlözer was the first to explicitly state and draw up this type of order and system. For him, science needed a firm foundation. The recurring moral element made it one of the few works of the later eighteenth century to realise the potential of science to aid the development of mankind. However, this does appear to be a later arrival in Schlözer's theoretical exposition. Schlözer set out the three branches in which statistics were practiced:

⁵⁹⁶ C.f. Yeo, 'Classifying the Sciences' in Porter (ed.), *The Cambridge History of Science, Volume 4: Eighteenth-Century Science*.

⁵⁹⁷ C.f. Daston, *Classical Probability in the Enlightenment*; Hacking, *The Taming of Chance*, pp.1-10 regarding the development of a world governed by laws and by probability. Schlözer's statistics falls into this evolutionary pattern.

⁵⁹⁸ Schlözer, *Theorie der Statistik*, pp.59-60.

Translation: The character of any state is expressed completely in the formula: Strength-Unity-Order. And all possible differences between states can be easily sorted into these three categories, not more not less.

Das Bearbeiten unsrer Wissenschaft geschicht [sic] auf 3 verschiedne Arten: der StatsBeamte erschafft sie, der PrivatSchriftsteller sammlt nur, der Theorist bespricht sich mit beiden über die Künste des Erschaffens und Sammlens.⁵⁹⁹

For him there were three distinct stages that statistics must go through, its creation, its collection and, finally, its interpretation (what is termed being a Theorist). No one had previously articulated a fully developed method of statistical practice. It went well beyond any formulation of statistics and statistical thought in the eighteenth century and is the first such example in the nineteenth. It illustrates a mode of thought born from a rigorous idea of scientific inquiry. Schlözer takes this further:

Alle lerer der Statistik auf deutschen Universitäten schicken eine Art von Theorie, aber nur als Einleitung oder als Prolegomena, voraus, und eilen zu den 8 Staten fort, deren StatsMerkwürdigkeiten sie aufzählen. Ich lere es um, behandle die Theorie als das HauptGeschäfte, und füge am Ende nur als Proben, wie die Theorie zu practiciren sei, die StatsKunde von einem und anderm HauptState, nach den Interesse der zuhörler, bei.⁶⁰⁰

Here Schlözer was not just inverting the traditional methodological schema (from creation to collection to theory) he was reinventing it. To place theory first was not just to rethink statistics, it was to go against everything that had been thought about it previously. What is so strikingly new is that Schlözer sought to make statistical theory the centre of both its study and its practice.

Schlözer was clear regarding the benefits this would bring to statistics:

So lernt der Anfänger besser, als bei der alten Methode, die Kunst, die statistik eines Landes nicht nur zu Studiren, sondern sie gar zu erschaffen - falls z.B. von seinem Vaterlande noch keine existirte.... Er wird ein gelerter ZeitungsLeser, ein geachteter Reisender, ein zuverlässiger ReiseBeschreiber.⁶⁰¹

⁵⁹⁹ Ibid, p.60.

Translation: Our science goes through three different stages: the civil servant creates it, the private author collects only, the theorist discusses with both the art of creating and collecting.

⁶⁰⁰ Schlözer, *Theorie der Statistik*, p.91.

Translation: All teachers of statistics at German universities start with a kind of theory but only as introduction or preliminaries and then hasten to the eight states whose uniqueness they list. I teach it the other way around, treating the theory as the main business and add only at the end as examples how to practice the theory, the state science of one or the other important states depending on the interest of the audience.

⁶⁰¹ Schlözer, *Theorie der Statistik*, pp.91-92.

Translation: So, the beginner learns better, compared to the old method, the art, the statistics of the country not only to study it but to create it as well – in case, for instance, there is not one yet for his fatherland.... He becomes an educated newspaper reader, a well-regarded traveller, a reliable travel writer.

It meant that the statistician could create their own statistics from scratch. In placing theory at the heart of the statistician's curriculum, Schlözer argued that it would make a more scientific, accurate and well-rounded practitioner of the science.

The depth and breadth of Schlözer's slim masterpiece have never been truly appreciated, and its originality and importance in the evolution has been deeply undervalued in the literature. This section has illustrated the unique approach Schlözer introduced to statistical thought, especially compared to those of his contemporaries. His aim was to establish statistics as a respectable science, based on rules, theories and laws. Such a drive had been started in the natural sciences stretching back into the seventeenth century.⁶⁰² Though Schlözer had brought this to fruition in the political realm and while he had built on the work of his predecessors such as Süßmilch and Achenwall his ideas had much more in common with the development of determinism around the turn of the eighteenth century.⁶⁰³ Schlözer's laws and theories sought to determine the future, to prescribe what a ruler and a society could do according to these laws.

Within this framework he established statistics as a mixture of the moral sciences in which the happiness of the people and improvement of society was a key factor, Political Arithmetic and the descriptive statistics. The notion of the moral, mathematical, and narrative was a step towards the mathematisation of statistical thought in the nineteenth century.⁶⁰⁴ Additionally, he argued that through theory one could teach statistics in a more nuanced way producing statisticians that were practiced and proficient in producing, collecting, and interpreting statistics. He attempted to improve the accuracy of this methodological approach through a detailed exposition of data collection and creation. This approach, which focused on theoretical understanding and a deep methodological structure, order, and plan, was a unique formula and an active attempt to improve precision in the science.

Schlözer's Influence Beyond Göttingen

It is certainly the case that Schlözer as a historian was both well-known and well-respected during his lifetime. However, his standing as a statistician has been somewhat marred by the belief

⁶⁰² C.f. Yeo, 'Classifying the Sciences' in Porter (ed.), *The Cambridge History of Science, Volume 4: Eighteenth-Century Science*; Hacking, *The Emergence of Probability*.

⁶⁰³ Hacking, *The Taming of Chance*, pp.1-3.

⁶⁰⁴ C.f. Porter, *The Rise of Statistical Thinking*; Stigler, *The History of Statistics*; Hacking, *The Taming of Chance*; Daston, *Classical Probability in the Enlightenment*; Brian and Jaisson, *The Descent of Human Sex Ratio at Birth*, pp.27-85.

amongst modern scholars that his brand of statistics was a ‘lame duck’, overtly un-mathematical and conservative.⁶⁰⁵ This view underestimates both his originality and influence on the evolution of statistical thought.

Immediately after its publication Schlözer’s *Theorie der Statistik* was translated into French by Donnant, the eminent statistician and translator, under the name *Introduction a la Science de la Statistique* (1805).⁶⁰⁶ In the same year Donnant published a second book that was also highly influenced by the work of Schlözer, entitled *Théorie élémentaire de la Statistique*.⁶⁰⁷ Donnant’s indebtedness to Schlözer and his statistical ideas is obvious in both of these works. It appears that he had an eye for those who would make a larger impact on the history and evolution of statistics than himself.⁶⁰⁸ In his lifetime he translated and published works by William Playfair (the statistician-cum-mapmaker), Sir John Sinclair, and August Ludwig von Schlözer.⁶⁰⁹ Bourguet has demonstrated that Donnant’s influence was evident during the early Bureau of Statistics in Napoleonic France.⁶¹⁰ Indeed, Donnant was a champion of the German statistical model and helped found a society for statistics in Paris in 1802 based on these principles.⁶¹¹ According to Desrosières the Bureau’s heads were drawn to the German model of statistical thought, and the early history of the Bureau is marked by this debate between the German mode of statistical enterprise and more mathematically based models.⁶¹²

Donnant’s major contribution to the development of statistics was his *Théorie élémentaire* which was steeped in the ideas of men like Schlözer, Playfair and Sinclair. He illustrated these influences in his dedication bemoaning a lack of clear direction for statistics in France arguing that it had become necessary to create a clear-cut theory to illuminate the practice of the science.⁶¹³ Like Schlözer, he pointed out that such practice would be beneficial to the state, to governance and to the happiness/order of society.⁶¹⁴ While Donnant acknowledged his influences, especially

⁶⁰⁵ C.f. Hacking, *Taming of Chance*; Desrosières, *The Politics of Large Numbers*.

⁶⁰⁶ [Anonymous], ‘Biography of Denis-Francois Donnant’, <http://data.bnf.fr/ark:/12148/cb11900393h>. [17 July 2017].

⁶⁰⁷ Denis-François Donnant, *Théorie élémentaire de la statistique* (Paris: L’Imprimerie de Valade, 1805); August Ludwig von Schlözer, *Introduction a la Science de la Statistique*, Denis-François Donnant (trans.), (Paris: L’imprimerie Impérial, 1805).

⁶⁰⁸ Falguerolles, ‘<<La Précurseurs de la Société de Statistique de Paris>> de Fernand Faure (1909)’ pp.18-21.

⁶⁰⁹ Ibid, p.19.

⁶¹⁰ Bourguet, *Déchiffrer la France*, pp.188, 213.

⁶¹¹ Ibid, pp.91, 188.

⁶¹² Desrosières, *The Politics of Large Numbers*, pp.31-40.

⁶¹³ Donnant, *Théorie élémentaire de la statistique*, pp.v-vi.

⁶¹⁴ Donnant, *Théorie élémentaire*, p.vi.

in the German tradition and Schlözer, he was adamant that he wanted to make statistics a national, French, science.⁶¹⁵ Nevertheless, he celebrated his ‘statistical heroes’ and their work. He noted that the definition of statistics given by the ‘fathers’ of the science, Achenwall and Schlözer was fundamentally correct: i.e. that it was a science designed to understand the state in every way.⁶¹⁶ He took this a step further believing that statistics had direct applications to the advancement of civilisation not only for the state:

Un grand nombre de personnes qui s'étaient fait une toute autre idée de la Statistique, seront fort étonnées, en méditant sur la grande conception d'Achenwall, de trouver combien cette science peut devenir intéressante et avantageuse pour les progrès de la civilisation.⁶¹⁷

He discussed how statistics could be useful for the improvement of the state, civilisation and mankind, specifically claiming that the use of numbers in the science was advantageous.⁶¹⁸ Both of these ideas are a clear reference to the Political Arithmeticians, as well as Playfair, Sinclair, and Schlözer – the latter being the primary influence on his mind. Donnant’s discourse on civilisation, and its improvement, was not a far cry from the ways in which Schlözer talked of statistics as method of improving the happiness of the people. Both are more abstracted than Sinclair’s ‘quantum of happiness’, in a way that could be considered more precise and scientific and that would, through the state mechanisms, help shape the direction of a nation and its people. Thus, Donnant’s contribution to statistics was something of an amalgam of various ideas from across Europe.⁶¹⁹ Much the same can be said of his translation of Schlözer’s *Theorie* in 1805. *Introduction a la Science Statistique* is in some ways a faithful translation of the original. It follows the same basic structure, its chapters divided in the same manner with roughly the same headings.⁶²⁰

However, many of the similarities are only skin deep. Donnant, while stressing the importance of both Schlözer’s work and statistics, made it clear that he intended to improve on his work to add where things were missing and correct where necessary,⁶²¹ for example, Chapter One,

⁶¹⁵ Ibid, pp.viii-x.

⁶¹⁶ Ibid, pp.xi-xii.

⁶¹⁷ Ibid, p.xiii.

Translation: A great number of people who had an entirely different idea of statistics, will be greatly surprised, when thinking about Achenwall’s grand conception, to find how this science can be interesting and advantageous to the progress of civilisation.

⁶¹⁸ Ibid, p.xii.

⁶¹⁹ Falguerolles, ‘<<La Précurseurs de la Société de Statistique de Paris>> de Fernand Faure (1909)’, pp.19-21.

⁶²⁰ Schlözer, *Introduction a la Science de la Statistique*, pp.246-247.

⁶²¹ Donnant, ‘Préface’ in *Introduction a la Science de la Statistique*, pp.v-vi, vi-x.

“Origine et Nom de la science”.⁶²² The main body of the chapter is faithful. Donnant sticks so closely to it that he leaves the word “statskunde” in with no more explanation than Schlözer.⁶²³ However, at the end of the chapter Donnant added an ‘Addition’.⁶²⁴ It is emblematic of how Donnant saw as his role as translator.

A cursory glance at the remainder of the work is enough to illustrate that he believed he had a wide scope, with every chapter containing at least one ‘Addition’ section, and sometimes more.⁶²⁵ His various ‘Additions’ are evidence to the circulation and contextual transformation of information and ideas during the eighteenth and nineteenth century. He went beyond Schlözer, using his ideas to fuel his own theories and ideas. There was a freedom that Donnant believed he could take, based on the culturally contextual transfers of knowledge and information during the eighteenth and nineteenth century.⁶²⁶

Donnant’s first ‘Addition’ was a clarification and his own expression of the nomenclature and etymological origins of statistics:

Achenwall a formé le mot Statistique du mot latin status, dont il a fait l'adjectif statisticus.... Cette expression, quoiqu'un peu dure, est généralement adoptée; parce qu'elle rend une idée qu'on ne pourrait exprimer que par une circonlocution.⁶²⁷

Not only did he correct Schlözer on a rather pedantic point, analysing how Achenwall developed the word statistics, he also claimed that there was no better word for it, dismissing Schlözer’s revised nomenclature (*statskunde* for *Statistik*). The final sentence is also a rather damning incitement of both Schlözer and Achenwall. This ‘Addition’ demonstrates the lengths to which Donnant would correct, reinterpret or simply bulldoze Schlözer. Despite Schlözer’s influence on Donnant, he was prepared to take Schlözer and his ideas in different directions. Bourguet has highlighted how Donnant was deeply concerned with clarifying a new nomenclature by which to

⁶²² Schlözer, *Introduction a la Science de la Statistique*, pp.29-33.

⁶²³ Ibid, p.32.

⁶²⁴ Donnant, ‘Addition’ in *Introduction a la Science de la Statistique*, p.33.

⁶²⁵ C.f. Schlözer, *Introduction a la Science de la Statistique*.

⁶²⁶ Easterby-Smith and Senior, ‘The Cultural Production of Natural Knowledge’, pp.471-476; Kontler, *Translations, Histories, Enlightenments*.

⁶²⁷ Donnant, ‘Addition’ in *Introduction a la Science de la Statistique*, p.33.

Translation: Achenwall formed the word statistics from the Latin word status, from which he made the adjective statistical.... This expression, though a little hard, is generally adopted; because it makes clear an idea that can only be expressed by circumlocution.

describe society, especially in the wake of the Revolution, which explains his desire to redefine and refine Schlözer's work.⁶²⁸

Other 'Additions' illuminate this trend further, especially the lengthy one in Chapter Two. This particular 'Addition' concerns itself more with the differences between French and German systems of governance. Donnant desired to illustrate how these differences made the application of statistics to and for the French state a unique challenge.⁶²⁹ To better elucidate these unique challenges Donnant pointed to the effort made by other French statisticians to ensure that this administrative science could be put to the best use of the nation, highlighting in particular the works of Jean-Antoine Chaptal (1756-1832) and Nicolas-Louis François de Neuschateau (1750-1828) as exemplary in the field.⁶³⁰ This type of addenda is a key component of Donnant's work and again an illumination of his desire to not only use Schlözer's ideas but to develop them further for France specifically.

Donnant also added several chapters to his translation that developed his own statistical thought. These were comprised of a series of tables,⁶³¹ as well as a review of his (Donnant's) other statistical works, *Théorie élémentaire*.⁶³² The series of tables are essentially Donnant's visualisation of the information required by any statistician. These seem to have been derived from Schlözer but greatly expanded by the translator. His tables concern topography, meteorology, population, the state, agriculture, industry, and employment.⁶³³ Each table gives the reader a breakdown of the packages of information they would need to present to ensure their statistics was properly illustrative of each area. Donnant was eager to impress upon his reader that each section required a certain amount of explanation, or, as he termed it, 'Observation'.

Thus, Schlözer's theory was taken one step further, abstracted away from the description of the main text and presented as clean series of tabular visualisations which made simple the complex explanation of the German method. Its population tables illustrate how French statistics had been influenced by the Political Arithmeticians, Süßmilch, and Wargentin, especially in the context of Schlözer's ideas.⁶³⁴ However, all of this had a uniquely French flavour. For a translated

⁶²⁸ Bourguet, *Déchiffrer de France*, p.213.

⁶²⁹ Donnant, 'Addition' in *Introduction a la Science de la Statistique*, pp.36-37.

⁶³⁰ Ibid, p.37.

⁶³¹ Donnant, 'Formules de tableaux' in *Introduction a la Science de la Statistique*, pp.191-217.

⁶³² J. D. G. Arnold, 'Analyse de la Théorie élémentaire de la Statistique' in *Introduction a la Science de la Statistique*, pp.218-245.

⁶³³ Donnant, 'Formules de tableaux' in *Introduction a la Science de la Statistique*, pp.191-217.

⁶³⁴ Ibid, pp.193-195.

work, the tables are directed solely at the French state, its modes of governance and its industry and agriculture. Again, Donnant was using Schlözer as a building block for his own statistical conglomeration. Donnant is crucial for understanding the form and shape of Schlözer's popularity beyond the borders of Göttingen. Often, his ideas were taken up by those who wished to build upon his statistical thought. It was a peculiar feature of Schlözer's influence throughout Europe.

In France his influence was felt many years after his death, especially through Donnant's publications. Donnant, listed as a founding member of the *Société de Statistique* in 1802, was in a key position to distribute the ideas of Schlözer to a wider, statistically minded audience.⁶³⁵ Members, such as Chaptal, appear to have been well acquainted with Schlözer's ideas via Donnant, considering that he dedicated his *Théorie élémentaire* to Monsieur Chaptal.⁶³⁶

Some of Schlözer's ideas presented through Donnant reappear in Chaptal's later work such as his *De l'Industrie Française* published in 1829. Its overall structure owed much to his theoretical underpinnings, even at a time when the French state and statistics was looking to increasingly mathematical forms of statistical representation.⁶³⁷ Chaptal's work concentrated on explanation and exposition with tables and numbers thrown in sparingly.⁶³⁸ Additionally, he performed basic arithmetic and calculations, as in his discussion of French imports and exports,⁶³⁹ and compared these numbers and conclusions to various other nations, such as Portugal and England.⁶⁴⁰ While it would be incorrect to say that such influence was Schlözer's alone, it is certain that a part of this method did develop out of Schlözer's ideas and theories. One major overlap was that Chaptal's work was built upon the comparison of the state.⁶⁴¹ This highlights a combination of Political Arithmetic, national and international comparison and the reliance on heavy description which were key aspects of Schlözer's statistical thought. Again, he provided the building blocks upon which statisticians add their own ideas.

The legacy of Schlözer in France in a large part formed out of his definition. Schlözer, who believed statistics was the method by which one could improve every aspect of the state, including the happiness of the people, left this idea firmly implanted in French thought. Chaptal believed the

⁶³⁵ Falguerolles, '<<La Précurseurs de la Société de Statistique de Paris>> de Fernand Faure (1909)', p.18.

⁶³⁶ Donnant, *Théorie élémentaire*, pp.v-x.

⁶³⁷ C.f. Desrosières, *The Politics of Large Numbers*.

⁶³⁸ C.f. Jean-Antoine Chaptal, *De l'Industrie Française, Tome Premier* (Paris: Chez Antoine-Augustin Renouard, 1829), pp.4-17.

⁶³⁹ Chaptal, *De l'Industrie Française, Tome Premier*, pp.20-22.

⁶⁴⁰ *Ibid*, p.22.

⁶⁴¹ *Ibid*, pp.v-vi.

true motive and purpose of statistics was to chart and help the progress of civilisation.⁶⁴² While many influences went into the French definition of statistics the insistence on the progress of civilisation through scientific statistical inquiry was uniquely Schlözer's idea. Indeed, this idea was taken up by many statistical writers in the 1820s and 1830s, especially as their works became more and more mathematical.

In the Dutch Republic Schlözer's work was translated into Dutch in 1814 by Hendrik Willem Tydeman (1778-1863), the famous jurist and political scientist. He began his initial translation and publication in 1807, before Schlözer's death in 1809, and was in contact with Schlözer during this period.⁶⁴³ Unfortunately all that survives of this correspondence is the translation. This does, however, illustrate that academics, lawyers and political scientists, actively engaged with Schlözer's ideas, taking them and projecting them into their own country. Stagl even argues that Schlözer's work brought the word statistics into wider use in the Netherlands.⁶⁴⁴ The claim is bold, especially considering the Napoleonic invasions and the subsequent foundation of a statistical office in the Netherlands.⁶⁴⁵ However, Stagl does have a point and the fact that Schlözer was published illustrates that his ideas were important enough, even after his death, to warrant consideration and understanding beyond Göttingen.

Indeed, from the table of contents the work is a faithful reproduction, following the original in every way.⁶⁴⁶ There are, however, two major additions to the text that the translator felt were appropriate. The first was an 'Aanhangsel' (Appendix) containing a review of Donnant's *Théorie élémentaire* by the reviewer J. G. D. Arnold.⁶⁴⁷ The inclusion of this review seems to be simply to illustrate the advances made in France using Schlözer's theory, a method of bringing more context to the preceding work of theoretical statistics. It could be argued that the book was therefore translated out of French, especially considering that the Dutch lands had been part of the French Empire only two years previous (1813) and Napoleon had helped establish a statistical office in the country.⁶⁴⁸ However, the state was newly independent and Tydeman was in correspondence

⁶⁴² Chaptal, *De l'Industrie Française, Tome Premier*, p.xxxi.

⁶⁴³ Johan Willem Tydeman, *Jaarboek van de Maatschappij der Nederlandse Letterkunde* (1863), pp.411-412, http://www.dbnl.org/tekst/_jaa002186301_01/_jaa002186301_01_0028.php [7 February 2018].

⁶⁴⁴ Stagl, *Curiosity*, p.248.

⁶⁴⁵ Woolf, *Napoleon's Integration of Europe*, pp.87-90.

⁶⁴⁶ August Ludwig von Schlözer, *Theorie der Statistiek of Staats-Kunde*, H. W. Tijdeman (Trans.) (Groningen: Wijbe Wouters, 1814), pp.xii-xiv.

⁶⁴⁷ J. G. D. Arnold, 'Aanhangsel' in *Theorie der Statistiek of Staats-Kunde*, H. W. Tijdeman (Trans.), pp.172-183.

⁶⁴⁸ Woolf, *Napoleon's Integration of Europe*, pp.87-90.

with Schlözer. It seems rather that it was translated out of the German with the aid of the French work, as there are none of Donnant's 'Additions'.

The second addition is a more telling piece of active editorial practice. Entitled "Aanwijzing van eenige drukfeilen, - en verbeteringen of latere bijvoegsels der aantekeningen", ('Indices of improvements, notes and later additions') the section is an illustration of how Schlözer became a building block for statisticians that worked with his publications.⁶⁴⁹ Each note gives a specific page reference, indicated the improvement or change to be made and a source for this particular correction if applicable.⁶⁵⁰ This section, again, serves as proof that throughout Europe Schlözer was the initial starting point for statisticians. Tydeman was working in a newly independent state out of the difficulties of the Napoleonic period and the Revolution. His desire was, much like Donnant's, to find new ways to configure and define the new states they had become part of. Both saw Schlözer's work as a way to achieve this but not without significant additions to fit the new local contexts.

In the German lands Schlözer's influence was often hidden, unspoken, something that statisticians considered and incorporated, not always with detailed acknowledgement of their sources. But while his work did not excite too much response from his critics it firmly entered the wider debates in German statistical thought. Evidence confirms how far-reaching his ideas were in terms of the statistical evolution in the German lands, touching upon both the mathematical and scientific elements of statistics.

How did Schlözer compare to statisticians working beyond Göttingen? It is worth examining three major examples: E. A. W. Zimmermann (1743-1815) from Braunschweig, Matthias Christian Sprengel (1746-1803) in Halle, and Johann Georg Meusel (1743-1820) in Erlangen. All three men were contemporaries of Schlözer in Göttingen and Schlözer remained close to the latter two. Sprengel seemed to have never lost contact.⁶⁵¹ Meusel too remained on friendly terms with Schlözer and they frequently exchanged information on their latest publications and journals.⁶⁵² With Zimmermann, it will remain unknown to historians as to

⁶⁴⁹ H. W. Tijdeman, 'Aanwijzing van eenige drukfeilen, - en verbeteringen of latere bijvoegsels der aantekeningen' in *Theorie der Statistiek of Staats-Kunde.*, pp.183-188.

⁶⁵⁰ Ibid, pp.183-188.

⁶⁵¹ Friedrich Ratzel, 'Sprengel, Matthias Christian', *Allgemeine Deutsche Biographie* 35 (1893), pp.299-300 [Online-Version]; <https://www.deutsche-biographie.de/pnd117486701.html#adbcontent>. [4 December 2017].

⁶⁵² MS. Cod. A. L. Schlözer. 3: 4, 71 [Göttingen].

whether the two men were in contact, though for many years the two were both at Göttingen.⁶⁵³ However, comparing the statistical works of these men to that of Schlözer one is left with the distinct impression that they remained tied to Achenwall's form of statistics and *Staatsbeschreibung*.

Eberhard August Wilhelm Zimmermann was born in Uelzen in 1743, the son of the local provost, a man whose interests stemmed from poetry to the collection of information regarding antiquities. Zimmermann went to the University of Leyden to study medicine. However, he soon turned his attention to the natural sciences and mathematics and went on to study in Halle, Berlin and finally in Göttingen. In 1766 he gained an appointment to Braunschweig as a professor of mathematics and physics. By this point Zimmermann had greatly expanded his intellectual horizons and taught on a variety of subjects, including mathematics, the natural sciences, experimental physics, natural history and physical geography. He was a prolific writer and had a keen scientific mind. He wrote on subjects as diverse as the properties of water, zoology, barometers and meteorology and the decline and degradation of the human race. Additionally, he shared an interest in political science and especially statistics. It was his interest in geography that appears to have sparked his interest in statistics and he connected both in his work very closely.⁶⁵⁴

While Zimmermann was a greatly respected and talented mathematician, who would go on to influence Carl Friedrich Gauss,⁶⁵⁵ his influence on statistics was rather more limited. Indeed, it is hard to find much that connects Zimmermann to the world of eighteenth-century statistics. His two major contributions were his English work *A Political Survey of the Present State of Europe in Sixteen Tables* (1787) and his German journal *Annalen der geographischen und statistischen Wissenschaften* (1790-92) published in three volumes. The latter of these two works is no more than a collection of varying works of statisticians and geographers from around Europe.⁶⁵⁶ It is in a similar format to Schlözer's *Briefwechsel* but its contribution to statistical thought was minimal at best.

⁶⁵³ All information if not otherwise stated, in: Paul Zimmermann, 'Zimmermann, Eberhard August Wilhelm', *Allgemeine Deutsche Biographie* 45 (1900), pp.256-258 [Online-Version]; <https://www.deutsche-biographie.de/gnd11882435X.html#adbcontent>. [4 December 2017].

⁶⁵⁴ C.f. E.A.W. Zimmermann (ed.), *Annalen der geographischen und statistischen Wissenschaften* (Braunschweig: Crusiussche Buchhandlung, 1790-92), his journal of statistical and geographical sources from across Europe.

⁶⁵⁵ Zimmermann, 'Zimmermann, Eberhard August Wilhelm'; Nikolai Stuloff, 'Gauß, Carl Friedrich' *Neue Deutsche Biographie* 6 (1964), pp.101-107 [Online-Version]; <https://www.deutsche-biographie.de/gnd104234644.html#ndbcontent>. [4 December 2017].

⁶⁵⁶ C.f. Zimmermann (ed.), *Annalen der geographischen und statistischen Wissenschaften*.

His *Political Survey of the Present State of Europe* was an influential book, especially in the Britain. The work is a statement of intent for Zimmermann, a clear indication of the German mode of statistical thinking. He outlines statistics as a science designed primarily to give an overview of the state:

...that branch of political knowledge, which has for its object the actual and relative power of several modern states, the power arising from their natural advantages, the industry and civilization of their inhabitant, and the wisdom of their governments....⁶⁵⁷

The definition compares well with Achenwall's tradition. But he intended to bring "some respectable *statistical* writers" to his account.⁶⁵⁸ He mentioned Schlözer, Büsching, the *Statistische Tabellen* and the *Statistische Uebersicht* in his preface, as the most important works of statistics.⁶⁵⁹

His methodology was influenced by the *Statistische Uebersicht* and the *Statistische Tabellen*, both of which were recent developments in the German world being published in 1786 and 1785 respectively.⁶⁶⁰ However, while his formula remained attached to the descriptive mode his use of tables, numbers and visualisations was a step in a new direction, shifting from the work of Achenwall towards a more mathematically minded statistical practice. Nevertheless, his work was not as radical as that of Schlözer. For example, in the first table, Europe,⁶⁶¹ Zimmermann follows a set statistical formula, taken from the German example. He listed, in detail, the sources he had used to obtain his information.⁶⁶² Zimmermann then presented his information in tabular form, usually splitting up information into several different, but related, tables illustrating specific data.⁶⁶³ Finally, he added a detailed description and explanation of the tables as well as any ancillary information that had not yet appeared.⁶⁶⁴ This format is repeated throughout the work. It is the tried and tested formula of what Schlözer would define as a collector. Zimmermann's work

⁶⁵⁷ E. A. W. Zimmermann, *A Political Survey of the Present State of Europe in Sixteen Tables* (London: C Dilly, 1777), pp.i-ii.

⁶⁵⁸ *Ibid*, p.v.

⁶⁵⁹ *Ibid*, p.viii. C.f. *Statistische Übersicht der vornehmsten deutschen und sämtlichen europäischen Staaten in Ansehung ihrer Größe, Bevölkerung ihres Finanz und Kriegszustandes...* (Vienna: 1786); [G. R Freihr von S?], *Statistische Tabellen zur bequemen Uebersicht Größe, Bevölkerung, des Reichthums und der Macht der vornehmsten europäischen Staaten* (Leipzig: von Schönfeldschen Handlung, 1785-1786).

⁶⁶⁰ C.f. *Statistische Übersicht*; [G. R Freihr von S?], *Statistische Tabellen*. Both were works of 'Staatsbeschreibung'. C.f. Johannisson, 'Society in Numbers' in Frängsmyr, Heilbron, Rider (eds.), *The Quantifying Spirit in the 18th Century*, pp.344-347.

⁶⁶¹ *Ibid*, pp.1-22.

⁶⁶² Zimmermann, *A Political Survey*, pp.1-4.

⁶⁶³ *Ibid*, pp.5-7.

⁶⁶⁴ *Ibid*, pp.8-10.

was not sophisticated enough to be mathematical. Its purpose was still description. There was no analysis of this information, no theory, and no system. Compared to the plan Schlözer had in mind Zimmermann remained behind the times.

Similarly, the works of both Meusel and Sprengel, while being potentially influential, remained focused solely on Achenwall's method and definition of statistics. Johann Georg Meusel was born near Bamberg in 1743.⁶⁶⁵ He was, after his formal education at Göttingen, made professor of history at the University of Erfurt.⁶⁶⁶ While he made a decent reputation as a lexicographer and bibliographer his main talent, especially in the field of statistics, was not new research but the compilation and presentation of information collected by others. Again, in Schlözer's statistical trifactor Meusel would represent only one branch of the statistician, the collector. His major contributions to statistics were the influential handbooks *Litteratur der Statistik* (1790) and the *Lehrbuch der Statistik* (1790). Both were repeatedly republished throughout the 1790s and early nineteenth century. The *Lehrbuch* reached its fourth and final edition in 1817 and his *Litteratur* its second in 1806-7. They both have similar formats centred around an opening introduction complete with definitions and explanations followed by the systematic listing of statistical information country by country or theme by theme.⁶⁶⁷ Meusel's definition of statistics is little more than a repetition of that of Achenwall or Büsching. He was eager to regurgitate the ideas of other statisticians. His definition of the state, as a society of families, organised for the benefit and happiness of its citizens again echoes any German statistician of the time.⁶⁶⁸ It is important to point out that while he stated the aims of society were for the increased benefit of its members, he maintained that statistics was not designed for anything more than knowledge of a political state. Beyond this collection of information statistics seemed to have had little purpose for Meusel. Compared to Schlözer, he appeared radically revisionist taking statistics back to a simple data collection exercise.

However, while his books remained devoted to the systematic and descriptive approach of statistics and information collection, Meusel was deeply appreciative of Schlözer and his role in

⁶⁶⁵ Elias von Steinmeyer, 'Meusel, Johann Georg', *Allgemeine Deutsche Biographie* 21 (1885), pp.541-544 [Online-Version]; <https://www.deutsche-biographie.de/pnd100309038.html#adbcontent>. [4 December 2017].

⁶⁶⁶ All information if not otherwise stated in: Hans-Otto Keunecke, 'Meusel, Johann Georg', *Neue Deutsche Biographie* 17 (1994), p.274 [Online-Version]; <https://www.deutsche-biographie.de/pnd100309038.html#ndbcontent>. [4th December 2017].

⁶⁶⁷ C.f. Meusel, *Lehrbuch der Statistik; Litteratur der Statistik*.

⁶⁶⁸ Meusel, *Lehrbuch der Statistik*, p.1. Another example of Rousseau's impact on the ideas of the statisticians.

the evolution of statistics. He dedicated his *Litteratur* to him “für die Einsichtsvolle und unermüdliche Pflege und Veredelung der Statistik...”.⁶⁶⁹ Meusel’s work displayed Schlözer’s tendency towards systematisation and thematization of its contents, especially in his *Litteratur*, in which Meusel organised existing statistical literature into separate themes and finally into separate countries.⁶⁷⁰

Out of all three men Sprengel was the most influenced by Schlözer, especially in the fields of history. Still he remained attached to older forms of statistics and did not live to see Schlözer’s theory published as he died in 1803. He was born in Rostock in 1746 and went to study in Göttingen under Schlözer.⁶⁷¹ They formed a close relationship that would last for the rest of their lives. Sprengel was a man of supreme talent and activity. His main passion was history, but his interests were far-reaching, and he published on subjects as diverse as English literature, geography and statistics. His statistical publications are almost as plentiful and wide ranging as Schlözer’s. However, his impact upon the subject appears to owe more to Achenwall than to Schlözer. Ironically, Schlözer introduced him to the works of Achenwall. Sprengel’s major work of statistics was *Grundris der Staatenkunde der vornehmsten europäischen Reiche* (1793). It was an essential reworking of Achenwall’s earlier work, particularly his *Abriß* (1749). Even the titles bear such a resemblance as to be nearly identical. Sprengel’s work followed the same format as Achenwall’s, with an introduction of definitions and descriptions and chapters dedicated solely to individual countries.⁶⁷² These chapters rely on description sparsely interspersed with numbers and no other forms of visualisation.⁶⁷³

Each chapter could be an exact copy of Achenwall’s original and Sprengel appears as the archetypical statistical collector in Schlözer’s trifactor. However, Schlözer influenced Sprengel’s ideas about statistics. Sprengel defined statistics as a science designed to aid the development of the people through its understanding of the state.⁶⁷⁴ Its aims were partly moral and social, coinciding with Schlözer’s statistics. Sprengel noted that in both France and England statistical developments had taken a similar direction, highlighting the work of French Enlightenment figure

⁶⁶⁹ Meusel, *Litteratur der Statistik*, Dedication Page.

Translation: For the insightful and relentless care and refinement of statistics....

⁶⁷⁰ Ibid, Allgemeine Inhaltanzeige.

⁶⁷¹ All information, if not otherwise stated, in: Ratzel, ‘Sprengel, Matthias Christian’.

⁶⁷² C.f. Matthias Christian Sprengel, *Grundris der Staatenkunde der vornehmsten europäischen Reiche* (Halle: Hemmerde und Schwerschke, 1793).

⁶⁷³ C.f. Sprengel, *Grundris*, pp.21-66. This chapter on Spain sums up the comparison with Achenwall.

⁶⁷⁴ Sprengel, *Grundris*, p.1.

Georges-Louis Le Clerc, Comte de Buffon (1707-1788)⁶⁷⁵ and Sinclair's *Statistical Account*.⁶⁷⁶ Additionally, he adopted *Staatskunde*, the term Schlözer believed all statisticians should use, instead of *Statistik*. Sprengel's use of it in both his definition and in his title was a clear homage to Schlözer.

It has been illustrated that Schlözer and statistics had an almost immediate impact on its practice throughout Europe. His work was well known both within the German lands and across continental Europe, especially France and the Netherlands. His move towards a science of statistics dominated by theory, accuracy, increased use of Political Arithmetic and its mathematical techniques was taken up by many and had a lasting impact on the way statistics was conceptualised. His work introduced a new methodology with a different focus that was accepted and adopted across the continent. It held sway with his contemporaries, influencing the work of men such as Sprengel and Meusel. In France and the Netherlands his works were translated and influenced the work of later statisticians, helping push French statistics into a new realm of thinking. Frequently Schlözer's influence was the building block on which other statisticians could build their own, new or composite, theories about the science.

Schlözer's statistical thought has not always guaranteed the limelight, especially considering his reputation for being such an obstreperous, argumentative and anti-mathematical scholar. However, this chapter has demonstrated that such a reputation is undeserved and has reconsidered his importance in the evolution of statistical thought in late eighteenth- and early nineteenth-century Europe. His ideas combined with his large transnational network of actors and agents allowed him to posit and develop some increasingly radical and new ideas about the science of statistics. He was determined to systematise the practice, study and methodology of statistics. His aim was to make statistics more scientific, to bring a level of accuracy he thought that many had missed and to incorporate a more theory-based approach.

By tracing how his ideas developed from the thought of Conring and Achenwall, the Political Arithmeticians, Wargentin and Süßmilch, the chapter has demonstrated how Schlözer's achieved this through an increased combination of mathematical and descriptive elements. Indeed, he was not anti-mathematical. He may well have been anti-probability, but he was able to see the use of the techniques of Petty, Graunt, and Süßmilch in increasing the accuracy of statistical work.

⁶⁷⁵ This appears the surest guess as to the identity of someone Sprengel only calls 'Le Clerc'.

⁶⁷⁶ Sprengel, *Grundris*, p.1.

Additionally, the transnational element was crucial both in influencing Schlözer and how he influenced others. The wide circulation of his network combined with his vast European travels and the numerous translations of his works into foreign languages was key to the evolution of statistical thought in this period. Certainly, his ideas would not have been so radical had it not been for connections in Sweden, his travels to Russia or France, and a host of connections in the German lands. His ideas would not have travelled so far had it not been for translations into French and Dutch, by which some of his ideas were transferred to Britain and Italy. Indeed, a major factor in the development and the transmission of his ideas was the network that he created through correspondence, travel and translation.

Schlözer's world was a cosmopolitan one and his theory of statistics, in which theory was placed at the centre, was radical. One possible reason for this was Göttingen which acted as a hub. The radical, freethinking, university opened transnational possibilities for Schlözer giving him a gateway to the world. The German university system was a key player in the evolution of statistical thought. It would be interesting to recontextualise Schlözer further into this university environment, as well as other contemporary German statisticians, and analyse how the German university system was able to remove the perceived solidity of state borders. However, from Göttingen, Schlözer was able to change the way in which people thought of statistics. His desire to have a more accurate and mathematical science was realised because of the intellectual and transnational freedoms that the university afforded him.

Part II

The Statistical Sir John: The Transnational Foundations of Modern Statistics in Britain

In 1799 John Sinclair (1754-1835) finished his major work *The Statistical Account of Scotland*. It was a labour of love that had taken almost ten years of his life (1790-1799) and involved corresponding with and obtaining information on all 938 parishes in Scotland.⁶⁷⁷ The work is and was important for many reasons: it grants a window into Scottish life in the eighteenth century, it illustrates the modes and methods of agriculture and economy, it was the largest endeavour of data collection that had ever been attempted, and, most importantly, it was one of the first applications of statistics in the United Kingdom. Sinclair's work was a watershed moment in the history of statistics, it was the beginning of a change in its practice, understanding and perception. He developed a method of combining narrative and numerical statistics which added a strong moral component. Sinclair's work and ideas reached as far as the USA and the German lands as well as influencing many British statisticians. Additionally, he was an influence on the government at the beginning of a period of intense interest in the science of statistics for the state.

The purpose of this chapter is to explore how Sinclair's was an integral part of the evolution of statistics in the eighteenth and early nineteenth century. It aims to illuminate the wider context for these changes and to reveal how this evolution took place. It will analyse the period from the 1770s to the 1840s. By placing Sir John Sinclair's works and influence in a wider context it will illustrate the fundamentally transnational nature of statistics during the late eighteenth and early nineteenth century. It stresses the key role that individuals and institutions beyond the nation played in the development of statistics, highlighting their role as the driving force behind the evolution in statistical thought, as opposed to the mainly state-based narratives previous historians have tended to focus on.⁶⁷⁸ The chapter argues that Sir John Sinclair was an integral part of this evolutionary process in statistical thought at the end of the eighteenth century, facilitating its development from a descriptive and narrative dominated subject to a more mathematically minded science. It demonstrates how Sinclair and his outlook and transnational network were a crucial component in this process.

⁶⁷⁷ Withrington, 'General Introduction', in, *The Statistical Account of Scotland: Volume I: General*, p.ix.

⁶⁷⁸ C.f. Bourguet, *Déchiffrer la France*; Randeraad, *States and Statistics in the Nineteenth Century*.

Chapter 5

Before Sir John: The History of British Statistics from Political Arithmetic to the Late Eighteenth Century

The history of British statistics before Sir John Sinclair can roughly be divided into two phases. The first was the development of Political Arithmetic in the mid to late seventeenth century. Their methods were almost mathematical relying on arithmetic and the use of mortality bills. The second took place throughout the eighteenth century building on the legacy of the Political Arithmeticians as well as incorporating other influences that range from agricultural land surveys to Political Economy⁶⁷⁹ and the German statistical tradition.⁶⁸⁰ The methodologies of this second phase are more diffuse and the actors are harder to pinpoint. The idea of formalisation did not occur until much later in the eighteenth century. It saw the rise of the visual representation and the desire to use more mathematically minded methods. This section explores these two distinct phases and provides the intellectual context that made the statistical works of Sinclair possible.

Political Arithmetic came into being in the middle of the seventeenth century, developed by Sir William Petty and John Graunt (1620-1674). The work of Sir William Petty was born out of his time in Ireland. He was initially hired as an army doctor there in 1652, however, his talents were quickly employed in other areas, particularly surveying the country.⁶⁸¹ His work on the ‘Downs Survey’, as it was known, contributed to a rise in his reputation, especially as an expert on land resettlement.⁶⁸² But the ‘Downs Survey’ was also a major influence on the development of Political Arithmetic.⁶⁸³ Additionally, his work was influenced by the new empirical scientific ideas of Francis Bacon.⁶⁸⁴ These ideas culminated in the publication of his dual works *The Political Anatomy of Ireland* in 1691 and *Political Arithmetic* in 1690. While both were published after Petty’s death, these works were written during 1671-1672 and were being circulated in manuscript form during Petty’s lifetime.⁶⁸⁵

⁶⁷⁹ C.f. Winch, *Riches and Poverty* as an introduction to Political Economy.

⁶⁸⁰ C.f. Chapter One.

⁶⁸¹ Toby Barnard, ‘Petty, Sir William (1623–1687)’, *Oxford Dictionary of National Biography* (Oxford University Press, 2004); online edn, Sept 2013, <http://www.oxforddnb.com/view/article/22069> [7 Aug 2017].

⁶⁸² Ted McCormick, *William Petty: And the Ambitions of Political Arithmetic* (Oxford: Oxford University Press, 2009), p.105.

⁶⁸³ *Ibid.*, p.117.

⁶⁸⁴ Barnard, ‘Petty, Sir William (1623–1687)’.

⁶⁸⁵ McCormick, *William Petty*, p.169.

John Graunt was born and lived in London, as an influential figure he held positions in local council and was an important member of the Drapers' Company as well as being a close friend of William Petty.⁶⁸⁶ However, while little is known of how and why Graunt became interested in mortality bills or demographics, he published one of the key tracts of Political Arithmetic; *Natural and Political Observations*.⁶⁸⁷ The impact of Political Arithmetic (and his book) was crucial to the development of statistics in the later eighteenth century as it lay the groundwork on which a discipline could be created, through the combination of both the narrative and numerical strands of statistical thought.

Graunt's *Natural and Political Observations* (1662) was one of the first works of both Political Arithmetic and demographical enquires in Britain,⁶⁸⁸ influenced by the rise and fall of populations after the devastation of the Thirty Years' War and the English Civil War.⁶⁸⁹ The methods and techniques he employed were also unique. The idea that the mortality bills could provide a new method of studying population and its trends constituted the birth of the modern science of statistics. The historian Ian Sutherland has emphasised how Graunt could be considered the grandfather of modern statistics.⁶⁹⁰ Graunt's work was significant, not just for contemporaries, but also for future generations and Graunt was arguably the first person for whom population statistics were more than just an ephemeral interest.⁶⁹¹ He was one of the progenitors of modern statistical science and his work is key to understanding how statistical thinking could eventually lead to the works of Sinclair.

The *Natural and Political Observations* have been given a thorough exploration in the works of Sutherland, Stone and Glass, therefore, a few examples of the methodology and the theories Graunt employed will suffice to demonstrate how he shaped a new mode of statistical thinking. Graunt made it clear in his dedication that the *Natural and Political Observations* were designed to aid in both governance and trade.⁶⁹² In the Preface he asserted that he aimed to use

⁶⁸⁶ Ian Sutherland, 'John Graunt: A Tercentenary Tribute', *Journal of the Royal Statistical Society. Series A (General)*, 126/4, (1963), pp.537-556, here p.538.

⁶⁸⁷ D. V. Glass, 'John Graunt and His Natural and Political Observations', *Notes and Records of the Royal Society of London*, 19/1, (1964), pp.63-100, here pp.65-66.

⁶⁸⁸ C.f. Richard Stone, *Some British Empiricists in the Social Sciences, 1650-1900* (Cambridge: Cambridge University Press, 1997), pp.207-236. Also C.f. Glass, 'John Graunt and His Natural and Political Observations', for an excellent discussion of the disputed authorship of the work.

⁶⁸⁹ Glass, 'John Graunt and His Natural and Political Observations', p.69.

⁶⁹⁰ Sutherland, 'John Graunt', pp.537, 546-548.

⁶⁹¹ Sutherland, 'John Graunt', pp.539, 554.

⁶⁹² Graunt, *Natural and Political Observations*, The Epistle Dedication to Sir Robert Moray.

Mortality Bills, that had been so constantly underused, as a means to aid in ascertaining useful knowledge that may be presented to the world, in both written and tabular form.⁶⁹³

Graunt began his book with a detailed exposition of his source material, giving the reason as to why such bills were kept.⁶⁹⁴ He then moved on to a tabular account of the number of dead in the wider London area and a larger table detailing the deaths in each parish in London.⁶⁹⁵ The whole first chapter is dedicated to a general ‘tabular’ overview of the bills. It employed a rather straightforward description, however, Graunt’s work went further and in the following chapters analysed his findings in depth. He produced a mathematically minded methodology (using simple arithmetic to determine ratios, increases, decreases, and factors) that had a slight moral underpinning. His work set this new methodological and theoretical approach to the fore of Political Arithmetic.

His friend, William Petty, went some way to cement a different, but equally influential, approach. His main works of Political Arithmetic were not published within his lifetime, but instead were distributed in manuscript form to a carefully cultivated network of individuals of friends, contacts, and potential patrons.⁶⁹⁶ It was not until after his death that his works found their way into the public eye. The two that reveal Petty’s methods and ideas best are *Political Arithmetick* (1690) and *The Political Anatomy of Ireland* (1691).

Unlike Graunt he explicitly took whole nations as subjects of inquiry, as in *Political Arithmetic*, where the express purpose is made clear from the outset:

These general Observations, and that Men eat, and drink, and laugh as they use to do, have encouraged me to try if I could also comfort others, being satisfied my self, that the Interest and Affairs of England are in no deplorable Condition.⁶⁹⁷

Petty was spelling out his aims in the most political manner. He was determined to illustrate the might of England despite those who would argue that it was in a state of degradation.⁶⁹⁸ His work was less concerned with the idea of mortality and population and instead focused on wider political

⁶⁹³ Ibid, pp.1-3.

⁶⁹⁴ Ibid, p.4.

⁶⁹⁵ Ibid, pp.5-8.

⁶⁹⁶ McCormick, *William Petty*, p.259.

⁶⁹⁷ Sir William Petty, *Political Arithmetick; Or a Discourse concerning the extent and value of Lands, People, Buildings...* (London: Robert Clavel at the *Peacock and Hen*, 1690), Preface (a-3).

⁶⁹⁸ C.f. Petty, *Political Arithmetic*, Preface.

power. His methodology differs from Graunt's and while he retains the mathematical aspects his view is broader, more comparative and directed towards more lofty goals:

The method I take to do this, is not yet very usual; for instead of using only comparative and superlative Words, and intellectual Arguments, I have taken the course (as a Specimen of the Political Arithmetick I have long aimed at) to express my self in Terms of *Number, Weight, or Measure*; to use only Arguments of Sense, and to consider only such Causes, as have visible Foundations in Nature....⁶⁹⁹

Clearly his aim was towards the discovery of a universal truth to be revealed through nature, a clear indication of the correctness of a political situation. His method was less descriptive choosing to employ numbers, weights and measures instead.

Although he did not employ tables in his discussion, Petty was just as mathematically inclined as Graunt and used numerical information to establish the truth. Petty's methodology made use of a greater range of sources but analysed them as a static picture. Graunt was more concerned with trends over time and detailed analyses of single sources in depth. While Petty took a much broader, more static approach to the subject analysing the picture as it was through a range of sources and wide-ranging comparisons of nations and empires in competition: Britain, France and the Netherlands. Both his and Graunt's brand of Political Arithmetic were hugely influential on scholars and interested amateurs from the moment they were published and well into the eighteenth century.

The next 'generation' of Political Arithmeticians that helped in the development of the quantifying spirit in Britain during the eighteenth century, were Gregory King (1648-1712), Charles Davenant (1656-1714) and Edmund Halley (1656-1742). All were active around the turn of the eighteenth century and were influential in the development of Political Arithmetic and statistical thought in Britain.⁷⁰⁰ These three men published works relating to, or influenced by, Political Arithmetic around the end of the 1690s. Davenant's *Discourse on the Publick Revenues*,

⁶⁹⁹ Ibid, Preface (a-3).

⁷⁰⁰ C.f. David R. Bellhouse, 'A New Look at Halley's Life Tables', *Journal of the Royal Statistical Society. Series A (Statistics in Society)*, 174/3, (2011), pp.823-832; G. Herberton Evans Jr., 'The Law of Demand – The Roles of Gregory King and Charles Davenant', *The Quarterly Journal of Economics*, 81/3, (1967), pp.483-492; Paul Slack, 'Measuring National Wealth in Seventeenth-Century England', *The Economic History Review*, 57/4, (2004), pp.607-635; D.V. Glass, 'Gregory King's Estimate of the Population of England and Wales, 1695', *Population Studies*, 3/4, (1950), pp.338-374; Seiichiro Ito, 'Charles Davenant's Politics and Political Arithmetic', *History of Economic Ideas*, 13/1, (2005), pp.9-36; D. Waddell, 'Charles Davenant (1656-1714)-A Biographical Sketch', *The Economic History Review, New Series*, 11/2, (1958), pp.279-288; John A Taylor, *British Empiricism and Early Political Economy: Gregory King's 1696 Estimates of National Wealth and Population* (Westport, CT: Greenwood Publishing Group, 2005).

and on the Trade of England was published in 1698, King's *Natural and Political Observations and Conclusions* in 1696 and Halley's *An Estimate of the Degrees of Mortality of Mankind* in 1693.

The latter proved to be the most influential work to come out of this next 'generation'.⁷⁰¹ He published his essay in the journal *Philosophical Transactions*, an arm of the Royal Society.⁷⁰² Halley, as opposed to the early Political Arithmeticians, was more mathematically minded in his methodology and his motivations were more economic than political. Even the name '*An Estimate of the Degrees of the Mortality of Mankind, drawn from curious Tables of the Births and Funerals at the City of Breslaw; with an Attempt to ascertain the Price of Annuities upon Lives*', indicates the nature of Halley's work as one concerned with both mathematics and economics.⁷⁰³

Halley's decision to publish on the subject was the failure of the British government to establish an annuities scheme in 1692.⁷⁰⁴ Indeed, throughout the seventeenth century the idea of annuities had become a Europe-wide discussion that fascinated and engaged scientists, mathematicians and politicians alike.⁷⁰⁵ Thus, Halley indicated that while he was indebted to his predecessors Petty and Graunt their work was flawed in dealing with the bills of mortality, a key source in the calculation of annuities, due to the unstable nature of population growth.⁷⁰⁶ This led Halley to analyse the bills of mortality of Breslau and compare them with the number of births over a five year period.⁷⁰⁷ From these figures, Halley drew up a detailed table that he calculated using his comparative method illustrating the number of people at a certain age at a certain time.⁷⁰⁸ His interest in Breslau stemmed from two places, firstly, Halley's interest in the annuity scheme enacted by the British government in 1692.⁷⁰⁹ Secondly, Breslau would be an ideal testing ground to correct the Petty and Graunt's incorrect population calculations because unlike London, where

⁷⁰¹ Hacking, *The Emergence of Probability*, p.120. He notes that the tables were particularly influential on the French mathematician Abraham De Moivre (1667-1754).

⁷⁰² Bellhouse, 'A New Look at Halley's Life Tables', p.823.

⁷⁰³ Such as the attempt to calculate Annuities which John de Witt had tried in Holland in 1671. C.f. Hacking, *The Emergence of Probability*, pp.111-121.

⁷⁰⁴ Hacking, *The Emergence of Probability*, p.113.

⁷⁰⁵ *Ibid*, pp.111-121.

⁷⁰⁶ Edmond Halley, 'An Estimate of the Degrees of the Mortality of Mankind, Drawn from Curious Tables of the Births and Funerals at the City of Breslaw: With an Attempt to Ascertain the Price of Annuities upon Lives. By Mr E. Halley, R.S.S.', *Philosophical Transactions (1683-1775)*, 17, (1693), pp.596-610, here pp.596-597.

⁷⁰⁷ *Ibid*, p.597.

⁷⁰⁸ *Ibid*, p.600.

⁷⁰⁹ Hacking, *The Emergence of Probability*, p.120.

Graunt had carried out his calculations, Breslau was a city that did not have a constant influx of immigration.⁷¹⁰ Halley needed a stable population to prove that his measurements could work.⁷¹¹

This interest meant the article was more focused on the mathematical and economic. He demonstrated that using probability it would be possible to calculate annuities, the chance of living and dying at certain ages and how to calculate the value of a life from such a figure.⁷¹² His work was based on the use of logarithms and probability (or chance as Halley puts it).⁷¹³ It remained a standard work on the calculation of mortality rates in Britain for the next eighty years.⁷¹⁴ It highlighted how statistics could be turned not just to political themes but economic and social ones as well. While Halley did not discuss the social ramifications of his work there does seem to have been some implicit moral undercurrent to his work. A striking example is his conclusion where he discusses a better standard for cities and even notes the improvement of air quality and infant mortality.⁷¹⁵ It is not a main theme, however, there was still something there, something that seems to have permeated the being of statistical thought, the possibility that it could be turned towards more than just economic or political use.

Men like Halley set the foundations for the long-term evolution of statistical thought in Britain and in Europe. He shaped the practice of Political Arithmetic through the eighteenth century beginning this journey to modern statistics. However, the development of statistical thought throughout the eighteenth century was often thought to be non-existent after 1714 only to be picked up at the end of the century.⁷¹⁶

This has been reconsidered by Joanna Innes in *Inferior Politics* where she argues that a new narrative must be implemented where the early- and mid-eighteenth century were lively battlegrounds in the history of statistical thought.⁷¹⁷ She traces two lines in this development: first, the statistics of power and politics, and second, that of social improvement.⁷¹⁸ Innes argues that social improvement in the eighteenth century revolved around ‘happiness’, meaning integration into a powerful social body. While Innes conceptualises the statistics of power as a hunger for

⁷¹⁰ Allan Chapman, ‘Edmond Halley’s Use of Historical Evidence in the Advancement of Science’, *Notes and Records of the Royal Society of London*, 48/2, (1994), pp.167-191, here p.174.

⁷¹¹ Chapman, ‘Edmond Halley’s Use of Historical Evidence in the Advancement of Science’, p.174.

⁷¹² Halley, ‘An Estimate of the Degrees of the Mortality of Mankind’, pp.602-610.

⁷¹³ *Ibid*, pp.602-603, 609.

⁷¹⁴ Hacking, *The Emergence of Probability*, p.120.

⁷¹⁵ Halley, ‘An Estimate of the Degrees of the Mortality of Mankind’, p.610.

⁷¹⁶ Innes, *Inferior Politics*, pp.109-110.

⁷¹⁷ *Ibid*, pp.109-175.

⁷¹⁸ *Ibid*, pp.111-113.

national data to better control society, her argument focuses on the growing quantifying spirit in the eighteenth century and the desire to collect, categorise and understand.⁷¹⁹ This ‘quantifying spirit’ has only recently been recognised in the history of statistics, especially in the developments of Political Arithmetic in the eighteenth century.⁷²⁰ But, although this ‘quantifying spirit’ pervaded the century it has only been analysed as a national phenomenon or focused solely on the ideas and their influence.⁷²¹ Instead, this quantifying spirit and the evolution of statistics must be seen through a transnational lens, furthering its scope and analysing its circulations and the connections it made. Through figures like Sinclair a new narrative of statistical evolution can be built, focusing on how ideas and people circulated and the networks they created. First, however, it is instructive to analyse the works of some later eighteenth-century statistical thinkers in Britain, who paved the way for Sir John Sinclair’s blend of political and social statistics.

By the 1770s there was a spike in interest in the practice of statistical enquiry. This came after a relative dip in the mid-century which according to Innes was due to the lack of major European warfare.⁷²² The reinvigorated desire to collect and analyse data came about around the turn of the Seven Years’ War and the American Revolutionary War.⁷²³ There were other major factors in this ‘re-rise’ of statistical thinking. The surge in philanthropic and ‘humanitarian’ charity from the 1760s onward caused a rise in the desire to ‘police’ populations.⁷²⁴ This furthered the interest to understand populations and how to govern, bringing demography to the forefront, especially because of earlier Political Arithmeticians.⁷²⁵ Another important factor in this revival were debates concerning underpopulation in Britain, which was thought a worrying trend to be countered.⁷²⁶ Though no exact figures were known for the population of Britain debate raged during the mid-eighteenth century about how to counteract depopulation and underpopulation.⁷²⁷

⁷¹⁹ Ibid, pp.110-111.

⁷²⁰ Johannisson, ‘Society in Numbers’, in Frängsmyr, Heilbron, Rider (eds.), *The Quantifying Spirit in the 18th Century*, pp.348-350.

⁷²¹ C.f. Innes, *Inferior Politics*; Poovey, *A History*.

⁷²² Ibid, p.110.

⁷²³ Ibid, p.110. The link between the rise of statistics and wars and revolution warrants exploration in greater detail.

⁷²⁴ Donna T. Andrew, *Philanthropy and Police: London Charity in the Eighteenth Century* (Princeton: Princeton University Press, 2014), pp.3-7.

⁷²⁵ Julian Hoppit, ‘Political Arithmetic in Eighteenth-Century England’, *The Economic History Review, New Series*, 49/3, (1996), pp.516-540, here p.535.

⁷²⁶ Rusnock, *Vital Accounts*, pp.40, 179-212.

⁷²⁷ Ibid, pp.195-201.

Political Arithmeticians were eager to discover a universal multiplier to determine the population and even petitioned the government in the mid-century to enact a census.⁷²⁸

Additionally, these demographic debates and philanthropic drives can be connected to the discussions surrounding the national debt and levels of poverty.⁷²⁹ Considering that the national debt had risen from £74 million to £133 million between the Seven Years War and the American Revolution, and finally, to an unprecedented £245 million by 1783, debt, credit, and poverty had become major political topics.⁷³⁰ Further, the rise was affected by the new drive towards agricultural improvement that had infused the eighteenth century, especially the desire to improve the standards of farming across Britain.⁷³¹ Enlightenment ideas about progress gripped the agricultural sphere and while they had no particular effect in the long-run they greatly influenced the work of men like Sinclair and Young.⁷³² There were three key players in this ‘re-rise of statistics’ that will be analysed: Arthur Young (1741-1820), William Playfair (1759-1823), and Zimmermann.

Arthur Young was an influential agriculturalist, political economist and reformer, and a prolific publicist for his agricultural cause.⁷³³ He was an active member of the Board of Agriculture and travelled widely through Europe.⁷³⁴ His work was original not only for his prodigious output but also because it was based on quantifiable data.⁷³⁵ All of his writings were based on research that he carried out.⁷³⁶ Young was a part of the drive for agricultural improvement beginning in the 1770s.⁷³⁷ He was a key part of the distribution network of agricultural knowledge having founded two journals in which agriculturalists of the eighteenth century published key articles and held debates and discussions.⁷³⁸

⁷²⁸ Ibid, pp.195-201.

⁷²⁹ Hoppit, ‘Political Arithmetic’, p.535.

⁷³⁰ John Brewer, *The Sinews of Power: War, Money and the English State, 1688-1783* (London: Routledge, 1994), p.114.

⁷³¹ J. C. Gower, ‘Statistics and Agriculture’, *The Journal of the Royal Statistical Society. Series A (Statistics and Society)*, 151/1, (1988), pp.179-200, here pp.179-181; Peter M. Jones, *Agricultural Enlightenment: Knowledge, Technology and Nature, 1750-1840* (Oxford: University of Oxford Press, 2015), pp.1-14.

⁷³² Joel Mokyr, *The Enlightened Economy: An Economic History of Britain 1700-1850* (New Haven: Yale University Press, 2009), pp.171-172, 196.

⁷³³ G. E. Mingay, ‘Young, Arthur (1741–1820)’, *Oxford Dictionary of National Biography* (Oxford University Press, 2004); online edn, Jan 2015, <http://www.oxforddnb.com/view/article/30256>, [21 Aug 2017].

⁷³⁴ Mingay, ‘Young, Arthur (1741–1820)’.

⁷³⁵ Liam Brunt, ‘Rehabilitating Arthur Young’, *The Economic History Review*, 56/2, (2003), pp.265-299, here p.265.

⁷³⁶ Brunt, ‘Rehabilitating Arthur Young’, p.265.

⁷³⁷ Gower, ‘Statistics and Agriculture’, pp.179-181; Jones, *Agricultural Enlightenment*, p.73.

⁷³⁸ Mokyr, *The Enlightened Economy*, p.184.

A key part of his oeuvre was his *Political Arithmetic* published in 1774. From the outset, it is clear that Young placed his interests in the field of agriculture. Young intended for his work to set out observations he believed could further encourage better agricultural practice in the United Kingdom.⁷³⁹ He aimed to extend this collection to other European nations to determine how they could be served by imitating Britain.⁷⁴⁰

His methodological approach owed much to earlier Political Arithmeticians in his use of broad comparison. However, Young's methods seem less about tables, arithmetic and mathematics, and more about explanation, analysis and explication. His purpose was to highlight the circumstances which would encourage agriculture and the removal of obstacles to this particular goal.⁷⁴¹ This is not to say that his methods disregard the Political Arithmeticians altogether, as Young was not afraid to get his hands dirty with raw data and tabular illustrations. For example, his chapter on the prices of meat illuminates an active desire to use raw data to explain specific phenomena.⁷⁴² His quantitative approach made Young an influential figure in the evolution of statistical thought and its applications in the agricultural sphere. He was a major influence on Sinclair. The two corresponded with one another frequently as well as serving on the Agricultural Board together.⁷⁴³ His work was key for the development of an agricultural bent to the development of statistical thought.

William Playfair was primarily a Political Economist and his most important contribution to statistical thought was the invention of statistical graphs in 1786. These were first published in his work *The Commercial and Political Atlas*. The purpose of the Atlas was to illustrate the commercial health of the nation (Britain) in a manner that was accurate (see Figure 2).⁷⁴⁴ He used comparison much as earlier writers of Political Arithmetic had but his methodology was more original. He explained the aim of his new methodology in his Preface:

The advantageous and disadvantageous, the increasing and the decreasing branches of commerce, will be easily distinguished, and the rising or declining progress of the whole included at a view: And when we consider, *what we were, what we might have been, and what we one day probably*

⁷³⁹ Young, *Political Arithmetic*, pp.1-2.

⁷⁴⁰ Ibid, p.2.

⁷⁴¹ Ibid, p.4; 181.

⁷⁴² Ibid, pp.134-142.

⁷⁴³ Brunt, 'Rehabilitating Arthur Young', p.265.

⁷⁴⁴ William Playfair, *The Commercial and Political Atlas; A New Edition* (London: John Stockdale, 1787), pp.3-4.

must be, it is time to investigate with attention that chain of events, on the remaining links of which depends out national prosperity.⁷⁴⁵

Playfair linked the graphs explicitly with a political purpose, the desire to improve the country, but also with an ease and an accuracy of data presentation that has not yet been seen. Playfair's work and maps were a clear bridge to Adam Smith and the Political Economist.⁷⁴⁶

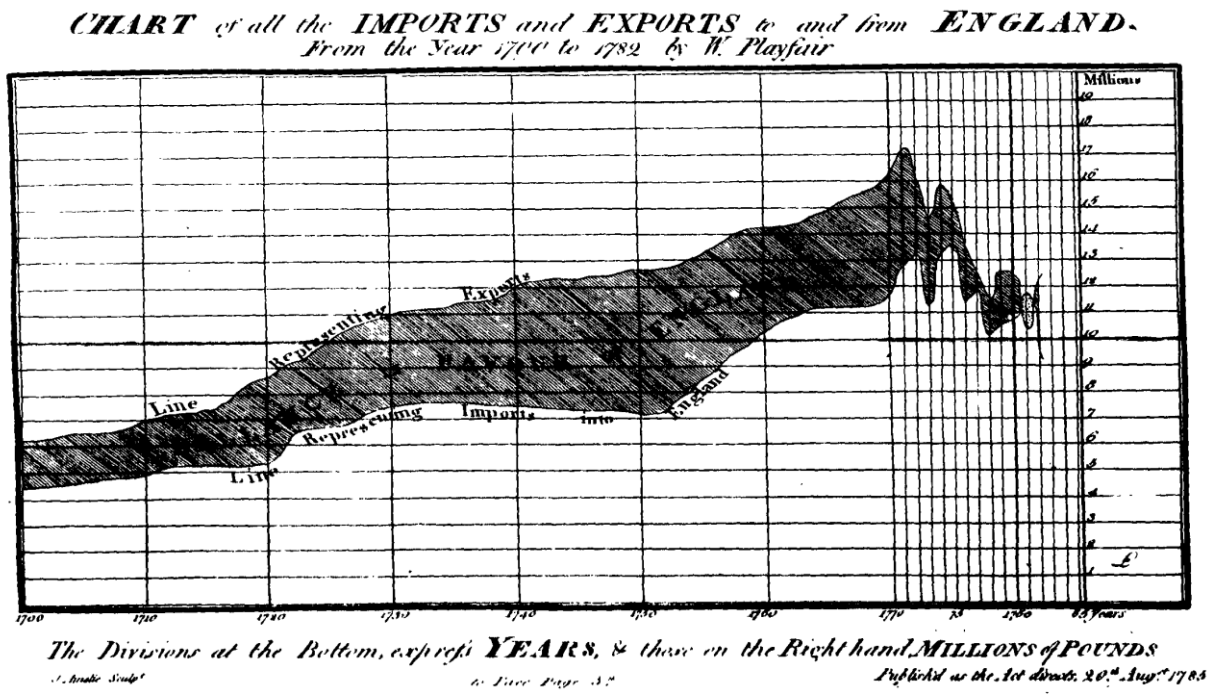


Figure 2: Chart of all the Imports and Exports to and from England from the year 1700 to 1782

Zimmermann, while likely not to be the first influence from abroad on British statistical thought, was the most important in the late eighteenth century. His major contribution was *A Political Survey of the Present State of Europe in Sixteen Tables* first published in 1787. The work

⁷⁴⁵ Playfair, *The Commercial and Political Atlas*, p.6.

⁷⁴⁶ C.f. Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (Oxford: Oxford University Press, 2008), pp.275-392, 393-464. Playfair edited the 'eleventh edition' of Smith's *Wealth of Nations* which he heavily embellished but Playfair always remained a faithful disciple. C.f. Emma Rothschild, *Economic Sentiments: Adam Smith, Condorcet, and the Enlightenment* (Cambridge, Mass: Harvard University Press, 2001), p.45.

was the first use of the words ‘statistics’ and ‘statistical’ in the English language.⁷⁴⁷ In terms of methodological development, a key aspect of Zimmermann’s work was the use of the German statistical tradition and its first application in the English language.⁷⁴⁸ It certainly had an influence on the statistical landscape, including Sinclair. Sinclair was well aware of Zimmermann’s work and it was a key influence and precursor to *The Account*. Sinclair went so far as to state the art of statistical information would not have been known in Britain had it not been for Zimmermann.⁷⁴⁹

The development of statistical thought through the seventeenth century to the 1780s formed the foundations of the intellectual milieu that made Sinclair’s thought possible. There was a duality existent in statistics where the mathematical was separate from descriptive and narrative analysis. The former may be considered the work of the Political Arithmeticians and the latter the German statistical tradition. In Britain, the duality existed in those who focused on the political and economic and those who focused on the social.⁷⁵⁰ While Innes argues that Sinclair is more a moral statistician than Political Arithmetician,⁷⁵¹ his work exhibits influence from both branches of statistical inquiry. The seventeenth and eighteenth century created an intellectual ferment that allowed Sinclair to explore statistical ideas from a variety of sources. He did not, as Hacking argues, remain a ‘secret bureaucrat’ for the British state.⁷⁵² Instead he was an active member of a transnational community that circulated and shared ideas and influences.

⁷⁴⁷ Zimmermann, *A Political Survey*, p.ii, v. C.f. G. Udny Yule, ‘The Introduction of the Words “Statistics”, “Statistical” into the English Language’, *Journal of the Royal Statistical Society*, 68/2, (1905), pp.391-396.

⁷⁴⁸ C.f. Zimmermann, *A Political Survey*.

⁷⁴⁹ Sinclair, *History*, p.lxvi.

⁷⁵⁰ Johannisson, ‘Society in Numbers’, in Frängsmyr, Heilbron, Rider (eds.), *The Quantifying Spirit in the 18th Century*, pp.348-350.

⁷⁵¹ C.f. Innes, *Inferior Politics*, pp.109-175.

⁷⁵² Hacking, *The Taming of Chance*, pp.16-26.

Chapter 6

The Life and Times of the Statistical Sir John: A Comparative Analysis of Sinclair's Travels with the Travels of Arthur Young and Thomas Malthus

Sir John Sinclair was born on the 10th May 1754 in Caithness, son of George Sinclair of Ulbster and Lady Janet Sutherland.⁷⁵³ By the time Sinclair inherited his father's estate it was in a promising financial position. It was a large estate comprising a quarter of the county of Caithness in which the parliamentary voting rights were held and with the patronage of five parish churches and landed propriety for land of more than £100 Scots in rent.⁷⁵⁴ He inherited his father's estate at the age of sixteen which earned him £3000 a year. In 1776 he married Sarah Maitland the daughter of London merchant gaining a dowry of £9000.⁷⁵⁵ Sinclair was educated at the Universities of Edinburgh, Glasgow and Oxford and was called to the bar in 1782 but never practiced English or Scots law.⁷⁵⁶

In 1780 Sinclair was voted in as the Member of Parliament for Caithness and began his near three-decade long career in British politics.⁷⁵⁷ It was distinguished by a great deal of pamphleteering and petitioning, political intrigue, and a passion on nearly every subject relating to the wellbeing of the nation.⁷⁵⁸ But his speciality was agriculture. Like Young, he was closely linked to the improvement of agriculture to aid the rising urban populations and continue to feed the population at large during a period that saw the beginnings of industrialisation.⁷⁵⁹

One of his greatest achievements was the establishment of the Board of Agriculture under William Pitt the Younger in 1793.⁷⁶⁰ He was granted the presidency of the Board and Arthur Young became its secretary.⁷⁶¹ For Sinclair the Board was a platform to help better the life of the people in Britain, it performed censuses and other functions in an effort to spur agricultural improvement in general.⁷⁶² It could also be linked to the 'Agricultural Revolution' of the

⁷⁵³ Mitchison, *Agricultural Sir John*, pp.19-21.

⁷⁵⁴ Mitchison, *Agricultural Sir John*, p.19; Rosalind Mitchison, 'Sinclair, Sir John, first baronet (1754–1835)', *Oxford Dictionary of National Biography* (Oxford University Press, 2004); online edn, Jan 2015, <http://www.oxforddnb.com/view/article/25627>, [14 Nov 2015].

⁷⁵⁵ Mitchison, 'Sinclair, Sir John, first baronet (1754–1835)'.

⁷⁵⁶ *Ibid.*

⁷⁵⁷ Mitchison, *Agricultural Sir John*, p.33.

⁷⁵⁸ Mitchison, 'Sinclair, Sir John, first baronet (1754–1835)'.

⁷⁵⁹ Gower, 'Statistics and Agriculture', pp.180-181. The improvement of agricultural productivity was key to early industrialisation and the Board became part of this trend. C.f. E. A. Wrigley, *Poverty, Progress, Population* (Cambridge: Cambridge University Press, 2004), pp.35-38.

⁷⁶⁰ Mitchison, 'Sinclair, Sir John, first baronet (1754–1835)'.

⁷⁶¹ *Ibid.*; Mokyr, *The Enlightened Economy*, p.184.

⁷⁶² Gower, 'Statistics and Agriculture', pp.180-181.

eighteenth and nineteenth century that Robert Allen associates with early industrialisation in Britain.⁷⁶³ Its functions were far-ranging, agriculturally speaking, and it was a slight success, especially in the collection of detailed agricultural records for several English counties.⁷⁶⁴ The Board was a crucial aspect of solidifying the agricultural voice of farmers in Britain and helped put the agricultural cause on the map for the rest of the nineteenth century.⁷⁶⁵ One of its principle aims, as Peter Jones points out, was the free and open transfer of agricultural knowledge, a motivation that was of Sinclair's making.⁷⁶⁶

One of his great passions was philanthropy. This was illustrated through a desire to improve public health, the fact he served on many committees that supported development and his continued use of personal funds for the good of public welfare.⁷⁶⁷ Sinclair's political career would extend from 1780 to 1811, when it was cut, abruptly, short due to bankruptcy. However, he continued to write on various subjects up until his death in 1835.⁷⁶⁸

Sinclair's political career was, however, punctuated in another way in its earliest stages. On 15th May 1785 his first wife died leaving him grief stricken and distraught. Not knowing what to do Sinclair left parliament, writing to Pitt the Younger that "A very melancholy domestic incident *of the most trying nature*" would prevent him from attending the session of the House.⁷⁶⁹ The death of his wife changed his life significantly and he felt a life of party politics was no longer a viable career path.⁷⁷⁰ He felt restless and needed to occupy his mind. He decided to travel and, on his travels, collect 'useful knowledge' for the betterment of mankind.⁷⁷¹ Sinclair's travels would imbue him with a breadth of information and ideas that would mark the beginning of the happiest, most prolific and creative periods of his life.⁷⁷² It was during this period that his interest in statistics flourished and the leviathan *Statistical Account* was published. His foreign tour, through Eastern and Northern Europe, helped reinvigorate Sinclair. It introduced him to a host of new ideas and was his gateway to a new beginning.

⁷⁶³ Robert C. Allen, *The British Industrial Revolution in Global Perspective* (Cambridge: Cambridge University Press, 2009), pp.57-79.

⁷⁶⁴ Mitchison, *Agricultural Sir John*, pp.137-158. This gives a full description of the Board's workings.

⁷⁶⁵ Mokyr, *The Enlightened Economy*, p.184.

⁷⁶⁶ Jones, *Agricultural Enlightenment*, pp.57-58.

⁷⁶⁷ Mitchison, 'Sinclair, Sir John, first baronet (1754–1835)'.

⁷⁶⁸ *Ibid.*

⁷⁶⁹ Mitchison, *Agricultural Sir John*, p.52. Emphasis in the original.

⁷⁷⁰ *Ibid.*, p.53.

⁷⁷¹ *Ibid.*, p.53.

⁷⁷² Mitchison, 'Sinclair, Sir John, first baronet (1754–1835)'.

The route through Northern and Eastern Europe may have been chosen for numerous reasons. Scandinavia and Eastern Europe were becoming popular destinations as places of ethnographic study and discovery of the alleged barbarism at Europe's peripheries.⁷⁷³ The Enlightenment's curiosity with the northern wildernesses attracted travellers in the eighteenth century, especially to places like Scandinavia.⁷⁷⁴ There was also a pervasive attitude of discovery to travelling to places that were considered remote and barbarous, especially Russia and Norway.⁷⁷⁵ The necessity of novelty in travel and travel research seems to have fed into this new northern desire, and Scandinavia held this in droves.⁷⁷⁶ While Sinclair did not leave any documentation revealing the reasons he chose this route, its stated intentions and his intellectual output following the journey correlate with Enlightenment ideas of curiosity and social research through travel.

Sinclair was certainly influenced by novelty but his travels were principally undertaken for the want of 'useful knowledge'.⁷⁷⁷ Moreover, Scandinavia appears to have been an interesting prospect due to the close economic ties it shared with Scotland.⁷⁷⁸ Sinclair may have found it easier to travel there because of these links forged by the merchant classes of both places.⁷⁷⁹ Additionally, the perceived backwardness interspersed with signs of progress in the economic sphere and the sparsity of the population could possibly have been of interest to Sinclair and other travellers due to the similarities between the two nations.⁷⁸⁰ Dolan suggests that travel to Scandinavia and northern Europe, possibly even in Sinclair's case, was a way to measure civilisation and its progression.⁷⁸¹ However, Scotland had gone through a vast transformation in the eighteenth century, especially since the Treaty of Union in 1707, and there had been widespread population growth and mass urbanisation. Forms of industrialisation and agricultural improvements had been

⁷⁷³ Wolff, *Inventing Eastern Europe*, pp.1-17; Dolan, *Exploring European Frontiers*, pp.7-15.

⁷⁷⁴ Stagl, *Curiosity*, pp.1-7; H. Arnold Barton, 'Iter Scandinavicum: Foreign Travelers' views of the Late Eighteenth-Century North', *Scandinavian Studies*, 68/1, (1996), pp.1-18, here pp.1-2.

⁷⁷⁵ Wolff, *Inventing Eastern Europe*, pp.6-7; Barton, 'The Discovery of Norway Abroad, 1760-1905', pp.25-37.

⁷⁷⁶ H. Arnold Barton, *Northern Arcadia: Foreign Travel in Scandinavia, 1765-1815* (Carbondale: Southern Illinois University Press, 1998), p.4.

⁷⁷⁷ Mitchison, *Agricultural Sir John*, pp.53-56. He does not define this concept but according to Mitchison it relates to any information from the political, economic, industrial, agricultural, military to the scientific. He did not seem interested in the natural world or the natural sciences.

⁷⁷⁸ David Allan, *Scotland in the Eighteenth Century: Union and Enlightenment* (Harlow: Longman, 2002), pp.100, 166.

⁷⁷⁹ Allan, *Scotland in the Eighteenth Century*, p.166.

⁷⁸⁰ C.f. Barton, *Northern Arcadia*, pp.76-77; Allan, *Scotland in the Eighteenth Century*, pp.81-126.

⁷⁸¹ Dolan, *Exploring European Frontiers*, pp.68-70.

implemented leading Scotland to new advancements and standards of life.⁷⁸² All this was in contrast to Scandinavia. Therefore, the rapid advancement of Scotland combined with the resulting desire for progress and improvement of society by looking beyond one's borders could have proved to be a compelling reason for Sinclair to search for 'useful knowledge' in areas like Scandinavia and Eastern Europe. Comparison had formed the backbone of agricultural Political Arithmetic and Sinclair could have been seeking appropriate case studies.

As he travelled through Europe in 1786 and 1787 Sinclair was infected with the statistical bug and developed a pan-European network of contacts that would aid his later statistical development. It was this influence that shaped his future work on the subject and made him a central figure in the evolution of statistical thought. In this way, the development of statistical thought was transnational in nature, working beyond state borders, and travel was key. A comparison of Sinclair's journey to those of his contemporaries Thomas Malthus and Arthur Young illustrates how travel helped shape the ideas of late eighteenth-century British statisticians.

But, in the course of a very extensive tour, through the northern parts of Europe, which I happened to take in 1786, I found, that in Germany they were engaged in a species of political inquiry, to which they had given the name of *Statistics*....⁷⁸³

Sinclair introduced his reader to the briefest history of the origin of his statistics both as theory and term. He indicated that in Germany they used the word to mean an inquiry into the strength of a country or questions respecting to matters of state.⁷⁸⁴ Sinclair was succinct and to the point. His definition of *statistics* is left to a half sentence a throw away comment about its original meaning and a short explanation of his own theories. In characteristic abruptness he birthed his variant of statistics into the English language:

the idea I annex to the term, is an inquiry into the state of a country, *for the purpose of ascertaining the quantum of happiness enjoyed by its inhabitants, and the means of its future improvement*....⁷⁸⁵

This was one of the most crucial ideas he brought back and one that is so undervalued. It is, therefore, essential to plot out Sinclair's route to fully appreciate where these influences came from and how his statistical network began to develop. Sinclair was clear on the origin of statistics, the German lands, but beyond this he was rather more enigmatic. Even his modern biographer,

⁷⁸² Allan, *Scotland in the Eighteenth Century*, pp.81-126.

⁷⁸³ Sinclair, *History*, p.v.

⁷⁸⁴ *Ibid*, p.v.

⁷⁸⁵ *Ibid*, p.v.

Rosalind Mitchison, is forced to regurgitate Sinclair verbatim to explain the origins of his statistical thought adding only that he did conflate German statistics with his own ideas.⁷⁸⁶ A rather more straightforward explanation of what influenced Sinclair's statistics is given by R. L. Plackett. He asserts that Sinclair was, during his travels, greatly affected by the 'Göttingen statistical school' and their concept of 'Statistik'.⁷⁸⁷ However, Sinclair remained coy and the full extent of his influences can only be reconstructed rather than explicitly listed. To trace these, it is best to analyse his European extensive tour to pinpoint influences and trace the beginnings of Sir John's statistical thought and network.

Helpfully, Sinclair circulated an abstract of his journey to his friends (see Figure 3).⁷⁸⁸ This document lays out his exact route including dates of arrival, indeed, Sinclair was a meticulous planner and wished to fix his journey to an exact schedule.⁷⁸⁹ In the seven months, from May 1786 to January 1787, Sinclair travelled first to Gothenburg in Sweden, then to Copenhagen, Stockholm, Riga, St Petersburg, Moscow, Kiev, Warsaw, Vienna, Berlin, Amsterdam, Brussels and, finally, Paris.⁷⁹⁰ According to all accounts Sinclair was a diligent and well-organised traveller.⁷⁹¹ This is evidenced in an earlier manuscript of a trip from Highgate to Edinburgh in 1778.⁷⁹² Here, he meticulously recorded every expense and item he planned to take.⁷⁹³ While no such record exists for his travels across Europe, it seems highly likely that such an organised man would have prepared something of this nature.⁷⁹⁴

⁷⁸⁶ Mitchison. *Agricultural Sir John*, p.121.

⁷⁸⁷ Plackett, 'The Old Statistical Account', p.248.

⁷⁸⁸ M.S. P65/1 – *Sketch of Sir John Sinclair's Travels through the Northern Part of Europe*. 1830. [North Highland Archive].

⁷⁸⁹ Mitchison, *Agricultural Sir John*, pp.53-55; Sir John Sinclair, *The correspondence of the Right Honourable Sir John Sinclair, Bart. : with reminiscences of the most distinguished characters who have appeared in Great Britain, and in foreign countries, during the last fifty years : illustrated by facsimiles of two hund.* Volume 1. (London, 1831), pp.xxxii-xxxiii.

⁷⁹⁰ For an introduction to British travel and the Grand Tour in the eighteenth century, c.f. Jeremy Black, *The British and the Grand Tour* (London: Croom Helm, 1985). However, Sinclair's route differs significantly, especially as its focus is on the north and east of Europe. For this Barton, *Northern Arcadia*, is an excellent introduction.

⁷⁹¹ Sir John Sinclair, *Memoirs of the life and works of the late Right Honourable Sir John Sinclair, Bart.* Volume 1. (Edinburgh, 1837), pp.133-135.

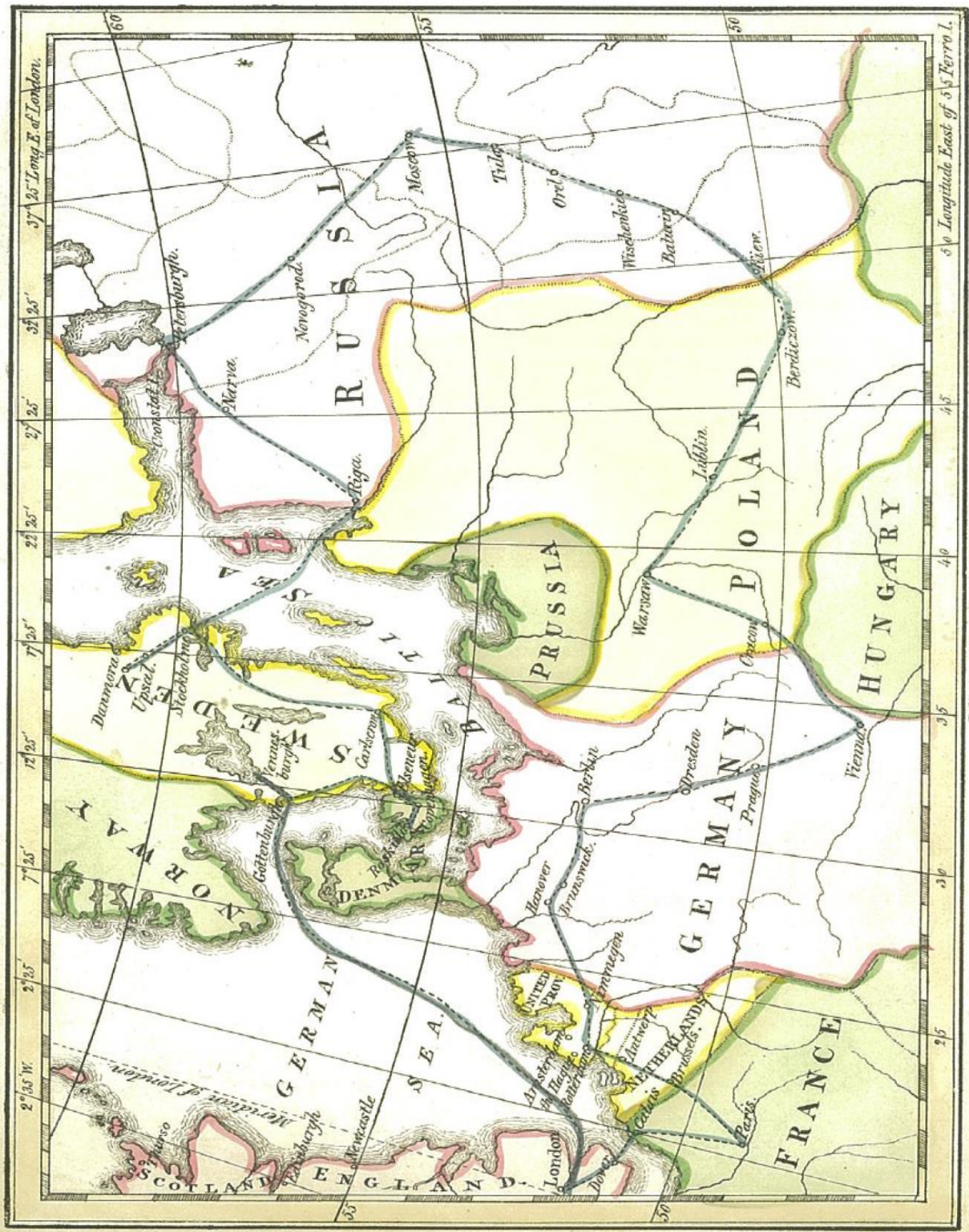
⁷⁹² M.S. RH4/49/1 Sir John Sinclair, *Volume I: 'Correspondence of the Rt Hon Sir John Sinclair, Bart, Folio 1.* 1778. [National Records of Scotland, hereafter shortened to NRS].

⁷⁹³ *Ibid.*

⁷⁹⁴ Indeed, many eighteenth-century travellers were well organised in their travels as has been shown by Bernhard Struck, *Nicht West - nicht Ost: Frankreich und Polen in der Wahrnehmung deutscher Reisender zwischen 1750 und 1850* (Göttingen: Wallstein Verlag, 2006), pp.127-139.

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SKETCH
of SIR JOHN SINCLAIR'S JOURNEY through the Northern Parts of EUROPE.



Buller's Lithog. Terrace, Edin: 1830.

Figure 3: Sketch of Sir John Sinclair's Journey through the Northern Parts of Europe (1830)

Sinclair set out “with an impression, which every traveller ought to cultivate, that in all countries a man of sense will discover something useful...”⁷⁹⁵ The breadth and scope of Sinclair’s journey certainly reflects this aim. A key aspect of this journey was the cultivation of ideas regarding agriculture, industry, politics and ‘useful information’.⁷⁹⁶ His travels do not fit into Jeremy Black’s concept of identity creation and tourism that occurred on the Grand Tour to France or Italy.⁷⁹⁷ Instead his purpose is much more in line with Stagl’s understanding of curiosity of the traveller and early social research.⁷⁹⁸ It could be argued that Sinclair fits into this model of the ‘pre-disciplinary’ social scientist that characterises the rise of sociology.⁷⁹⁹

Sinclair’s journey was planned with such meticulous care and effort that he went with over one hundred letters of recommendation and gifts for those he met.⁸⁰⁰ Additionally, he carried with him questionnaires to gain more information ranging from finances to military matters to agriculture and industry.⁸⁰¹ His route allowed him to see both large population centres as well as the agricultural and industrial heartlands of Europe. His journey did not leave him disappointed as it opened for him a wide network of contacts as well as a wealth of information.⁸⁰²

The pamphlet *General Observations Regarding the Present State of the Kingdom of Denmark* published during his travels demonstrates the sort of information Sinclair was hoping to obtain. It is primarily concerned with the political, military and commercial state of Denmark.⁸⁰³ Comparison between other countries that Sinclair visited, particularly Sweden, was crucial to the makeup of the work.⁸⁰⁴ There was explicit comparison of the political and military systems of the Danes, Swedes, and Norwegians.⁸⁰⁵ While not explicitly attached to statistics it is linked to the concept of Political Arithmetic and to some extent Political Economy which shaped his statistical thought.⁸⁰⁶ His definition of statistics, as a method by which to improve the happiness of a nation,

⁷⁹⁵ Sinclair, *Memoirs*, Volume 1, p.134.

⁷⁹⁶ *Ibid.* p.134.

⁷⁹⁷ Jeremy Black, *France and the Grand Tour* (Basingstoke: Palgrave Macmillan, 2003), pp.1-6.

⁷⁹⁸ Stagl, *Curiosity*, pp.1-7.

⁷⁹⁹ Heilbron, *The Rise of Social Theory*, pp.11-15.

⁸⁰⁰ Mitchison, *Agricultural Sir John*, p.55.

⁸⁰¹ *Ibid.*, p.55. While Mitchison mentions these manuscript sources they have proved impossible to track down. She does not use a formal system, instead imposing her own system on Sinclair’s material.

⁸⁰² *Ibid.*, p.57.

⁸⁰³ Sir John Sinclair, *General Observations Regarding the Present State of the Kingdom of Denmark: Drawn up in the Course of a Tour Made Anno 1786* (London[?]: 1786), pp.12-15.

⁸⁰⁴ *Ibid.*, pp.10-11.

⁸⁰⁵ *Ibid.*, pp.10-11.

⁸⁰⁶ C.f. Sinclair, *History*, p.v; Sir John Sinclair. *Memoirs of the life and works of the late Right Honourable Sir John Sinclair, Bart*, Volume 2 (Edinburgh, 1837), p.1.

was, in parts, implicitly tied to the ideas of political economists.⁸⁰⁷ It is aligned closely with Dugald Stewart's (1753-1828) definition of Political Economy as speculation upon the happiness of political society and the ways in which it could be improved.⁸⁰⁸ However, for Sinclair the emphasis was not economic but more general, which supports the idea that Sinclair was searching for case studies and comparisons. This pamphlet highlights some of the influences Sinclair was open to and how they related to his future conception of statistics.

While on his travels Sinclair met many influential European figures with whom he entered into correspondence, which formed the basis of his transnational statistical network.⁸⁰⁹ Sinclair gained contacts in every country he visited. He made the acquaintance of the Orloff family in Russia, Mirabeau in France, Count von Hertzberg in Prussia and Count Zinzendorf in Austria.⁸¹⁰ In fact the second volume of his printed correspondence illustrates the extent of Sinclair's European network, which stretched from Denmark to Norway to Russia to Austria to Poland to Holland to France.⁸¹¹

Sinclair's time in Prussia and exposure to *Statistik* was an important part of his statistical development. He was impressed by Prussia going so far as to call it the best place he ever visited and was struck by the political powers of Frederick and his minister, Count von Hertzberg.⁸¹² He and Sinclair formed a close relationship during the latter's time in the country and they remained in contact, especially on statistical matters. So much did Hertzberg respect Sinclair that he sent him books on statistics to garner his opinion.⁸¹³ The concept of statistics had been prevalent in Prussia for a long time having spread from the University of Göttingen. Indeed, Schlözer was in correspondence with Hertzberg and they often discussed statistical matters.⁸¹⁴ This illustrates the

⁸⁰⁷ C.f. John Robertson, 'The Enlightenment above National Context: Political Economy in Eighteenth-Century Scotland and Naples', *The Historical Journal*, 40/3, (1997), pp.667-697, here pp.675-684. Robertson argues that Political Economy was born out of a desire to protect the Scottish nation and its commercial aspects. This links into Sinclair's ideas about understanding and improving the nation, however, Sinclair did not understand Political Economy well, his work on the subject regurgitated ideas he found elsewhere. C.f. Winch, *Riches and Poverty* for a deeper explanation of the subject.

⁸⁰⁸ Collini, Winch, Burrow, *That Noble Science of Politics*, pp.37-38.

⁸⁰⁹ Sinclair, *The correspondence*, Volume 1, p.xxxiii.

⁸¹⁰ Mitchison, *Agricultural Sir John*, p.57.

⁸¹¹ Sir John Sinclair, *The correspondence of the Right Honourable Sir John Sinclair, Bart. : with reminiscences of the most distinguished characters who have appeared in Great Britain, and in foreign countries, during the last fifty years : illustrated by facsimiles of two hund.* Volume 2 (London, 1831), pp.v-xi.

⁸¹² Sinclair, *The correspondence*, Volume 2, p.329.

⁸¹³ *Ibid*, p.342.

⁸¹⁴ There is no evidence that Sinclair and Schlözer communicated directly, through Hertzberg's recommendation or otherwise.

formation of a larger, more fluid epistemic community that both Sinclair and Schlözer were connected to.

While Sinclair did not indicate any direct interaction with these figures or the University itself, it is extremely unlikely that he would not have encountered their philosophies during his stay in Germany. He did, however, visit Braunschweig where Zimmermann taught. While it is only conjectural it is possible that he met Zimmermann there and formed a connection as he maintained a correspondence with him after his journey.

A point of comparison for Sinclair's journey are the travels of two contemporaries, both of whom belonged to Sinclair's correspondence network and who travelled for similar reasons: the acquisition of knowledge. Thomas Malthus (1766-1834) and Arthur Young (1741-1820) both had influence on the development of statistical thought, and both travelled as a method of obtaining information.⁸¹⁵ Arthur Young's travels were roughly contemporaneous with Sinclair's. However, Young took France as the subject of his exploration travelling there between 1787 and 1789.⁸¹⁶ Thomas Malthus undertook his foreign tour in 1799 to Scandinavia (Denmark, Norway and western Sweden).⁸¹⁷

Young's aim was similar to the thesis he had outlined in *Political Arithmetick*, he wanted to discover, quantitatively, the state of France, with special attention paid to agriculture.⁸¹⁸ His travels fit into what Peter Jones describes as 'Agronomic Travel' as he saw the political usefulness of travel in the diffusion and collection of 'useful knowledge' believing this to be an essential component in the improvement of agricultural knowledge.⁸¹⁹ This demonstrates the influence of the Political Arithmeticians, particularly Petty, on Young. Malthus' travel diary is harder to pin down. While he did use information gathered on his journey to inform his later writings,⁸²⁰ and referred to interests in manufacturing and religious establishments,⁸²¹ he did not explicitly state the intention of his travels. It is clear, however, that Malthus was on a fact-finding mission

⁸¹⁵ C.f. Barton, *Northern Arcadia* and Barton 'Iter Scandinavicum' as context for Malthus travels. He follows the Enlightenment tradition of travelling for curiosity and research to Scandinavia. Young's travels resemble the traditional Grand Tour route but not its purpose.

⁸¹⁶ C.f. Arthur Young, *Travels, During the Years 1788, 1788 and 1789* (Bury St Edmunds: J.Rackman, 1792).

⁸¹⁷ C.f. Thomas Malthus, *The Travel Diaries of T. R. Malthus*, Patricia James (ed.) (Cambridge: Cambridge University Press, 1966), p.29 for a complete map of his travels. Barton, *Northern Arcadia*, pp.1-6 argues the increase in the rise of travellers was for curiosity, information collection, and discovering the barbarous east.

⁸¹⁸ Young, *Travels*, pp.iii-v.

⁸¹⁹ Jones, *Agricultural Enlightenment*, pp.64-68.

⁸²⁰ C.f. Patricia James, 'Appendix 1' in *The Travel Diaries of T. R. Malthus*, pp.274-295, on the information from his travel diary Malthus uses for his chapter on Norway in his *Essay on the Principle of Population*.

⁸²¹ Malthus, *The Travel Diaries of T. R. Malthus*, p.24.

searching for evidence to support his theories from his first edition of *Essay on the Principle of Population* in 1798.⁸²² While this was not unusual for travellers the fact that all three set out with the specific goal of collecting information to inform their politics, agriculture, economics or demography is remarkable.⁸²³

Sinclair, unfortunately, does not appear to have kept his travel diary, instead he published his ‘travel account’ or impressions as part of his correspondence.⁸²⁴ Thus, it makes understanding his use of this material very tricky. Mitchison does, in the case of France, make brief stylistic comparisons between Young and Sinclair, noting that writing did not come easy to the latter, while the former had a precision in recording details that made it both lively and interesting.⁸²⁵ Sinclair’s reminiscences are usually presented as introductory remarks that frame letters he finds to be of some importance or from someone of importance. He presented his foreign correspondence “accompanied by a general view of my travels on the Continent.”⁸²⁶ There is, in Sinclair’s remarks and choices, a great deal of censure because it is a ‘general view’. For example, his notes regarding travels through Austria are succinct and short.⁸²⁷ Each section is limited to a brief bullet point paragraph containing what Sinclair felt was salient information, ending in miscellaneous hints for the would-be traveller.⁸²⁸ For example:

From Warsaw to Vienna was a journey of seven days. On the road I crossed a branch of the Carpathian Mountains, which, even at that season of the year, (about the middle of October), I found whitened with snow.⁸²⁹

Many of his anecdotes related to famous persons he met or was in correspondence with, such as Wenzel Anton, Prince of Kaunitz-Rietberg (1711-1794).⁸³⁰ Generalised observations about the political and societal state contained information more relevant to travellers than a budding statistical thinker.⁸³¹ He did give some information on population, land size, and on mineralogy,

⁸²² Patricia James, ‘Appendix 1’ in *The Travel Diaries of T. R. Malthus*, pp.274-295; Dudley Dillard, ‘Review: The Travel Diaries of Thomas Robert Malthus. By Thomas Robert Malthus; Patricia James; Lord Robbins’, *The Journal of Economic History*, 27/1, (1967), pp.122-123, here p.122.

⁸²³ C.f. Stagl, *Curiosity*; Wolff, *Inventing Eastern Europe*, pp.17-49.

⁸²⁴ C.f. Sinclair, *The correspondence*, Volume 2.

⁸²⁵ Mitchison, *Agricultural Sir John*, pp.57-58.

⁸²⁶ Sinclair, *The correspondence*, Volume 1, p.vi.

⁸²⁷ Sinclair, *The correspondence*, Volume 2, pp.305-316.

⁸²⁸ *Ibid*, p.316.

⁸²⁹ *Ibid*, p.306.

⁸³⁰ *Ibid*, pp.309-312.

⁸³¹ *Ibid*, pp.306-309.

providing the reader with a table of production.⁸³² But for a man so interested in agriculture he included surprisingly little information on the subject, if at all.

The methods he used to collect information were clearly different. Mitchison comments that Sinclair sent printed manuscript sources of his recollections of travel, copies of which went to Washington and Jefferson in the US, however, as ever, she does not record where these are located.⁸³³ It is possible that it formed part of their correspondence network and it is known that Sinclair sent Washington extracts and sections of his *Statistical Account*.⁸³⁴ Sinclair brought a great deal of ‘useful knowledge’ back with him, however, he did not maintain any clear record of what he brought back.⁸³⁵ His pamphlet on Denmark proves to be the exception. In fact, it demonstrates that Sinclair, unlike Malthus and Young, found his information and useful knowledge in his correspondence and the vast networks he set up.

Compared to the travel narratives of Young and Malthus a very different picture appears. Whereas Young actively published his diaries when he returned, Malthus left his unpublished but allowed them to circulate. Both their diaries and accounts reveal their ability to gather information from personal observation and acquaintances rather than the cultivation of a vast network of individual correspondence.

Both Young’s and Malthus’s narratives are full of ‘useful information’ which provided the raw material for their later works. Young split his travelogue into two sections the first comprised the standard narrative, the second detailed the state of French agriculture, industry, economy, society and politics.⁸³⁶ His scope was wide and he saw travel as a method of engaging in the circulation and collection of agricultural, political and social knowledge that could be utilised in Britain.⁸³⁷ His travels were also a testing ground for his theories about productivity and advancement in agriculture and society and he needed comparisons for the information he had collected in Ireland and Britain to back up these theories.⁸³⁸ Malthus’s work, however, reverts to

⁸³² Ibid, pp.306, 314.

⁸³³ Mitchison, *Agricultural Sir John*, p.57.

⁸³⁴ Sinclair, *The correspondence*, Volume 2, p.5.

⁸³⁵ Again, this concept is difficult to define in Sinclair’s case. It is possible to link it to Poovey’s understanding of the desire for empirical evidence, c.f. Poovey, *A History*, pxii-xv. Again, his ‘useful knowledge’ was eclectic and esoteric in its breadth and scope.

⁸³⁶ Young, *Travels*, pp.1-3.

⁸³⁷ Jones, *The Agricultural Enlightenment*, pp.66-67.

⁸³⁸ Robert C. Allen and Cormac Ó Gráda, ‘On the Road Again with Arthur Young: English, Irish, and French Agriculture during the Industrial Revolution’, *The Journal of Economic History*, 48/1, (1988), pp.93-116, here pp.93-94.

a more standard formula. His travels to Scandinavia were primarily undertaken as exercises in information gathering, specifically to obtain evidence for his theories on population and a chapter concerning Norway in his essays on population.⁸³⁹

Young's agricultural insights and research, compared to Sinclair's silence on the matter, are detailed and meticulous. The chapter "Of the Commerce of France" is as an illuminating example of this.⁸⁴⁰ Its depth and detail are more fastidious than Sinclair's published reminiscences. Young included tables of imports and manufactured goods in France from the most recent years adding his own brand of observations and expounding on themes that smack of Political Arithmetic and Political Economy.⁸⁴¹ Here it appears less like a travel narrative and more a polished work of Political Economy.⁸⁴² He treated everything from population to taxation to labour to matters of farming (such as land tenure and livestock) in the same manner. He attempted to systematise the information for specific ends.⁸⁴³

His talent for this is evident in his treatment of commerce which highlights his ability to present and analyse information. This included national comparisons with England in manufacture and trade.⁸⁴⁴ He displayed similar talents in his travel narrative, especially his eye for detail in the social realm. His description of the village of Tourbilly, for instance is a meticulous exposition of French society before the revolution.⁸⁴⁵ His discussion of the ruined chateau belonging to the Marquis de Tourbilly, the stagnant economy, the impoverished landed gentry and the state of the poor rural society is almost poetic.⁸⁴⁶ And while there was less detail he still gave a concise exposition of the state of agriculture, geography, and history in the village to paint a miserable picture indeed.⁸⁴⁷ Of course, there were weaknesses as Young was in parts lazy and stereotypical in the information collected. However, he presented a well-polished and insightful work, unlike Sinclair. Young presented raw data, information that could be used not just by himself but by others. Again, his work fits the pattern of Jones's 'Agronomic Travel' where information is

⁸³⁹ Patricia James, 'Appendix 1' in *The Travel Diaries of T. R. Malthus*, pp.274-295.

⁸⁴⁰ Young, *Travels*, pp.486-502.

⁸⁴¹ *Ibid*, pp.486-488, 483.

⁸⁴² C.f. Smith, *Wealth of Nations*, pp.379-392. This is Smith's chapter on the benefits of agriculture and its improvement and functions in his economic system. It would be interesting to compare Smith and Young

⁸⁴³ This is certainly not an average travel narrative as Carl Thompson defines the eighteenth-century genre. He states that travel writing had become either sentimental journeys or exploration narratives. Carl Thompson, *Travel Writing* (London: Routledge, 2011), pp.44-52.

⁸⁴⁴ Young, *Travels*, pp.501-502.

⁸⁴⁵ A village whose providence I cannot ascertain. C.f. Young, *Travels*, pp.93-95.

⁸⁴⁶ *Ibid*, pp.94-95.

⁸⁴⁷ *Ibid*, pp.93, 95.

collected for wide dissemination in the form of a travel narrative.⁸⁴⁸ His information was useful in an immediate sense or was published to appear this way. This differs from Sinclair whose ‘useful knowledge’ was utilised through reminiscences years after the event or in small political tracts like his pamphlet on Denmark.

Malthus’s unpublished diary was similar to Young’s. His travels were an attempt to collect evidence for the second edition of his *Essay on the Principle of Population*.⁸⁴⁹ James highlights how extracts of the diary were used to construct arguments on the sections on Norway in his *Essay*.⁸⁵⁰ Malthus was, thus, clearly in Scandinavia to collect practical information. For him, like many other travellers to Scandinavia, it was to prove a testing ground for civilisation due to its perceived backward nature during the eighteenth century.⁸⁵¹ Additionally, Scandinavia functioned as a place to examine whether the collection of raw data and empirical data would work to help the advancement of British society.⁸⁵² Further, Malthus explained that travelling to Norway would provide him with the evidence he needed to elucidate the ‘general argument’ of his essay on population because it had such good mechanisms for the control of its population.⁸⁵³

His material was gathered on the ground from observation and discussions with people. His narrative is both engaging and informative. He discussed far-reaching topics like the state of Norwegian mining, the richness of its contents, the poorness of their condition and the approximate value of mining.⁸⁵⁴ He analysed the state of agriculture and agricultural life around Christiana (now Oslo) as well as the Norwegian economy describing companies working out of Christiana, and various other aspects of its economy.⁸⁵⁵

Collecting information on the Norwegian population Malthus was particularly interested in state defined methods of population control whose principle method was a marriage license system whereby the parish priest was required to sign before it was valid.⁸⁵⁶ He also discussed the issue with a Count in Trondheim where he learned of a place where the population had grown

⁸⁴⁸ Jones, *Agricultural Enlightenment*, pp.66-67.

⁸⁴⁹ C.f. Patricia James, ‘Appendix 1’ in *The Travel Diaries of T. R. Malthus*, pp.274-295.

⁸⁵⁰ *Ibid*, p.274.

⁸⁵¹ Dolan, *Exploring European Frontiers*, p.70.

⁸⁵² *Ibid*, p.70.

⁸⁵³ Michael Drake, ‘Malthus on Norway’, *Population Studies*, 20/2, (1966), pp.175-196, here pp.175-176.

⁸⁵⁴ Malthus, *The Travel Diaries*, pp.111-112. The issue of trade, mining and assessing the values of mines was a topic with rising importance in the eighteenth century. C.f. Chris Evans and Göran Rydén (eds.) *Baltic Iron in the Atlantic World in the Eighteenth Century* (Leiden: Brill, 2007); Jakob Vogel, *Ein schillerndes Kristall: Eine Wissensgeschichte des Salzes zwischen Früher Neuzeit und Moderne* (Köln: Böhlau, 2007).

⁸⁵⁵ *Ibid*, pp.118-121.

⁸⁵⁶ *Ibid*, pp.89-92.

significantly and unchecked.⁸⁵⁷ Evidently Malthus relied on first hand observations. This clearly went far beyond the concept of curiosity in the alleged barbarous north,⁸⁵⁸ rather he set out in the hope of conducting research on a particular society.⁸⁵⁹ In contrast to Sinclair, Malthus provided more source detail and seemed to rely less on letter networks but rather observation. This, however, may be too simplistic a view, especially considering Sinclair did not leave a travel diary. Nevertheless, the fact that Sinclair's impressions were tied to his correspondence reveals a lot about the (lack of) value he attached to them.

This displays the significance of method in relation to the focus. Malthus recorded elements of conversations and details that provide enough information to illustrate broad arguments, backing them up with small amounts of evidence. Young, instead, presented his reader with detail. His work contained lots of quantitative information gleaned from his observations and discussions. He also collected a great deal of raw data, something Malthus and Sinclair did but only sparingly. Finally, Sinclair included his reminiscences in his printed correspondence. He placed his focus on his network. It highlights the variety of methods by which information was collected towards the end of the eighteenth century and how it was becoming more rigorous and quantitative. This comparison emphasises how important travel was to the collection of this data and ideas which would ultimately shape statistics.⁸⁶⁰ It is part of what Joel Mokyr has termed a 'knowledge revolution' that took place at the end of the eighteenth and throughout the nineteenth century.⁸⁶¹ These ideas, collected from all over Europe, began to be seen as important for their own sake, judged on their intrinsic value, not on where they had come from.⁸⁶² Thus, Sinclair, Malthus and Young demonstrate two things, first, that they found comparable information in different ways, two, that the information was becoming more abstract and detached from its place of origin.

⁸⁵⁷ Ibid, p.153.

⁸⁵⁸ Barton, 'Iter Scandinavicum', pp.2-3.

⁸⁵⁹ C.f. Stagl, *Curiosity*; Heilbron, *The Rise of Social Theory*.

⁸⁶⁰ Stagl, *Curiosity*, pp.1-47; Thompson, *Travel Writing*, pp.45-47.

⁸⁶¹ Joel Mokyr, *The Gifts of Athena: Historical Origins of the Knowledge Economy* (Princeton: University of Princeton Press, 2002), p.56.

⁸⁶² Mokyr, *The Gifts of Athena*, p.56.

Chapter 7

What's in a Network? The Influence of Sir John and the Evolution of Statistics

Sinclair's travels around Europe were pivotal in establishing his network of correspondence across the continent, an integral part of which was his statistical connections. Sinclair founded a vast transnational network that flowed throughout Europe and beyond, from Madeira to the USA to the Middle East. Its foundations were laid on his northern European Grand Tour. In this way Sinclair had a vast array of sources to draw upon not only for information but also for influence and ideas. Through his connections Sinclair was in turn able to influence the statistical thought of the time.

The source material available for Sinclair and his network of correspondence can be split into two main categories: first, the printed correspondence, made available and published by Sinclair during his own lifetime in two volumes.⁸⁶³ These volumes contain letters Sinclair received from various personalities in both Britain and the world. It was, of course, selective and heavily edited. Many letters from Europe do not seem to have survived in manuscript form. All have been edited by Sinclair and some are only excerpts. He declared his to give the widest breadth of correspondence possible,⁸⁶⁴ which allows the historian to explore a greater extent of Sinclair's network.

Second, are the copious manuscript sources left behind. These are held in several archives across the UK, mainly in Scotland. However, the most important source is the manuscript collection held by his family in Thurso, the *Sinclair of Ulbster Letter Books*.⁸⁶⁵ Not all pertains to Sinclair, only volumes I-V concern his letters. These again must be viewed with a critical eye as they were clearly kept for specific reasons, mainly because they were of interest to Sinclair but also because they illustrated an importance that Sinclair believed he had within the British political realm. Sinclair was selective in what he chose to keep and always with an eye to illustrate his own importance.

As his network survives only in letters and his own and others' reminiscences, defining it is tricky. It is necessary to find a method of analysing Sinclair's network that can encapsulate the eighteenth-century mode of letter writing and transfer of knowledge and information.⁸⁶⁶ These

⁸⁶³ Sinclair, *The correspondence*, Volume 1, 2.

⁸⁶⁴ Sinclair, *The correspondence*, Volume 1, pp.v-vii.

⁸⁶⁵ M.S. RH4/49/1 Sir John Sinclair, *Volume I-XVI: 'Correspondence of the Rt Hon Sir John Sinclair, Bart*, Folio 1. 1778. [NRS].

⁸⁶⁶ C.f. Goodman, *The Republic of Letters*; Lipphardt, and Ludwig, 'Knowledge Transfer and Science Transfer'; Mokyř, *The Gifts of Athena*.

networks did not exist within pre-defined borders but were more fluid, almost circulatory.⁸⁶⁷ They, as Saunier describes, flow like a river in which information, ideas, and connections interact.⁸⁶⁸

Haas's definition of an 'epistemic community' aptly describes Sinclair's network.⁸⁶⁹ The interesting aspect of this type community/network dynamic is the idea of shared knowledge and the development of expertise in a specific area amongst a body of individuals who are not necessarily tied to a single profession occupation.⁸⁷⁰ Each member shared an interest in statistics as a function of nation inquiry and the progress of mankind. Additionally, this community was engaged with Political Economy, Political Arithmetic, agriculture and commerce. The formation of such a community came out of both meeting these figures, which Sinclair mentioned as being a key function of his Grand Tour,⁸⁷¹ as well as the exchange of correspondence. It must be borne in mind that Haas's conception of an 'epistemic community' and its construction suits the twentieth-century model where these communities are more rigidly defined.⁸⁷²

Haas's concept is a supportive framework, however, Sinclair's network conforms more to the loose-knit structure presented by David Lux and Harold Cook who discuss seventeenth-century networks whose formation was not so rigid and based on weaker ties.⁸⁷³ These weaker ties work as conduits of dissemination, accumulation and production because they are explicitly pluralistic and inclusive.⁸⁷⁴ Thus, a combination of Haas's epistemic community and Lux and Cook's weaker structure provides a good schema by which to explore Sinclair's network. It was based on correspondence and personal interactions and through these he was influenced and could influence others. Such interaction were as Cook and Lux describe pluralistic and inclusive across transnational boundaries.⁸⁷⁵ As the lines of correspondence stretched great geographical distances it seems necessary to have a theory that flexibly accommodates the idiosyncratic method of this kind of network and yet still adequately explains it.

Sinclair's network can be divided into two separate, but interconnected sections: his audiences and his correspondence. The former is characterised by Sinclair's own reminiscences

⁸⁶⁷ Saunier, *Transnational History*, pp.58-62.

⁸⁶⁸ *Ibid*, pp.59-65.

⁸⁶⁹ Haas, 'Introduction', pp.1-35, here p.3 for the definition of the term.

⁸⁷⁰ Haas, 'Introduction', p.3.

⁸⁷¹ Sinclair, *The correspondence*, Volume 1, p.xxxiii.

⁸⁷² C.f. Haas, 'Introduction', pp.7-16.

⁸⁷³ Lux and Cook, 'Closed Circles or Open Networks?', pp.182-183.

⁸⁷⁴ *Ibid*, p.202.

⁸⁷⁵ *Ibid*, p.202.

and the latter by the copious volumes of letters both in printed and manuscript form. Sinclair had, by his own publication, contacts in at least sixteen countries, stretching from the Middle East to the United States.⁸⁷⁶ Added to this are his manuscript sources that cover the British Isles (including Ireland). The comparative strength of Sinclair's sources lies in the breadth of his network, arguably less in its depth. As wide and as far reaching as this community may seem the only real evidence we have for its depth and intensity is Sinclair's word. Even his manuscript sources are not necessarily full of detailed conversations and while there are a few notable examples of such conversations, again, it is Sinclair's perspective that reigns supreme. However, he was a prolific letter writer and his correspondents betray a wide range of common interests, from agriculture, to politics, to health and longevity, to military matters, and statistics.

The American Network

Sinclair had numerous American correspondents. He used them to extract information regarding the new world as well as attempting to assert his statistical influence upon the fledgling nation. His correspondence with the first president of the United States George Washington (1732-1799) is a good example. Sinclair not only informed Washington of his statistical undertakings but sent him extracts of *The Statistical Account*.⁸⁷⁷ It is clear that Washington was enthused by the project, wishing it every success in a letter dated 15th March 1793 and indicating that such an undertaking could only be of benefit to mankind and its general happiness.⁸⁷⁸ Washington was interested in Sinclair's statistical ideas, to the extent that he attempted to put them into action; he sent Sinclair *An Account of Several States of America* in 1796.⁸⁷⁹ The similarities between his descriptions and Sinclair's own work are almost uncanny. Washington states:

The general description is furnished, that you may be enabled to form an idea of the part of the United States which would be congenial to your inclination.⁸⁸⁰

His statement and his subsequent descriptions of the states make it clear he was well-versed in Sinclair's statistical art, seeing a benefit to the collection of a great deal of information to properly understand a place.

⁸⁷⁶ C.f. Sinclair, *The correspondence*, Volume 1, 2.

⁸⁷⁷ Sinclair, *The correspondence*, Volume 2, p.5.

⁸⁷⁸ Sinclair, *The correspondence*, Volume 1, p.290.

⁸⁷⁹ Sinclair, *The correspondence*, Volume 2, pp.9-15.

⁸⁸⁰ *Ibid*, p.11.

A comparison between Washington's description and Sinclair's questionnaire for the *Account* demonstrates a clear channel of influence from Sinclair to Washington. Washington's description of North and South Carolina and Georgia attempted to illustrate the soil conditions, the nature of the beaches, the geographical features, including the tides, and the nature of navigation both through the mountainous regions and in relation to seafaring.⁸⁸¹ Sinclair's questionnaire, particularly the first section on the geography and natural history, also covers the appearance of the country, the nature of the soil, the nature of the coast and its navigability, and the course of the tides.⁸⁸²

Washington's copy highlights that correspondence acted as a conduit for the transfer of information and ideas. It formed a part of what Goodman calls the 'project of the Enlightenment', an exchange of information and the creation of knowledge.⁸⁸³ There was a discernible influence moving back and forth, and Washington was not only familiar with Sinclair's statistical thought but also eager to put it to use. The United States was a comparatively young nation, having just gained independence from Britain, and was undergoing a transformation politically, economically and socially.⁸⁸⁴ The new republic saw its population boom, its commercial and industrial sectors grow rapidly and had begun to expand west into new uncharted territories.⁸⁸⁵ At the same time the young republic struggled to find a way to discuss and visualise their new independence between the end of the revolutionary war in 1783 and the War of 1812,⁸⁸⁶ much as Scotland had been coming to terms with the Treaty of Union in 1707 for much of the eighteenth century.⁸⁸⁷ Guyatt argues that from the 1760s to the War of 1812, Americans had 'employed a national providentialism to define an independent United States and the limits of their revolution.'⁸⁸⁸ This 'national providentialism' was often contrasted against Europe and did not turn its attention west until after 1812, it sought to define America's importance and place on the world political stage.⁸⁸⁹ This act of definition required some form of methodology and Sinclair's statistics would have fit

⁸⁸¹ Ibid, pp.11-12.

⁸⁸² Sinclair, *History* pp.xx-xxi.

⁸⁸³ Goodman, *The Republic of Letters*, pp.23-52.

⁸⁸⁴ Gordan S. Wood, *Empire of Liberty: A History of the Early Republic, 1789-1815* (Oxford: Oxford University Press, 2011), pp.2-4.

⁸⁸⁵ Ibid, pp.2, 357-399, 701-738.

⁸⁸⁶ Nicholas Guyatt, *Providence and the Invention of the United States, 1607-1876* (Cambridge: Cambridge University Press, 2007), pp.137-140.

⁸⁸⁷ Allen, *Scotland in the Eighteenth Century*, pp.14-39.

⁸⁸⁸ Guyatt, *Providence and the Invention of the United States*, p.172.

⁸⁸⁹ Ibid, pp.168-172.

well with American rhetoric concerning its own national mission and how to define itself as a new and independent nation. Indeed, Scottish and American ideas, philosophies, and thought had been frequently shared during the Enlightenment and it should come as no surprise that Washington would turn to the Scottish example to find new ways to think about the new nation.⁸⁹⁰

This also revealed how Sinclair's network was a useful method to get his works, statistical and otherwise, seen by a wider audience. The endorsement and aid given by Washington to push Sinclair's ideas in the new world is evidence that he could use his network for a wider purpose. Sinclair was proud of his continued correspondence with Washington keeping handwritten copies of the letters as well as approving them for publication.⁸⁹¹ These letters demonstrate the strength of Sinclair's connection with Washington and the influence Sinclair had over him.

The correspondence stretches from 1789 to 1797 and the main topic of conversation, as Sinclair made clear in his published work, was agriculture.⁸⁹² Sinclair was, as ever, eager to spread his ideas to anyone who would listen. The members of the young republic were certainly a keen audience. The last few years of the eighteenth century saw every aspect of American life politicised as many felt the Union to be in crisis with the advent of the French Revolution and the continued struggles to find a firm foundation for the constitution.⁸⁹³ American society was desperately searching for the United States' place in the world, trying to form a stable identity with a national mission.⁸⁹⁴ Added to this, as Jasanoff has pointed out, the young nation had lost at least sixty thousand 'loyalists' and another fifteen thousand slaves at the end of the Revolution.⁸⁹⁵ On top of seeking a stable national identity the US needed to find a method of maximising the productivity of the population. Thus, Sinclair's ideas on agriculture and statistics, which combined a method of defining the state/nation and governing effectively, fell on fertile ground.

Correspondence with John Adams (1735-1826), second President of the United States, supports this as it contained both a part of his 'Survey of Scotland' (*The Statistical Account*) and his *Natural History of Sheep*.⁸⁹⁶ A letter from Philadelphia, 2nd March 1793, indicated that John

⁸⁹⁰ C.f. Richard B. Sher and Jeffrey R. Smitten (eds.), *Scotland and America in the Age of Enlightenment* (Edinburgh: Edinburgh University Press, 1990).

⁸⁹¹ Sinclair, *The Correspondence*, Volume 2, pp.16-33; MS 3107/7/1, *Extract from 'Letters from... George Washington to Sir John Sinclair'*, [The University of Aberdeen – Special Collections].

⁸⁹² Sinclair, *The Correspondence*, Volume 2, p.v.; c.f. Behrisch, *Die Berechnung der Glückseligkeit*.

⁸⁹³ Wood, *Empire of Liberty*, p.209.

⁸⁹⁴ Guyatt, *Providence and the Invention of the United States*, pp.137-172.

⁸⁹⁵ Maya Jasanoff, *Liberty's Exiles: The Loss of America and the Remaking of the British Empire* (London: Harper Press, 2011), p.6.

⁸⁹⁶ Sinclair, *The Correspondence*, Volume 2, p.36.

Adams was enthusiastic about the projects, especially the history of sheep.⁸⁹⁷ A further letter from 24th May 1805 mentioned the production of a natural history for America, something that Adams thought Sinclair could be involved in, going so far as to introduce Sinclair to a professor William Peck at Harvard.⁸⁹⁸ While it appears that this correspondence did not lead to much, it illustrates the desire to share as well as implement new ideas. A natural survey of the United States would have, if influenced by Sinclair, been undoubtedly modelled on his statistics. Sinclair's American correspondence appears to have been an outlet for many of his agricultural and statistical ideas. While the American network did not have a large impact on the formation of Sinclair's statistical thought as such it was key in promoting it beyond Britain. However, Sinclair's statistical network was more defined, and mutually influential, in other areas of the world, particularly in Europe and Great Britain.

The European Network

It was within Europe that Sinclair found his statistics. These European contacts spread from the 1790s to the 1830s from Russia to Madeira. While Sinclair was rather vague about where the influences for his brand of statistics came from, he was certainly not shy in trying to influence others, especially on the continent. Sinclair preserved these letters in his published correspondence.⁸⁹⁹ He demarcated these specifically as his "Statistical Correspondence".⁹⁰⁰ However, they remain useful for illustrating the range Sinclair had on the continent and must be considered a litmus test for the influence he possessed.

One of his key statistical correspondents was the Prussian foreign minister Count von Hertzberg. He was for a time one of the key advisors to King Frederick II of Prussia and Sinclair remembered their numerous interactions with fondness, especially regarding agriculture and statistics.⁹⁰¹ Sinclair sent Hertzberg a copy of the *Statistical Account* in 1792. Hertzberg was impressed by the project: "I earnestly wish, that I could imitate here, in my dear country, your very patriotic example."⁹⁰² Indeed, the Prussian interest in statistics may have stemmed from its recent

⁸⁹⁷ Ibid, p.37.

⁸⁹⁸ Ibid, pp.38-39.

⁸⁹⁹ His manuscript sources contain only British contacts, while the published correspondence contains extracts of European and American correspondence, his manuscript sources contain almost no letters from those abroad.

⁹⁰⁰ Sinclair, *The Correspondence*, Volume 1, pp.285-294.

⁹⁰¹ Sinclair, *The Correspondence*, Volume 2, pp.340-341. Hertzberg was also in contact with Schlözer. C.f. Part One.

⁹⁰² Ibid, p.341.

ascendancy to a major military force in Europe.⁹⁰³ While it had become a key player it remained geographically fragmented and disparate which made ruling the state and asserting authority difficult.⁹⁰⁴ The Prussian state was eager to find methods of gaining state control and frequently sought to utilise Enlightenment ideas, through political, religious, intellectual or educational means.⁹⁰⁵ Statistics was a method of state-based control that appealed to Prussia, especially with the extension of territory and population gained after the partitions of the Polish-Lithuanian Commonwealth between 1772 and 1795.⁹⁰⁶ The partitions had caused a great deal of tension amongst the population that Prussia sought to rule.⁹⁰⁷ It was in this context that Sinclair communicated his statistical ideas to Hertzberg, who felt they would have suited the Prussian political situation, especially the application of such a large scale survey. Similarities can also be drawn with the US context, a country that was trying to assert its importance and mission on a global stage after the Revolutionary war.⁹⁰⁸ Both Prussia and the US needed an apparatus that could successfully help identify, govern, and improve their territories, and this is one of the reasons that made Sinclair's statistical ideas so compelling internationally.

The correspondence with Hertzberg, entirely in French,⁹⁰⁹ is fascinating for a number of reasons. One, it demonstrates the prolonged intensity of Sinclair's network. Two, it is evidence of the strong influence Sinclair possessed, considering that Hertzberg was once one of the most influential political figures in Europe. Third, it illustrates the extent to which Sinclair believed his influence could spread.

Sinclair was convinced that had the king not removed Hertzberg (in 1791), then he would have implemented a similar scheme to the *Account*.⁹¹⁰ Hertzberg not only expressed admiration for Sinclair's statistical thought, he also valued his input on the subject at large sending Sinclair a series of books on German statistics to garner his opinion.⁹¹¹ Clearly, Hertzberg thought that Sinclair was an expert and desired his expert assessment of the matter. It is interesting that a once key figure in the Prussian government sought the advice of an individual and essentially amateur

⁹⁰³ Philip G. Dwyer, *The Rise of Prussia, 1700-1830* (London: Routledge, 2001), pp.1-3.

⁹⁰⁴ Sinclair, *The Correspondence*, Volume 2, p.4.

⁹⁰⁵ M. J. Sauter, *Visions of Enlightenment: The Edicts of Religion of 1788 and the Politics of the Public Sphere in Eighteenth Century Prussia* (Leiden: Brill, 2009), p.8.

⁹⁰⁶ Labbé, 'Institutionalizing the Statistics of Nationality', p.290.

⁹⁰⁷ Jerzy Lukowski, *The Partitions of Poland 1772, 1793, 1795* (London: Routledge, 1999), pp.185-186.

⁹⁰⁸ Guyatt, *Providence and the Invention of the United States*, pp.168-172.

⁹⁰⁹ Sinclair, *The Correspondence*, Volume 2, p.342.

⁹¹⁰ *Ibid*, pp.341-342.

⁹¹¹ *Ibid*, p.342.

statistician.⁹¹² Of course, Hertzberg was, by this point, powerless, but it does illustrate the potential Sinclair's correspondence could unfold.

Similarly, Sinclair was in direct communication with members of Napoleon's *Bureau de la Statistique* and, as he recalled,⁹¹³ he had a large influence on the shape of statistics in France. However, it is crucial to put this in context as French statistics had a long history. Revel, Bourguet and Labbé have all explored the long prehistory of French statistics up until the post-Revolutionary period.⁹¹⁴ The knowledge and understanding of the state or monarch's territory had been of vital importance since at least the medieval period in France.⁹¹⁵ During the Revolutionary period, from 1789 to around 1800, and during the Napoleonic Wars the need to define, control, and identify territory became imperative considering the fragile political, economic, and social situation in which France found itself.⁹¹⁶ Attempts were made to conduct censuses and surveys during the Revolution but nothing came of them and it was not until Napoleon's seizure of power in 1799 that the administrative structures in France became strong enough to accommodate a central state-run bureaucracy.⁹¹⁷ The *Bureau* was established in 1800 at first under the Minister of the Interior Lucien Bonaparte, however, he was quickly succeeded by Sinclair's contact, the chemist and sometime statistician, Jean-Antoine Chaptal.⁹¹⁸ The correspondence seems to have grown out of an initial letter Sinclair sent to the Bureau on the 24th May 1802, directly addressed to Chaptal.⁹¹⁹ Sinclair was emphatic about the effect of his letter:

Both his own attention, and that of the Emperor Napoleon, were first directed to those [statistical] inquiries, by a letter I had written to him on the 24th of May 1802....⁹²⁰

He continued:

⁹¹² C.f. Hacking, *Taming of Chance*, pp.16-26. On amateur statisticians as 'secret bureaucrats'.

⁹¹³ Sinclair, *The Correspondence*, Volume 2, p.114.

⁹¹⁴ Revel, 'Knowledge of Territory', pp.133-161; Labbé, 'L'arithmétique politique', pp.1-23; Bourguet, *Déchiffrer la France*, pp.21-52.

⁹¹⁵ Revel, 'Knowledge of Territory', pp.133-134.

⁹¹⁶ Bourguet, *Déchiffrer la France*, pp.53-91.

⁹¹⁷ Desrosières, *The Politics of Large Numbers*, pp.31-34.

⁹¹⁸ Sinclair, *The Correspondence*, Volume 2, p.34.

⁹¹⁹ *Ibid*, p.114.

⁹²⁰ *Ibid*, p.114.

I was highly gratified by having thus been the means of introducing statistical inquiries into France, and I had flattered myself, that under the authority of Napoleon, and by the exertions of so able a character as Count Chaptal, no doubt could be entertained of the undertaking being successful.⁹²¹

Sinclair was by no means self-conscious about the effect of his correspondence with Chaptal. Chaptal's response, while beginning with a short perfunctory introduction common to most eighteenth- and early nineteenth-century letters, regards the French interest for any information on statistics:

Je vous remercie bien sincèrement de la communication que vous voulez bien me donner de vos observations sur les recherches *statistiques*. Je serois bien aise d'en avoir quelques exemplaires, que je ferois passer aux préfets; et votre exemple, et vos vues... ne pourroient qu'encourager efficacement ceux, qui, parmi nous, cultivent une science encore neuve, et dont les materiaux sont difficiles à rassembler, dans un pays si longtems [sic] et si profondément troublé.

J'ai remis au Premier Consul [Napoleon] l'exemplaire que vous lui destinez....⁹²²

The fact that Chaptal felt he could present Sinclair's ideas to Napoleon illustrates the high regard his ideas possessed. The latter sections of the letter indicate that Sinclair sent copies of his statistical works and that Chaptal believed a correspondence should be maintained for the profitable exchange of this knowledge.⁹²³ Bourguet has suggested a link between Sinclair's work and the foundations of statistical thought in France but it is no more than a throw-away comment.⁹²⁴ While there were more influences on French statistics than just Sinclair, this exchange demonstrates that Sinclair's influence has been greatly underappreciated.

His ideas had an impact on a young French state in need of new methods to survey and understand its new and expanding territories. Woolf has demonstrated that part of the Napoleonic strategy of integration was through the establishment of statistical offices along the lines of the Parisian model set up in 1800.⁹²⁵ This form of control needed a methodology behind it. Sinclair could provide or at least shape the model of statistics that was eventually established in the early life of the statistical bureaus in Europe. He had left his mark on French statistics which bore out in

⁹²¹ Ibid, pp.115-116.

⁹²² Ibid, pp.114-115.

Translation: I thank you most sincerely for your communication you sent me regarding your observations on statistical research. I should be very glad of receiving a few copies which I will pass on to the Prefects; and your examples and your views... could only encourage those among us who cultivate this relatively new science, and whose materials are difficult to collect in a country so long and profoundly troubled.

I have delivered to the First Consul the copy you intended for him....

⁹²³ Ibid, p.115.

⁹²⁴ Bourguet, *Déchiffrer la France*, p.51.

⁹²⁵ Woolf, *Napoleon's Integration of Europe*, p.42, 87-90.

the more ‘descriptive’ methods employed by the early *Bureau* and especially the use of questionnaires.⁹²⁶

This illustrates the continuities and discontinuities in the scientific networks of Revolution and war across Europe at the end of the eighteenth century. While ties remained in place, strengthened by the fact that they were weaker in nature and could be picked up after long stretches of time in which they may appear broken, the Revolution and Napoleonic rule brought about a change in the way states reacted to science and scientific networks.⁹²⁷ As has been suggested by Margócsy, weak tie networks like Sinclair’s were resilient to large breakage as it was the individual or human component that made the network function, thus, Sinclair’s network did not rupture or change significantly during the Revolutionary or Napoleonic period.⁹²⁸ Individuals remained a crucial component of networks in the eighteenth early nineteenth century rather than being replaced by state or non-state institutions, as Anne Goldgar has illustrated for the early eighteenth century.⁹²⁹ Thus, Sinclair, his work and network were influential on the development and uptake of statistics within state institutions and remained intact until the death of Sinclair himself.

Nevertheless, Sinclair might have overestimated his impact on French statistics.⁹³⁰ Chaptal saw Sinclair as an encouragement to those in the Bureau who were forging a new path in the science. Sinclair himself went further and claimed that his work on statistics helped Chaptal collect information on a treatise on French industry published in 1819.⁹³¹ The communication was sparse, however, and while Sinclair sent a letter on 10th January 1803 to announce a visit Paris to discuss the idea of statistics further the journey was never carried out.⁹³² It seems the correspondence was dropped at this point for reasons unknown.

It is possible that Sinclair’s network here broke down with the devastation of the Napoleonic Wars and the reorientation of scientific networks during this period.⁹³³ However, this seems unlikely, given that the French translation of the introduction to the *Statistical Account* was published in 1792 and Sinclair’s European correspondence continued throughout the period

⁹²⁶ Bourguet, *Déchiffrer la France*, pp.211-253.

⁹²⁷ Easterby-Smith, *Cultivating Commerce*, pp.174-176.

⁹²⁸ Margócsy, ‘A long history of breakdowns’, p.315.

⁹²⁹ Goldgar, *Impolite Learning*, p.10.

⁹³⁰ Stéphane van Damme, ‘La grandeur d’Édimbourg. Savoirs et mobilisation identitaire au XVIIIe siècle’, *Revue d’Histoire Moderne et Contemporaine*, 55/2, (2008), pp.152-181, here p.176, on the idea that Sinclair used his correspondence to celebrate his own importance.

⁹³¹ Sinclair, *The Correspondence*, Volume 2, p.114.

⁹³² *Ibid.*, pp.116-117.

⁹³³ Easterby-Smith, *Cultivating Commerce*, p.188; Lipkowitz, ‘Seized natural-history collections’, p.41.

unabated and (as has been illustrated here) unchanged in its discussion of statistics. Following Margócsy's description of early modern networks having the flexibility to survive long periods of discontinuity in correspondence and the nature of the weak ties that held Sinclair's network together it is more likely that this period was simply a continuity of common practice within Sinclair's community.⁹³⁴

However, Sinclair's claims to influence the development of French Statistics are not to be dismissed entirely. A letter from Chaptal on 5th April 1830 informed Sinclair that he was made an honorary member of *La Société de Statistique*. The Society wished to induct him because of his "puissamment contribué aux progrès de cette science" and "une preuve de sa haute estime pour leur travaux."⁹³⁵ Sinclair sent the Statistical Society of Paris a copy of his *Analysis of the Statistical Account of Scotland*, which he sent along with a letter of acceptance on the 9th June 1830.⁹³⁶ Even thirty years on Sinclair and his statistical ideas had carried weight in France. Sinclair was keen to forward his ideas and there was a receptive audience. Chaptal's work on French industry, while not solely based on Sinclair, did display Sinclair's characteristics.⁹³⁷ Its format is recognisable to both statisticians of the German methods and Sinclair's wider and deeper methodological approach.

Sinclair's other European contacts expose his indiscriminate search for an audience. A letter to the Marquis del Campo (1725-1803), the Spanish ambassador to the United Kingdom, dated 22nd May 1792, recounts how Sinclair sent him a prospectus of his statistical work.⁹³⁸ The Marquis noted that he would pass the information on to one 'M Campomanes' (Pedro Rodriguez, Count of Campomanes [1723-1802], the famed Spanish economist) and promised to recommend Sinclair and his work to Pedro Pablo Abarca de Bolea, 10th Count of Aranda (1718-1798), an influential member of the Spanish government who had become the first minister of Spain in 1792.⁹³⁹ Whether the ideas ever got this far is debatable. What it demonstrates, however, was how seriously they were taken on the continent and how far Sinclair and others were willing to go to spread them.

⁹³⁴ Margócsy, 'A long history of breakdowns', pp.313-315; Lux and Cook, 'Closed Circles or Open Networks?', pp.201-202.

⁹³⁵ Sinclair, *The Correspondence*, p.118.

⁹³⁶ *Ibid*, p.119.

⁹³⁷ C.f. Chaptal, *De L'Industrie Française*, Tome Premier.

⁹³⁸ Sinclair, *The Correspondence*, Volume 2, p.287.

⁹³⁹ *Ibid*, p.287.

Sinclair included two more letters from famous statesmen around Europe, Johann Philipp Stadion, Count von Warthausen (1763-1824),⁹⁴⁰ ambassador of the Habsburg Empire, and Sigismund Ehrenreich Johann von Redern (1761-1841),⁹⁴¹ ambassador of the Prussian Empire. The letter from Stadion, dated 25th May 1792, indicated that statesmen across Europe considered Sinclair's enterprise a worthy one.⁹⁴² He declared that such an enterprise would be favourably received. He would also not neglect to communicate Sinclair's ideas to persons in Germany who were engaged on the subject of statistics who "will be much flattered in an opportunity of assisting you."⁹⁴³ Thus, Sinclair's ideas began to circulate upon the continent.⁹⁴⁴ Redern's letter of the 14th June 1792 was less committed. While he wrote enthusiastically that "[t]he interesting details contained in that work... cannot fail to make the public impatient for the conclusion of so great an undertaking" of Sinclair's *Account*,⁹⁴⁵ he did not address whether he would take the concept back to Prussia. However, "[t]he plan embraces all those important objects, on which depends the prosperity of political society..."⁹⁴⁶ He clearly saw value beyond mere novelty in Sinclair's project.

Sinclair was not afraid to push his ideas under the noses of men of power and influence across Europe and he found willing recipients for his statistics. While these three correspondents may not represent an 'epistemic community' in a modern sense, especially as the exchange did not seem to extend beyond a single letter, they form part of the flow, circulation and transfer of knowledge in more open networks that were not confined to specific boundaries.⁹⁴⁷ The circulation of ideas came from the openness and lack of stable structure that Sinclair's network possessed and the more openness it possessed the more people it reached.

Why were these men so receptive? One hypothesis, that Pieter Judson expounds, was the creation and definition of a national identity through statistics.⁹⁴⁸ His argument has been demonstrated by Patriarca's work on the foundation of the Italian state and Randerad's work on

⁹⁴⁰ Whom Sinclair calls Count de Stadien, c.f. Sinclair, *The Correspondence*, Vol. 1, p.287.

⁹⁴¹ Whom Sinclair calls the Comte de Redern, c.f. Sinclair, *The Correspondence*, Vol. 1, pp.287-288.

⁹⁴² Ibid, p.287.

⁹⁴³ Ibid, p.287.

⁹⁴⁴ C.f. Saunier, *Transnational History*, pp.59-65.

⁹⁴⁵ Sinclair, *The Correspondence*, Volume 1, p.287.

⁹⁴⁶ Ibid, p.287.

⁹⁴⁷ Lux and Cook, 'Closed Circles or Open Networks?', pp.179-183.

⁹⁴⁸ Pieter M. Judson, 'Class, Nationality and Colonial Fantasy at the Margins of the Hapsburg Monarchy', *Social Analysis: The International Journal of Social and Cultural Practice*, (1993), pp.47-67.

the rise of the statistical conferences in the nineteenth century.⁹⁴⁹ By then the science of statistics had become imperative to nation-building and defining across Europe. The routes to this form of state-building lay in the eighteenth century and formed part of early receptiveness to statistical thought in Europe. Benedict Anderson argues nationalism and a sense of nation began to develop around the end of the eighteenth century.⁹⁵⁰ The scope of Sinclair's project and the idea of understanding one's society on such a vast scale would have spoken to this new sense of nationhood and many statesmen felt it could help define their nation better. This concept had it precedent across Europe in acts such as map-making and proto-statistical methods which became ways that states could define their borders and grasp their resources.⁹⁵¹ Added to the rise of nationalism, Sinclair's ideas gained traction because of the fluidity and circulation they could achieve in a transnational sphere. There was a wide scope available to Sinclair in which his ideas could circulate and be taken up and transformed into novel forms, meanings and purposes.⁹⁵² The reception of Sinclair on the continent is, as Saunier defines it, an example of how information or ideas not only moved but transformed to fit into new contexts and environments.⁹⁵³ Thus, his ideas about statistics were not attractive because of their social improvement component but because they gave those in power a method of defining and creating a nation or national identity. They were not misunderstood but adapted for new contexts and were found useful in the creation of a national identity. Sinclair's enterprise was well received on the continent exactly because it spoke to a growing desire to know one's territory better and to create a sense of nation during the early period of nation-building.

Beyond the political sphere Sinclair also numbered several important academic and intellectual figures in his network. He included four examples of his intellectual correspondence which illuminate a wide interest in his statistics and an active desire to use or abuse his statistical thought. One of the more insightful letters Sinclair received was from Zimmermann, dated 17th July 1792:

It is with particular pleasure that I received your obliging letter and the works which accompanied it. I shall not delay a moment to insert an ample extract, in the last number of my Geographical and Statistical Journal, which I have published for the above two years. These sciences will gain much

⁹⁴⁹ C.f. Patriarca, 'Statistical Nation Building and the Consolidation of Regions in Italy', pp.359-376; *Numbers and Nationhood*, p.12; Randeraad, *States and Statistics in the Nineteenth Century*, pp.1-9.

⁹⁵⁰ Anderson, *Imagined Communities*, p.4, 11-12.

⁹⁵¹ Revel, 'Knowledge of Territory', pp.133-162.

⁹⁵² C.f. Lux and Cook, 'Closed Circles or Open Networks?'; Saunier, *Transnational History*, pp.59-65.

⁹⁵³ Saunier, *Transnational History*, pp.62-65.

by your enterprise; and I feel the greatest anxiety to see a work of such extent and utility, brought to a conclusion.⁹⁵⁴

Zimmermann was enthusiastic about Sinclair's work and the promise of inclusion in his statistical journal was a huge step in publicity and recognition. Zimmermann perceived Sinclair's methodology as both innovative and important in the improvement of statistical thought. Indeed, Zimmerman included a lengthy abstract of Sinclair's work in his Journal, *Annalen der Geographie und Statistik* in 1792.⁹⁵⁵

Rather than intellectual recognition, the issues surrounding actual implementation are present in a letter dated 25th September 1792 from St Petersburg by the Russian captain and author of *Survey of the Russian Empire* (1792), Sergey Pleschééf.⁹⁵⁶ His letter was full of praise and desire to help in Sinclair's statistical enterprise.⁹⁵⁷ He stated that he would like to be of some use on agricultural matters, especially regarding sheep, but could not think of how he would go about this considering the language barrier.⁹⁵⁸ Instead, Sinclair, in praise of Pleschééf's book, attempted to coax him to produce a full statistical survey of Russia, to which the latter replied he would love to create such a work.⁹⁵⁹ Sinclair admitted that while Mr Pleschééf showed such willingness, it was unlikely he would receive the backing of the Russian state to undertake such a venture.⁹⁶⁰ This emphasises the pragmatic streak in Sinclair's approach. While he actively encouraged others to copy his work, he understood the realities of each political context, knowing that the state always had a form of monopoly over information.

His correspondence with the Icelandic-Danish academic Grímur Jónsson Thorkelin (1752-1829) is illustrative of the interconnected net Sinclair cast. The professor was an enthusiastic supporter of Sinclair's project which his letter, dated 24th November 1792, makes clear. He reported that knowledge of Sinclair's undertaking had led to many of the ideas being taken up in Norway, to highlight the rise of the new Norwegian society and its proud history.⁹⁶¹ His letter was ecstatic in its praise for the development of the statistical account, stating "[y]ou deserve the most

⁹⁵⁴ Sinclair, *The Correspondence*, Volume 1, p.288.

⁹⁵⁵ E. A. W. Zimmermann (ed.), *Annalen der Geographie und Statistik*, dritter Band (Braunschweig: Crusiusche Buchhandlung, 1792), pp.470-479.

⁹⁵⁶ Dates unknown.

⁹⁵⁷ Sinclair, *The Correspondence*, Volume 2, pp.283-285.

⁹⁵⁸ *Ibid*, p.284.

⁹⁵⁹ *Ibid*, p.284.

⁹⁶⁰ *Ibid*, p.283.

⁹⁶¹ *Ibid*, p.215.

lasting thanks of the public, nay the civilised world, for your Analyse de l'Etat Politique d'Ecosse."⁹⁶² Furthermore, Thorkelin mentioned that *The Statistical Account* was being prepared in Leipzig for publication in German.⁹⁶³ Thorkelin's letter testifies to the diffusion of Sinclair's work both in Norway and on the continent, initiated by Sinclair but continued independently from him through the extent of his network.

Finally, a letter from the Bishop de Leon,⁹⁶⁴ dated 17th July 1797, reads:

I read with particular interest, your work concerning the Statistical State of Scotland, because I had been engaged, some years ago in similar inquiries in my own diocese, though not on so great a scale. Such inquiries afford the true means of ascertaining the best mode of improving the condition of the people.⁹⁶⁵

Sinclair's ideas appealed to the concept of the philanthropic enterprise during the Enlightenment, more particularly the desire to improve the lot of people through charitable acts or through state-sponsored reforms.⁹⁶⁶ These theories developed all over Europe, from the Cameralists in the German lands to the Physiocrats in France.⁹⁶⁷ It was believed that for a state and a nation to function properly it needed to solve the issue of poverty in the eighteenth century.⁹⁶⁸ This thought was not directly influenced by the increase in poverty or population during the eighteenth century but as Garrioch explains it was a reaction to changes in the thought of social elites and could be attributed to ideas circulating about social control.⁹⁶⁹ Sinclair's concepts offered a direct response. However, the inclusion of such a letter also indicated that Sinclair sought justification for his methodology in the replies from many of his correspondents.

A final example from the end of Sinclair's life manifests that his statistical enquiries across his correspondence network did not dwindle. A letter from a Miss Noble, dated 16th March 1833, from the island of Madeira, contained a detailed description of the agriculture and society of the

⁹⁶² Ibid, p.215.

⁹⁶³ Ibid, p.215. Such an edition of Sinclair's work was released in Germany in 1794.

⁹⁶⁴ Identity is unestablished.

⁹⁶⁵ Sinclair, *The Correspondence*, Volume 1, p.292.

⁹⁶⁶ David Garrioch, 'Making a Better World: Enlightenment and Philanthropy' in Martin Fitzpatrick, Peter Jones, Christa Knellwolf, and Ian McCalman (eds.), *The Enlightenment World* (London: Routledge, 2006), pp.486-501, here pp.486-490.

⁹⁶⁷ Garrioch, 'Making a Better World' in Fitzpatrick, Jones, Knellwolf, and McCalman (eds.), *The Enlightenment World*, p.490.

⁹⁶⁸ Ibid, p.492.

⁹⁶⁹ Ibid, pp.497-498.

island.⁹⁷⁰ It related information as diverse as the correct season for growing certain types of crop and the yields produced, the politics of the island, the number of soldiers garrisoned there, and the power of the priests over society. While the letter may not have been used as the basis of a particular statistical enterprise it is the perfect illustration of Sinclair's lifelong commitment to collecting useful information from around the world.⁹⁷¹

The British Network

By far his biggest network in breadth and depth, especially for his statistical development, was in Great Britain and Ireland. It was through this network that Sinclair completed *The Statistical Account* as well as spread the statistical germ throughout this Scepter'd Isle. The extent of this British statistical network, however, must be set in the context of the larger political network that Sinclair developed during his political and agricultural career.

Sinclair's *Statistical Account* is a huge work. It required an abundance of skill, luck, and hard graft to complete it. It took him just over nine years to compile all the information on all 938 parishes that existed in Scotland when he started his endeavour in 1790/1791.⁹⁷² The method and administration by which Sinclair gathered this information was complex and often tedious. It was maintained by little more than the persistence of Sinclair and his ability to annoy and cajole the clergy of Scotland into answering his questions. It took Sinclair letter after letter to his web of informants to finally obtain all the information for his final publication.⁹⁷³ Sinclair had proposed the idea to the General Assembly of the Church of Scotland in 1790 and decided to use the clergy due to their, as Sinclair declared, respectable nature.⁹⁷⁴ He sent all the clergy in Scotland a circular letter and a questionnaire of 160 questions,⁹⁷⁵ followed by a second and third circular letter containing additional information and an Addenda of six questions.⁹⁷⁶ It was on this basis that he was able to amass a fantastic network of informants for the purpose of collecting information.

⁹⁷⁰ M.S. RH4/49/1 Sir John Sinclair, *Volume I: 'Correspondence of the Rt Hon Sir John Sinclair, Bart*, Folio 53-56. 1778. [NRS].

⁹⁷¹ This was a development at the heart of statistics during the nineteenth century. Osterhammel argues that the nineteenth century was a time of quantification and 'social mathematics' as Condorcet called it. C.f. Jürgen Osterhammel, *The Transformation of the World: A Global History of the Nineteenth Century* (Princeton: Princeton University Press, 2014), pp.28-29.

⁹⁷² Withrington, 'General Introduction' in *The Statistical Account of Scotland: Volume I: General*, p.ix.

⁹⁷³ Sinclair, *History*, pp.iv-x; vi-vii.

⁹⁷⁴ *Ibid*, p.iv.

⁹⁷⁵ *Ibid*, pp.xviii-xxvii.

⁹⁷⁶ *Ibid*, pp.xxvii-xxxiv.

The scope of Sinclair's correspondence grew with *The Statistical Account*. Not only did he have to send more letters to the clergy from time to time but he, being so much in London during this period, required others to help him petition the clergy as well. Further, he enlisted the help of his greatest friends for this enterprise.⁹⁷⁷ This still proved to be too little and Sinclair advanced a series of methods that extended his network quite considerably.

He petitioned Henry Dundas for a Royal Grant to the Sons of Clergy Society, which he won, as leverage to get the information he required.⁹⁷⁸ This opened a channel to government that Sinclair would be keen to explore later. Still, this did not prove to be enough and he turned to the higher members of the General Council: Sir Henry Welwood Moncrief, Dr Blair, Dr Kemp, Dr Hardie, the Duke of Argyll, the Earl of Leven, and the Earl of Fife were all cited as key members of this network who exerted pressure on the clergy of Scotland. He went so far as to send "*Statistical Missionaries*"⁹⁷⁹ to different parts of the country, who, according to Sinclair, were able to produce twenty-five accounts that would otherwise have been wanting.⁹⁸⁰ Sinclair even published the letters that were sent to the slower clergy members in his history and origin of the account. The collection and publication of his *Statistical Account* was the outcome of Sinclair's diligence and networking skills.

Sinclair desired his version of statistics to circulate around Britain. He was eager to demonstrate how much interest there was in his project from the earliest stages. In his history and origin of the account, he dedicated an Appendix (Appendix F) to this purpose.⁹⁸¹ Sinclair explained that the inclusion in his pamphlet was to highlight how his undertaking that was "carried on by a single individual, at his own risk and expense" and given encouragement and drive by being reassured "from several respectable quarters" just how useful and important his enterprise was.⁹⁸² The British correspondents, much as with the foreign contacts he included, were all men of high political standing or academic/intellectual affiliation. However, such a division was not implemented by Sinclair and as such we cannot artificially divide his network for him, it is thus simpler to take these letters as a part of his network as a whole.⁹⁸³

⁹⁷⁷ Ibid, p.vii.

⁹⁷⁸ Ibid, p.viii.

⁹⁷⁹ Ibid, p.x.

⁹⁸⁰ Ibid, pp.ix-x.

⁹⁸¹ Ibid, pp.li-lxi.

⁹⁸² Ibid, p.li.

⁹⁸³ C.f. Lux and Cook, 'Closed Circles or Open Networks?', p.202.

One of the key figures in Sinclair's statistical network was fellow Scotsman and close friend, George Dempster (1732-1818). Dempster was a notable actor of the Scottish Enlightenment, he was well connected, especially as an M.P. for Dunnichen and he had a wide range of interests.⁹⁸⁴ With his friend Sinclair he shared an enthusiasm for agricultural reform and the betterment of his fellow man.⁹⁸⁵ Over the course of nearly 20 years (1790-1814) Sinclair and Dempster were in communication.⁹⁸⁶ Sinclair boasted that the correspondence between himself and Dempster was so great that not a single volume could contain the wealth of letters sent between them.⁹⁸⁷ In the course of this correspondence both men discussed the statistical enterprise of Sinclair. Several letters from the 1790s illustrate the degree to which Sinclair had Dempster's support, admiration, and desire to see statistics used more practically. A letter from Dempster from 1791⁹⁸⁸ was most efficacious and, even, hyperbolic, in its praise:

It is a real Dooms-day book, and promises to be more read and quoted than any book printed since Dooms-day book. The older it grows, the more valuable it will prove. The object of this letter is, to entreat you to go on with it... I pray you extend your views to England and Ireland, and give us all the three Kingdoms. The sale will defray the expence [sic], and found an academy at Thurso.⁹⁸⁹

He was continually intrigued by Sinclair's vast enterprise. He clearly wanted the work to succeed and believed it had a real benefit for mankind.

Two letters from later in 1791 illustrate the seriousness with which Dempster believed in Sinclair's enterprise and how dearly he would have liked the government to take up the statistical mantle employing it in the governance of Britain. The first, dated 22nd March 1791, concerned a letter that Sinclair had sent to the local clergyman trying to speed up the return of his questionnaires. Dempster had been shown this letter by the clergyman and as he believed that the completion of *The Statistical Account* was of the utmost importance, he agreed that it was crucial to get many other politicians involved in the enterprise as well. Finally, he urged Sinclair to hurry with the completion of this great task as it would, once finished, be of great benefit.⁹⁹⁰

⁹⁸⁴ John Evans, *The Gentleman Usher: The Life and Times of George Dempster (1732-1818) Member of Parliament and Laird of Dunnichen and Skibo* (Barnsley: Pen & Sword Books, 2005), pp.1-16.

⁹⁸⁵ *Ibid.*, pp.212-214.

⁹⁸⁶ C.f. MS. RH4/49/2 *Sinclair of Ulbster Letter Books* [NRS].

⁹⁸⁷ Sinclair, *The Correspondence*, Volume 1, p.359.

⁹⁸⁸ Dated 11th February in MS RH4/49/2 and 14th February in *The Correspondence*.

⁹⁸⁹ MS. RH4/49/2 *Sinclair of Ulbster Letter Books: Volume III*, folios 243-246 [NRS].

⁹⁹⁰ MS. RH4/49/2 *Sinclair of Ulbster Letter Books: Volume III*, folios 241-242 [NRS].

The second letter, from 31st July 1791, demanded even more of Sinclair. Dempster lamented that Sinclair had not yet approached the government (“the Ministry”) to bestow some money upon the project and urged him to attempt to do so at his earliest convenience.⁹⁹¹ In fact, as mentioned above, that Sinclair did appeal to the government for aid in pressuring the clergy highlighting Dempster’s influence on Sinclair. The letter continued with the same Domesday metaphors as his previous letter. Dempster compared the work to that of William the Conqueror, stating that it would go down in posterity as William had. Finally, Dempster admitted the envy he felt at not having had such an idea on such a scope as Sinclair.⁹⁹² The letter is certainly one of friendship. It illuminates a clear mutual influence and highlights an interest in the methodological and practical feats of the statistical enterprise.

Dempster’s support did not stop after the publication of Sinclair’s *Account*. While much of their later correspondence concerned the Board of Agriculture, statistics remained an aspect of their connection long after. A letter dated 23rd December 1811 contained a list of recommended reading from Dempster to Sinclair, attempting to bring the latter’s attention to a series of “politico-economico-agriculturo-wisdom” maps.⁹⁹³ He explained that the maps incorporated useful information that may interest Sinclair.

While Dempster was one of the most important figures in Sinclair’s British statistical network, especially in the early period, there were several other actors who played a key role in encouraging him in his enterprise. Many of Sinclair’s British statistical correspondents were key political figures having roles in the British government or as career M.P.s. The political correspondence demonstrates the desire of individual statisticians to gain influence and legitimacy from official governmental sources. The responses Sinclair received from these statistical correspondents exhibit both the potential impact his work could have but also the difficulty states and governments had with implementing statistical systems.

A letter from Sir David Dalrymple (1726-1792), the Scottish Advocate, dated 18th February 1791, illustrates a much cooler reception of his work:

⁹⁹¹ Sinclair, *History*, p.liii.

⁹⁹² *Ibid*, p.liii.

⁹⁹³ MS. RH4/49/2 *Sinclair of Ulbster Letter Books: Volume III*, folios 359-360 [NRS].

I am much obliged to you for your present. Your State of Scotland proves to be a very valuable work, under the hands so ardent an inquirer as you are. There is much to be learnt, even from the Specimen.⁹⁹⁴

The tone, while positive and motivating, is more sparing compared to Dempster. Dalrymple did not propose that the work could be used for more than a learning tool. It was valuable but only in so much as he praised Sinclair for his labour. He also remained ambiguous regarding what value the work could have had for the two men's contemporaries.

Similar overtures were made in correspondence with Joseph Hume (1777-1855), the radical Scottish M.P., Henry Dundas (1742-1811), The Viscount Melville a key figure in the British government, and William Cavendish-Bentinck, 3rd Duke of Portland (1738-1809), Prime Minister of Great Britain (1782) and then again of the United Kingdom (1807). The first two men were frequent correspondents with Sinclair and on friendly terms while the latter seemed to be a single correspondent. However, all three illustrate the prevailing attitude of the state towards statistics during the period, positive to the idea but indifferent to its larger usage.

The Duke of Portland's letter, dated 24th October 1789, was just a note.⁹⁹⁵ Sinclair had sent the Duke a copy of the early work he had done on *The Statistical Account*. The Duke noted his grateful reception of the work. The tone is, again, friendly, but it is even more ambiguous Dalrymple's letter. There is no indication as to whether this correspondence continued afterwards. However, it testifies to Sinclair's willingness to send his work to those in power and to attempt to spread his influence to the widest and most powerful audience even if the success rate was limited.

Likewise, while Henry Dundas and Sinclair corresponded on all manner of topics, they seem to have touched on the topic of statistics only once. A letter, dated 15th November 1802, witnesses an attempt by Sinclair to impose a statistical project upon the government, particularly a statistical account of India.⁹⁹⁶ Dundas wrote that if he brought the enterprise to the attention of the person in charge of Indian affairs it would be well received and studied. However, in his personal opinion such an enterprise was not necessary. Dundas affirmed that such statistical information regarding India would have already been uncovered and known to those in charge. He advised emphatically against such an enterprise, declaring that it was no business of the individual to attempt to collect information that rightfully belonged to the government.⁹⁹⁷ The message was

⁹⁹⁴ Sinclair, *History*, p.lii.

⁹⁹⁵ MS. RH4/49/2 *Sinclair of Ulbster Letter Books: Volume IV*, folio 1 [NRS].

⁹⁹⁶ MS. RH4/49/2 *Sinclair of Ulbster Letter Books: Volume IV*, folio 418 [NRS].

⁹⁹⁷ *Ibid.*

unmistakable, while statistics appeared to be a worthwhile occupation for the state it was not worth (or advisable) pursuing officially as the government already held a monopoly over this information.

Dundas was heavily invested in the India project and sought to bring the realm under the control of the British state wresting control of the sub-continent away from the East India Company in the last decades of the eighteenth century and the first decades of the nineteenth.⁹⁹⁸ Dundas desired a strong but limited government, especially in the fledgling British Empire,⁹⁹⁹ thus, Sinclair's ideas belonged within state mechanism than with an amateur acting at the edge of its affairs. While the Empire was an excellent source of knowledge for intellectuals in fields as diverse as biology, geology, and anthropology, the notion of codifying and surveying this information by amateurs was not viewed favourably as Dundas's correspondence demonstrates.¹⁰⁰⁰ Dundas even attempted to curtail the influence of forces outside the state and tried to establish the British government as the prime force in India.¹⁰⁰¹ It has been argued by Norbert Peabody that the formation of knowledge in India was not simply European in origin but a composite,¹⁰⁰² such circumstances could have been a further reason for Dundas to reject Sinclair's ideas as local Indian contexts would have made it difficult to implement a Scottish scheme. For Dundas, only the government would have such mechanisms that their disposal. Sinclair's suggestion, while in parts appealing to the statesman, was ill-timed and politically impractical. Thus, their statistical correspondence was brief and evidence for the difficult relationship of amateur statisticians with the state in the later eighteenth century.

Hume's attitude was that of a realist. A letter dated the 4th January 1823, regarding Sinclair's plan to extend the statistical account to England states:

With regards to the statistical acc[ount] while you suggest should be taken [in] England, I agree that it wou[ld] be useful, altho not perhaps to the extent which you anticipate –¹⁰⁰³

⁹⁹⁸ Michael Fry, *The Scottish Empire* (East Lothian: Tuckwell Press, 2001), p.84.

⁹⁹⁹ *Ibid*, p.54.

¹⁰⁰⁰ Richard Drayton, 'Knowledge and Empire', in P. J. Marshall (ed.), *The Oxford History of the British Empire: Volume II The Eighteenth Century* (Oxford: Oxford University Press, 2001), pp.250-251.

¹⁰⁰¹ H. V. Bowen, 'British India, 1765-1813: The Metropolitan Context', in Marshall (ed.), *The Oxford History of the British Empire: Volume II The Eighteenth Century*, pp.545-549.

¹⁰⁰² Norbert Peabody, 'Knowledge Formation in Colonial India', in Douglas M. Peers and Nandini Gooptu (eds.), *India and the British Empire* (Oxford: Oxford University Press, 2012), pp.75-99.

¹⁰⁰³ MS. RH4/49/1 *Sinclair of Ulbster Letter Books: Volume III*, folios 1-5 [NRS].

Hume was generally accepting of Sinclair's schema but not without reservation about its usefulness. He conceded that states made mistakes due to their lack of political knowledge, which could be rectified by a sound understanding of Political Economy.¹⁰⁰⁴ He was both positive and cautious about Sinclair's ideas. A second letter, dated 8th January 1823, reflects this positivity but less of his caution, arguing that a statistical account of England would bring great advantage for trade, both foreign and domestic, and would be generally useful.¹⁰⁰⁵ He went so far as to try and persuade Sinclair to push the idea to the government itself.¹⁰⁰⁶ Indeed, during this time states had begun once again to engage in the possibility of more regular census taking, especially after the destruction of the Napoleonic wars.¹⁰⁰⁷ By the 1820s, the attention to Sinclair's ideas had begun to grow especially by those, like Hume, who could see the use of more regular and detailed surveys and censuses. As a matter of fact, Sinclair's thought and the idea of a regular statistical census was slowly becoming the norm in Europe during this period. From Belgium and the work of Quetelet to Denmark's nominative census taking in 1834 to the foundation of the Prussian Bureau of Statistics in 1805 the states of Europe were turning their attention to statistics and Sinclair's transnational network played a large role in this development.¹⁰⁰⁸

Other politicians were more optimistic about Sinclair's statistics. There were factions of government who were eager to see Sinclair succeed in his statistical endeavours. Correspondence dated 9th November 1790 from Sir John MacPherson, 1st Baronet (1745-1821), M.P. and later administrator in India, illustrates the dual feelings towards the use of statistics in government. He advised Sinclair not to concern himself with people laughing and ridiculing his enterprise, and assured him that the account would be useful that he should be pleased with his efforts and success so far.¹⁰⁰⁹ He urged him to continue with his efforts for the sake of posterity because his mission was of the utmost importance.¹⁰¹⁰ MacPherson's attitude reveals the fluctuations of thought in government which increasingly saw value in statistics but had reacted with ambiguity and evasion that dogged the new science in its early years.

¹⁰⁰⁴ Ibid.

¹⁰⁰⁵ MS. RH4/49/1 *Sinclair of Ulbster Letter Books: Volume III*, folios 12-14 [NRS].

¹⁰⁰⁶ Ibid.

¹⁰⁰⁷ C.f. Thorvaldsen, *Censuses and Census Takers*, pp.54-120.

¹⁰⁰⁸ Ibid, pp.65-67; Labbé, 'Institutionalising the Statistics of Nationality', pp.291-293.

¹⁰⁰⁹ MS. RH4/49/3 *Sinclair of Ulbster Letter Books: Volume V*, folios 288-297 [NRS].

¹⁰¹⁰ Ibid.

The response of the academic and intellectual community was much more positive. The work of Malthus exemplifies how influential Sinclair could be. Malthus directly quoted Sinclair's statistical work and Sinclair was clearly a major influence on his essay on population.¹⁰¹¹ He also made Sinclair aware of this fact through correspondence. Sinclair presents only one letter from Malthus, dated 31st January 1815, and it is clear that Malthus was familiar with *The Statistical Account* being able to both praise and analysis it:

I can only say, at present, that it appears to me to be full of the most useful information: nor do I see any other objection to the plan and execution of it, than what must necessarily arise from the number of different writers concerned. To make a General Report quite complete, perhaps it should be drawn up wholly by one master-hand, with occasional references at the bottom of the page to the different papers on which the information was founded. But there are very few who could properly execute so laborious and difficult a task; and the Report, in its present form, has a more original and authentic air.¹⁰¹²

Much like with Zimmermann's journal inclusion in the 1790s, Sinclair's success came most easily with those whose political career was not at stake in the early nineteenth century.

Sinclair's network was an impressive one. He was a prolific letter writer eager to circulate his ideas and gain useful information. He formed vast correspondence networks all over Europe and the world that disregarded national or state boundaries. Sinclair's network, made up of these loose connections, flows and arterial webs, demonstrates that his network was one of the principle methods of spreading his ideas and knowledge. By following the flow of Sinclair, we uncover how he was able to advance his ideas not just within Britain but beyond, to powerful men of state as well as intellectuals and academics in Europe and America. His work and thought were well received and proved to be influential, particularly in America, German lands, Scandinavia, Russia, and France. He was translated in French and German, included in statistical journals, and was given wider distribution through figures like Washington and Thorkelin. His work helped to shape the way statistics was practiced and on what scale it should be done. His network illustrates the fractious relationship between amateur statisticians and states and statesmen in the later eighteenth and early nineteenth century. Its dual function was to circulate Sinclair's statistical ideas among individuals while fuelling the growing interest of the those in power. It also provides an insight into how tense this relationship was and how states negotiated control, especially in terms of

¹⁰¹¹ Thomas Malthus, *An Essay on the Principle of Population*, Volume 1, Patricia James (ed.) (Cambridge: Cambridge University Press, 1989), p.21fn10.

¹⁰¹² Sinclair, *The Correspondence*, Volume 1, p.92.

monopolies of information. There is evidenced in Sinclair's network the formation of a shift in thinking from the Enlightenment to the nineteenth century, where governments began to play a more formidable role in defining and understanding their own territories. Sinclair's network was a crucial element in the development of statistics from the eighteenth to the nineteenth century and he was key player in this evolution. Additionally, he embodied this shift from amateur to professional statistics.

Chapter 8

Leviathan: or *The Statistical Account of Scotland* and Sinclair's Impact on the Evolution of Statistical Thought

The Statistical Account of Scotland is a monumental work. It consists of twenty-one volumes that were published between 1791 and 1799.¹⁰¹³ The work included reports for all 938 Scottish parishes. Sinclair found his work to be challenging and he stated that it was not without great exertion that the whole work was brought to fruition nine years after he initially proposed it to the General Assembly of the Church of Scotland.¹⁰¹⁴ This section shall attempt to capture some of the leviathan effort Sinclair made by analysing *The Statistical Account*. It will explore Sinclair's concept, methodology, and definition of statistics, bringing in some of his other works on the subject, such as his *Analysis of the Statistical Account*. Finally, it will analyse the reach and influence of the *Statistical Account*, the impact it had in Britain, Europe, and globally. The section will argue that Sinclair's work was instrumental in the shift of statistics from descriptive to mathematic across Europe. It will stress the transnational nature of this enterprise and of Sinclair's work and ideas to this evolution of statistical thought.

The Leviathan

Sinclair was a man of great energy and hard work.¹⁰¹⁵ This drove him to complete such a mammoth task. But where did the idea for such a massive enterprise come from? He attempted to explain his reasoning in his essay on the *History* of the account. Sinclair indicated that he had always had an interest in political matters and shortly before his Grand Tour in 1786 he wished to bring to before the public "a General View of the Political Circumstances of the Country".¹⁰¹⁶ Unfortunately, such an enterprise was not possible at the time due to a lack of information. However, he took up the idea to create a political account again in 1790, this time with more determination and approached the General Assembly of the Church of Scotland of which he was a Lay Member. His intention was to create a "General Statistical View of North Britain". Due to the difficulties he found in trying to implement this, however, he turned his attention to Scotland alone. He called it an

¹⁰¹³ Plackett, 'The Old Statistical Account', p.249.

¹⁰¹⁴ Sinclair, *History*, pp.iv-x.

¹⁰¹⁵ Mitchison, 'Sinclair, Sir John, first baronet (1754–1835)'.

¹⁰¹⁶ Sinclair, *History*, pp.iii-iv.

“Analysis of the Political State of Scotland, with a View of the Principles of Statistical Philosophy”¹⁰¹⁷ For Sinclair, this was sufficient to explain the origins of his life’s work. But, of course, this was not the full story.

Sinclair’s statistics did not come out of a vacuum. He explained that he found the term and the basis of his philosophy on his travels in the German lands.¹⁰¹⁸ R. L. Plackett remarks that:

His [Sinclair’s] lifelong enthusiasm for collecting “useful information” led him in particular to note the use of ‘Statistik’ by the Göttingen school of political economists.¹⁰¹⁹

Sinclair acknowledged that the concept of collecting information was not new.¹⁰²⁰ The ideas, theories and practicalities had grown out of his experiences, travels and readings, as well as a long tradition of Political Arithmetic, Political Economy and grand surveys.¹⁰²¹ Sinclair conceded that his work was but one in a long list, however, informed by statistical philosophy his was the most accomplished and unequalled, or would be once completed.¹⁰²² Appendix G in his *History* was dedicated to a list of precursors and sources from across Europe that had been inquiries of a statistical nature. These include examples as diverse as Spanish attempts to perform a natural and political history in the sixteenth century, the Dauphin reports ordered by Louis XIV in France, and previous surveys carried out in England, Ireland and Scotland.¹⁰²³ All of these form part of his diverse inspirations.

He also cited German examples, demonstrating his awareness of and engagement with the tradition. He disclosed how he was well acquainted with the works of Gottfried Achenwall and believed he was the first to bring statistics into a unified system:

He [Achenwall] has made it a separate science, ‘whence,’ he observes, ‘history borrows great lights, which furnishes the best materials for the continuation of the state, which enriches politics and which prepares those of the brightest genius among the studious youth, to become one day able ministers of the state.’¹⁰²⁴

Sinclair was familiar with Achenwall’s proposal that statistics was the foundation of understanding the state for those who would best govern it. Beyond this, Sinclair relied on the exposition of

¹⁰¹⁷ Ibid, pp.iv-v.

¹⁰¹⁸ Ibid, p.v.

¹⁰¹⁹ Plackett, ‘The Old Statistical Account’, p.249.

¹⁰²⁰ Sinclair, *History*, p.xvi; Appendix G; Plackett, ‘The Old Statistical Account’, p.249.

¹⁰²¹ Plackett, ‘The Old Statistical Account’, p.249

¹⁰²² Sinclair, *History*, p.xiv.

¹⁰²³ Ibid, pp.lxi-lxxii.

¹⁰²⁴ Ibid, p.lxv.

German statistics in *The Elements of Universal Erudition* by Jakob Friedrich von Bielefeld (1717-1770). He recorded Bielefeld's twenty-point programme of necessary information required for a work of statistics in detail. Lastly, he praised Zimmermann for making statistics known in Britain in his work.¹⁰²⁵ His comprehensive analysis of his German predecessors highlights a detailed knowledge of the tradition of *Statistik*. To him it was lamentable more of this literature had not spread to the British Isles as he believed it could be utilised to great effect in his own country.

In his section on Scotland, Sinclair reported numerous attempts at land surveys but none had been successful.¹⁰²⁶ Plackett argues that these surveys, along with the development of insurance schemes for widows and children in eighteenth-century Scotland, formed the dual basis for the intellectual background of *The Account*.¹⁰²⁷ This view is simplistic and ignores developments such as Sinclair's travels, German *Statistik*, Political Economy and the rise of Political Arithmetic altogether. Also, it is doubtful to what extent insurance schemes influenced Sinclair. His section on Scotland does not mention such schemes, only natural surveys of the nation.¹⁰²⁸ Sinclair owned a manuscript of a survey of Caithness (not Scotland).¹⁰²⁹ The manuscript, entitled *A Short Geographic Survey of the County of Caithness by Aeneas Boyne AM* (1737), contains a basic geographic history of Caithness. While it did not extend to politics or agriculture it does suggest that Sinclair was well-read in the art of the geographic survey and had a keen enough interest to own a copy of one of his own county.

Scotland's political, economic, and intellectual environment in the late eighteenth century was well suited to accommodate Sinclair's vision of a vast survey. Politically, the country had been through vast changes and crises since the late seventeenth century. The failure of the Company of Scotland and their Darien venture between 1696 and 1699 had a disastrous effect on the Scottish economy and revealed the weakness of the Scottish state.¹⁰³⁰ It has been argued that this failure was a major factor in the collapse of an independent Scotland and the Treaty of Union in 1707.¹⁰³¹ While this was not the only factor at play in the Union it illustrated Scotland's dire

¹⁰²⁵ Ibid, pp.lxv-lxvi.

¹⁰²⁶ Ibid, p.lxx.

¹⁰²⁷ Plackett, 'The Old Statistical Account', pp.247-249.

¹⁰²⁸ Sinclair, *History*, pp.lxx-lxxii.

¹⁰²⁹ MS RH4/49/1 3 *Sinclair of Ulbster Letter Books: Volume II*, Folios 145-170 [NRS].

¹⁰³⁰ On the Darien venture and the effect on Scotland, c.f. John Prebble, *The Darien Disaster* (Edinburgh: Mainstream Press, 1978); John H. McKendrick, *Darien: A Journey in Search of Empire* (Edinburgh: Birlinn, 2016); Douglas Watt, *The Price of Scotland: Darien, Union and the Wealth of Nations* (Edinburgh: Luath, 2007).

¹⁰³¹ Watt, *The Price of Scotland*, pp.xvii-xviii; Allan, *Scotland in the Eighteenth Century*, pp.6-7.

political and economic situation at the end of the century and the highlights the long-term convergence of the two nations up to this point.¹⁰³²

What followed was a turbulent century for Scotland in which its identity, political machinery, culture and economic worlds were reformulated and renegotiated within new power structures. David Allan has demonstrated how post-union Scottish political representation became truncated but many of the older political institutions in the nation survived and were integrated in some fashion into the English system.¹⁰³³ The Union did not, as Allan argues, mark the end of Scottish politics, but a redevelopment of it into forms that fitted the Westminster pattern.¹⁰³⁴ The tension between Scotland and England over the terms of Union manifested themselves throughout the century in the form of the Jacobite uprising in 1745 and anti-Scottish sentiment and laws that were imposed later in the century.¹⁰³⁵

Another key feature of the changing political landscape was the shifting attitudes to Scottish identity and Scottishness. This too was an area marked by tensions between a new British identity on the one hand and on the other a Scottish patriotism that felt aggrieved at the terms of Union.¹⁰³⁶ However, this relationship was complex and must be carefully disentangled from previous notions of a sweeping ‘Northern Britishness’ that has characterised much of the literature on the subject.¹⁰³⁷ Instead, Kidd argues the ‘Northern British’ patriotic identity combined both an element of Scottish independence against English hypocrisy and a desire to buy into the English traditions of liberty and constitutionalism.¹⁰³⁸ This turbulence in the political sphere left Scotland scrabbling for a place within the English political system. Men like Sinclair, by the end of the eighteenth century, still sought to solidify Scottish identity and its power structures. Sinclair’s account was well placed in the Scottish political landscape because it could begin to define Scotland itself. The desire to define and improve oneself was at the heart of Sinclair’s project and this was exactly what the Scottish political elite needed in the century post-union.

¹⁰³² Allan, *Scotland in the Eighteenth Century*, pp.1-14.

¹⁰³³ *Ibid*, pp.14-19.

¹⁰³⁴ *Ibid*, pp.25-34.

¹⁰³⁵ Tom Devine, ‘Three Hundred Years of the Anglo-Scottish Union’, in Tom Devine (ed.), *Scotland and the Union 1707-2007* (Edinburgh: Edinburgh University Press, 2008), pp.3-6.

¹⁰³⁶ Allan, *Scotland in the Eighteenth Century*, pp.34-39.

¹⁰³⁷ Colin Kidd, ‘Northern Britishness and the Nature of Eighteenth-Century British Patriotism’, *The Historical Journal*, 39/2, (1996), pp.361-382, here pp.361-364.

¹⁰³⁸ *Ibid*, p.382.

This idea of defining oneself links to the economic, agricultural and demographic changes Scotland went through post-1707. The population had increased dramatically in the latter half of the eighteenth century and has been estimated to have grown from roughly 1 million to over 1.6 million from 1707 to the time of *The Account*.¹⁰³⁹ Economically, Scotland went through a vast transformation in the eighteenth century. The Union opened up new areas of trade with the burgeoning English Empire throughout the century and gave Scotland and its merchants access to the world's richest economy at the time.¹⁰⁴⁰ A new commercial mentality, based on trade rather than colonisation, swept through Scotland after the Union.¹⁰⁴¹ The Scottish economy boomed thanks, in part, to this new mentality and went through a process of intense modernisation.¹⁰⁴² This transformed industrial and agricultural society in Scotland and with the rise in industry from the 1750s onwards there was a need for increased agricultural production to support industrial growth.¹⁰⁴³ T. C. Smout has demonstrated how this manifested itself in intellectual circles through the rise of the Agricultural 'improver' of the second half of the eighteenth century.¹⁰⁴⁴ His work has illustrated how Scottish agricultural thought had developed into one of the most sophisticated in Europe by the end of the eighteenth century, even citing Sinclair's Board of Agriculture as an integral part of this evolution.¹⁰⁴⁵ It is into this context that Sinclair's work grew. The political, economic, and intellectual contexts in Scotland were ripe for Sinclair's statistical survey. The attempt to stabilise a new political identity and the booming economy led to a need for definition of what was Scottish and what made Scotland.

Sinclair's task, however, was a daunting one and a source of great exhaustion because of his dependence on the Scottish clergy for his information. While his overall methodology was complex it began with his ability to collect the information to fill his account:

The most natural mode of obtaining information, and the one which I originally adopted, was that of printing and circulating Queries, as many individuals might be inclined to send answers to any

¹⁰³⁹ Allan, *Scotland in the Eighteenth Century*, pp.81-82.

¹⁰⁴⁰ Tom Devine, *The Transformation of Scotland: The Economy Since 1700* (Edinburgh: Edinburgh University Press, 2005), pp.21-22, 33.

¹⁰⁴¹ Michael Fry, 'A Commercial Empire: Scotland and British Expansion in the Eighteenth Century', in Tom D. Devine, and J. R. Young (eds.), *Eighteenth Century Scotland: New Perspectives* (East Lothian: Tuckwell Press, 1999), p.58.

¹⁰⁴² Allan, *Scotland in the Eighteenth Century*, p.81.

¹⁰⁴³ Devine, *The Transformation of Scotland*, pp.71-73.

¹⁰⁴⁴ T. C. Smout, 'A New Look at the Scottish Improvers', *The Scottish Historical Review*, 91/231, (2012), pp.125-149.

¹⁰⁴⁵ *Ibid*, p.128.

questions put to them, who would not take the trouble of drawing up a regular report. I accordingly addressed a Letter to the Clergy, and inclosed Queries in it....¹⁰⁴⁶

Thus, Sinclair approach was the most simple and effective, sending queries to the clergy of Scotland to obtain information on every parish.¹⁰⁴⁷ By 1790 Sinclair had sent each parish this questionnaire comprising 160 questions to which he added six more later and in 1791 he sent a sample of four answers to help guide clergy in their answers.¹⁰⁴⁸ These questionnaires were exhaustive and demanding. Sinclair was clear about the *Accounts*' uses and purposes and wished to impress this upon the clergy in his circular letter. He noted that such information would provide both governments, and the clergy themselves, with information useful in the realm of political and public utility and the general improvement of conditions.¹⁰⁴⁹ His first circular went a long way to flattering the clergy into action. He claimed that only in Scotland could statistical enquiries be brought to their perfect state because of its special ecclesiastical structure.¹⁰⁵⁰ The flattery was calculated as the questionnaire was a demanding and complex expression of statistical philosophy.¹⁰⁵¹

The original questionnaire was divided up into four sections.¹⁰⁵² The first section addressed the geography and natural history of the parish in forty questions, the second the population of the parish containing fifty-nine questions, the third section dealt with the productions of the parish in fifteen questions, and the fourth section was a series of forty-three miscellaneous questions that did not fit into the first three categories.¹⁰⁵³ The six additional enquiries (ADDENDA) were a series of miscellaneous questions that did not fit neatly into any of the categories outlined by Sinclair.¹⁰⁵⁴ They were wide ranging and attempted to penetrate to the heart of the parishes they were sent to.

The first section asked a series of questions pertaining to the natural world, attempting to establish the boundaries of the parish (Q3, 5, 6, 7), the geographic features contained within the parish, including mountains, rivers, coast line (Q8, 12, 13, 15, 17, 18, 28), and the natural flora

¹⁰⁴⁶ Sinclair, *History*, p.v.

¹⁰⁴⁷ Withrington, 'General Introduction' in *The Statistical Account of Scotland: Volume I: General*, p.ix.

¹⁰⁴⁸ Steven, *Parish Life in Eighteenth Century Scotland*, pp.1-2.

¹⁰⁴⁹ *Ibid*, pp.39-40.

¹⁰⁵⁰ Sinclair, *History*, p.xix.

¹⁰⁵¹ C.f. Appendix One for *First Circular Letter*.

¹⁰⁵² Sir John Sinclair, 'Appendix B' in *The Statistical Account of Scotland: Volume I: General* (Wakefield: EP Publishing, 1983), pp.39-48.

¹⁰⁵³ MS 2198, *Sir John Sinclair, advocate: Statistical Account of Scotland questionnaire*, (c.1791), [University of Aberdeen].

¹⁰⁵⁴ Sinclair, *History*, p.xxvi.

and fauna (Q14, 20, 21, 31, 39, 40). There were several questions on agriculture (Sinclair's area of expertise), nine inquired about the soil condition, thirty-three about mines, and forty asked what kind of animals the parish was well-known for breeding.

The first section attempts to paint the geographical landscape with words, a technique heavily influenced by the German tradition. It seeks to understand the layout of the natural world, the landmarks that could identify the parish and the natural resources that the parish possessed:

5. What is the extent and form of the parish?

...

33. Are there any mines, particularly coal-mines? What are they? To whom do they belong? And what do they produce?

...

40. Is the parish remarkable for breeding any species of cattle, sheep, horses, hogs, or goats, of peculiar quality, size, or value?¹⁰⁵⁵

These types of question were crucial for Sinclair as they provided information that easily assessed the situation of the people within their natural environment. Determining the layout and the natural produce of the parish would help to identify it and its boundaries and carried worth in a political and natural sense. Sinclair, it could be argued, was an early proponent of Human Geography that was taking shape in eighteenth-century intellectual circles, especially amongst statisticians.

The second section, on population reveals the influence of the Political Arithmeticians and the burgeoning demographic ideas. Sinclair aimed for a detailed breakdown of the population and how it had changed over time:

41. What was the ancient state of the population of the parish, so far as it can be traced?

42. What is now the amount of its population?¹⁰⁵⁶

He then asked for information on the number of males and females in the parish and finally about the number of people that reside in towns, villages, and the country.¹⁰⁵⁷ Question forty-eight to fifty-six are crucial and reveal the influence of Political Arithmetic on Sinclair.¹⁰⁵⁸ They dealt with the annual averages of certain population statistics, forty-eight is annual births, then, in ascending order, deaths, marriages, souls under 10 years of age, 10 to 20, 20 to 50, 50 to 70, 70 to 100, and

¹⁰⁵⁵ Ibid, pp.xx-xxi.

¹⁰⁵⁶ Ibid, pp.xxi-xxiii.

¹⁰⁵⁷ Ibid, p.xxi.

¹⁰⁵⁸ Ibid, pp.xxi-xxii.

above 100. The calculation of yearly averages of population is straight out of the Political Arithmetic playbook. Sinclair evidently valued demographics enough to make it a principle component of his statistical enterprise. His consideration of the changing trends in different age groups displays his fascination with determining population trends on a wider scale.

Questions fifty-seven to seventy-six,¹⁰⁵⁹ concern the divisions of labour, marital status, and birthplace of the population. Sinclair asked for the numbers of people in certain professions, from farmers to ferrymen and servants to seamen. He inquired about the number of foreign inhabitants and those born outside Scotland but within the British Empire as well as those born in parishes outside the parish that was being surveyed. He aimed to establish a social panorama of the population, along with their ages, marital status, birthplace, and occupation. The section continues with questions regarding nobility and religion, before moving onto the final part of the section, questions eighty-six to one hundred, concerning averages in population.¹⁰⁶⁰ These final inquiries, again, illuminate the influence of Political Arithmetic. Sinclair wanted to determine the exact birth rates, marriage rates, average family size, if there is depopulation and why, and, finally, emigration and crime in the parish. This was important for Sinclair as it elucidated the social make-up of the parish:

86. Is the population of the parish materially different from what it was 5, 10 or 25 years ago? and to what causes is the alteration attributed?

...

88. What is the proportion between annual marriages and the whole population?

...

95. Have any murders or suicides been committed?¹⁰⁶¹

Moreover, it would allow Sinclair to track these changes to better establish population trends and the improvement of society.

The third section moves on to the productions of the parish, and the agricultural sphere.¹⁰⁶² Being the shortest section it appears to be a supplementary category to fill in the gaps left by the first two. Sinclair was mostly concerned with the agricultural produce of the parish, asking in more detail about the flora and fauna (Q101-103), the number of acres of land used for specific purposes (Q104-106), the provisions, supply, import and export, and the nature of the materials produced in

¹⁰⁵⁹ Ibid, p.xxii.

¹⁰⁶⁰ Ibid, p.xxiii.

¹⁰⁶¹ Ibid, p.xxiii.

¹⁰⁶² Ibid, p.xxiii-xxiv.

the parish (Q107-116). The key to this section was to understand the agricultural situation. It was particularly concerned with production, statistics that any government would find useful. For Sinclair, all this had a moral edge and was part of his desire to understand the land to improve it, a theme that ties into his passion of agricultural reform.¹⁰⁶³ Sinclair was part of a wider Scottish movement of agricultural ‘improvers’ who sought to help Scottish agriculture keep pace with the extensive industrialisation that was occurring throughout the country.¹⁰⁶⁴

The final section deals with miscellaneous questions, essentially those that did not fit neatly within the other categories, but which Sinclair did not see fit to give their own section.¹⁰⁶⁵ The last question gives some indication of what this section was intended to illuminate:

160. Are there any means by which their [the people] condition could be ameliorated?¹⁰⁶⁶

The section primarily deals with the societal information that concerns conditions, social, political and economic, within the parish. Questions here range from the rents of the land (Q121) to the number of agricultural vehicles (Q140-142). He asked about the conditions and wages of both ordinary workers and those in servitude (Q134-139) and about the state of the poor (Q130-133) as well as the societal conditions and temperament of the people of the parish (Q150-159):

122. What [sic] the rent of houses, fishing, &c.?

...

132. What is the number of poor receiving in the parish receiving alms?

...

152. What is the general size of the people?

...

154. Are the people disposed to industry? What manufacturers are carried on in the parish? And what number of hands are employed therein?

155. Are the people fond of a sea-faring life? What is the number of boats and of larger vessels belonging to the parish? And what number of seamen have entered into the navy during any preceding war?¹⁰⁶⁷

¹⁰⁶³ Mitchison, ‘Sinclair, Sir John, first baronet (1754–1835)’. It ties into wider Enlightenment themes of improvement, reforming society, political organisation, and quantification. C.f. Gower, ‘Statistics and Agriculture’, pp.180-181; Garrioch, ‘Making a Better World’ in Fitzpatrick, Jones, Knellwolf, and McCalman (eds.), *The Enlightenment World*; Hoppit, ‘Political Arithmetic’, p.535; Rusnock, *Vital Accounts*, p.4.

¹⁰⁶⁴ Smout, ‘A New Look at the Scottish Improvers’, pp.125-129; Devine, *The Transformation of Scotland*, pp.71-73.

¹⁰⁶⁵ Sinclair, *History*, pp.xxiv-xxvi.

¹⁰⁶⁶ *Ibid*, p.xxvi.

¹⁰⁶⁷ *Ibid*, pp.xxiv-xxv.

The required knowledge was at the same time abstract, subjective, objective, and numerical. There is an odd mix of ethnography, demographics, anthropology, economics, and politics. However, Sinclair himself did not think in such terms. It would therefore be appropriate to describe this final section as adding a further layer of detail to Sinclair's picture of the parishes being surveyed.

The final ADDENDA, the additional six questions, were seemingly afterthoughts and clarifications of certain points:

1. What is the state of the roads and the bridges in the parish? How were they originally made? How are they kept in repair? In the statute labour exacted in kind, or commuted? Are there any turnpikes? [A]nd what is the general opinion of the advantages of turnpike roads?¹⁰⁶⁸

The question is essentially six questions wrapped into one. As an afterthought to his main questionnaire it demonstrates Sinclair's commitment to gaining a much wider and more complete picture of the parishes as well as a continued refinement of the process. The remaining questions in the ADDENDA concern two separate topics. Questions two, three and four deal with land and agriculture, mainly enclosure and rents. Again, they are divided into several sub-questions that attempt to delve into greater detail. The final two questions concern the history of the parish, specifically what the state of the parish was in the previous decade or beyond.

Indeed, much of Sinclair's questionnaire was concerned with history. A N.B. at the end of his questionnaire clarifies:

If you reside in a town or city, please give an account of the history and antiquities of the place....¹⁰⁶⁹

In fact, there are no fewer than 10 questions relating to the history of the parish in a direct way (Q41, 119, 120, 144-450). This is not an exhaustive list and many of the questions that regard population are based upon the idea of historical comparison. Sinclair, like the German *Statistiker*, brought the chronological element to the fore of his statistical methodology. It formed part of a wider spatio-temporal comparative methodology in his statistical thought and would be applied widely to statistics in the future.

While Sinclair's methodological planning had been meticulous it did not function as well in practice. First, Sinclair was the editor, not an active contributor. He claimed only to have edited

¹⁰⁶⁸ Ibid, p.xxvi.

¹⁰⁶⁹ Ibid, p.xxvi.

one volume in its entirety (the second).¹⁰⁷⁰ Instead he hired a team of editors to work for him in Edinburgh and while he received all the reports first, he would then hand them back to his editing team with detailed instructions. Second, as has been noted, there was difficulty with getting answers back from the clergy.

However, although the actual results do not much concern us here, the practicalities of obtaining them illustrate some of the struggles of the eighteenth and nineteenth century statistician. Mitchison notes that many of Sinclair's inquiries were only summarily answered:

His influence was not control, and he had to accept with a good grace what a busy, lazy or uninterested minister might send him when it should happen to be available.¹⁰⁷¹

This was a key issue that Sinclair faced in his approach. It was made more difficult considering that the ministers were of different educational backgrounds and varying desires and motivations. Mitchison again comments that at least twenty of the reports had to be rewritten by Sinclair's editorial staff. Additionally, Sinclair had to write the report for Thurso himself and his close friend George Dempster was the most likely author for the report on his own parish Dunnichen.¹⁰⁷² To illustrate further, the Parish of Wick in Caithness was completed by the Reverend Mr William Sutherland and stretches to thirty-three pages in length, but it does not contain a single table of population or calculation of ages or wages.¹⁰⁷³ While Sutherland attempted to follow Sinclair's questionnaire by answering questions on the natural and human history of the parish he was unable to reply in any great depth. For example, his section on population:

Population.- The state of this parish, in regards to population, appears to be increasing. On the most considerable estate in it, that of Hempriggs, as well as several others, there are many well cultivated fields let to tenants, which about a century [sic] ago were no better than common pasture. The inhabitants, particularly on the coast and in the burgh of Wick, have multiplied as the fisheries have become more extended and successful. In February 1719, when Mr James Oliphant obtained a decret [sic] for stipend, the inhabitants of the parish were reckoned to amount to about 4000 souls. The return to Dr Webster in 1755 was 3938, the number has since increased to at least 5000 young and old.¹⁰⁷⁴

¹⁰⁷⁰ Mitchison, *The Agricultural Sir John*, p.122.

¹⁰⁷¹ *Ibid*, p.124.

¹⁰⁷² *Ibid*, pp.122-124.

¹⁰⁷³ William Sutherland, 'Parish of Wick' in Sir John Sinclair (ed.), *The Statistical Account of Scotland, Volume XVIII: Caithness and Sutherland* (Wakefield: EP Publishing, 1979), pp.238-270.

¹⁰⁷⁴ *Ibid*, pp.252-253.

Sutherland's account lacked the detail that Sinclair demanded in his questionnaire and like many others Sutherland was only able to send the information that was available to him. The completion of Sinclair's project was also down to luck.

Beyond the Leviathan

There was a moral conception of public utility that fed into Sinclair's definition and theory of statistics.¹⁰⁷⁵ In his *History of the Origin and Progress of the Statistical Account of Scotland* he gave his clearest definition of statistics:

The idea I annex to the term, is an inquiry into the state of a country, *for the purpose of ascertaining the quantum of happiness enjoyed by its inhabitants, and the means of its future improvements*; yet, as I thought that a new word, might attract more public attention, I resolved on adopting it, and I hope that it is now completely naturalised and incorporated with our language.¹⁰⁷⁶

It is instructive to explore this in a wider context before delving into specifics. The *Encyclopaedia Britannica* (1796) asserted that the new word was brought over from Germany and gained much use through the judicious work of Sinclair.¹⁰⁷⁷ Sinclair never made the claim to have been the first to use it, but he was the first to popularise the term.¹⁰⁷⁸ Regardless of its etymological origins the definitions intrigue. Sinclair purpose for statistics was the inquiry into a state with the objective of improving the general happiness of its inhabitants. In comparison, the *Encyclopaedia* defined:

The great object of the work is to give an accurate view of the state of the county... and the means by which their temporal and eternal interests can be promoted.¹⁰⁷⁹

Despite the vagueness the comparison reveals a convergence of similarities in the practice of statistical inquiry. The *Encyclopaedia Britannica* held Sinclair up as an exemplar of this method, arguing that if such inquiries could be used throughout Europe then the information obtained would help improve not only the state but the happiness of the peoples and nations of the world.¹⁰⁸⁰ The comparison uncovers a trend in British thinking towards the collection of this type of

¹⁰⁷⁵ C.f. Garrioch, 'Making a Better World' in Fitzpatrick, Jones, Knellwolf, McCalman (eds.), *The Enlightenment World*.

¹⁰⁷⁶ Sinclair, *History*, pp.iv-v.

¹⁰⁷⁷ 'Statistics', *Encyclopaedia Britannica; or, a dictionary of arts, sciences, and miscellaneous literature on a plan entirely new., Third Edition*, Vol. XVII (Dublin: James Moore, 1796), pp.731-732, here p.731.

¹⁰⁷⁸ Sinclair, *History*, p.v.

¹⁰⁷⁹ 'Statistics', *Encyclopaedia Britannica*, pp.731-732.

¹⁰⁸⁰ *Ibid*, p.732. Also, c.f. Osterhammel, *The Transformation of the World*, pp.28-29, on statistics as an aid to improvement of society in the wider world.

information. Further, it correlated with new ideas about Britishness in the British Isles after the Union of 1707 and how it had become imperialistic for most people by the end of the eighteenth century.¹⁰⁸¹ This attitude demanded the creation and definition of an identity and Sinclair's statistics fit this need. His model of statistical thinking clearly gained traction throughout Britain.

The legacy of the *Account* was its impact in Britain. Malthus is an obvious case in point. He referenced Sinclair's work in his chapter on the checks on population and their modes of operation and praised Sinclair's work.¹⁰⁸² Malthus, however, also invoked the relative youth of the science of statistics and predicted a long way to develop. While Sinclair was a large influence, Malthus also wanted to improve Sinclair's ideas, for instance by widening its scope to include marriage rates.¹⁰⁸³ He also wanted to improve the methodology and questioned the reliance on the clergy to obtain statistical information. Beyond Malthus, *The Statistical Account* was an immediate and lasting success as will be illustrated in the next section.¹⁰⁸⁴

On a theoretical level Schlözer's *Theorie der Statistik* illustrates that Sinclair had a profound effect upon the former's development of the definition of statistics. Not only did Schlözer print Sinclair's definition of statistics verbatim but he analysed it in depth.¹⁰⁸⁵ The analysis was slightly unfair to Sinclair. Schlözer maintained that Sinclair's definition did not differ sufficiently from the German definition.¹⁰⁸⁶ While the German theorists were not in complete agreement with Sinclair his work influenced their definitions. It was clearly read by key statisticians, like Schlözer, and that they had to rethink or at least sharpen their definitions in respect to Sinclair's work.

Sinclair remained remarkably vague on his definition until his later writings. The first was an essay in his *Essays on Miscellaneous Subjects* (1802), entitled "Observations on the Nature and Advantages of Statistical Inquires".¹⁰⁸⁷ The second was his *Analysis of the Statistical Account of Scotland* (1831), particularly in his chapter "On the Advantages of Statistical Inquiries".¹⁰⁸⁸ The first essay was a detailed exposition of his theoretical and philosophical ideas regarding statistics. It connects both governance and statistics with the laws and their development.¹⁰⁸⁹ He argued that

¹⁰⁸¹ Alexander Murdoch, 'Scotland and the Idea of Britain in the Eighteenth Century' in Devine and Young (eds.), *Eighteenth Century Scotland: New Perspectives*, pp.106-107.

¹⁰⁸² Malthus, *An Essay on the Principle of Population*, Volume 1, p.21fn10.

¹⁰⁸³ *Ibid*, pp.21-22.

¹⁰⁸⁴ Plackett, 'The Old Statistical Account', p.250.

¹⁰⁸⁵ Schlözer, *Theorie der Statistik*, pp.16-18.

¹⁰⁸⁶ *Ibid*, pp.17-18.

¹⁰⁸⁷ Sir John Sinclair, *Essays on Miscellaneous Subjects* (London: T. Cadell, 1802), pp.1-26.

¹⁰⁸⁸ Sir John Sinclair, *Analysis of the Statistical Account of Scotland* (Edinburgh: William Tait, 1831), pp.59-63.

¹⁰⁸⁹ Sinclair, *Essays*, pp.5-6.

laws were once created for smaller societies and with the evolution of society into, what he calls, “an artificial state of society” the means by which this society may be run for the benefit of humankind had become complicated:¹⁰⁹⁰

This leads me to consider, 1. What those advantages or blessings are, to the enjoyment of which every individual member of a political society seems to be justly entitled; and, 2. What are the most likely means of rendering them as generally attainable as possible.¹⁰⁹¹

Sinclair believed the sources of human happiness had to be determined as these made up the advantages that mankind was entitled to in a political society.¹⁰⁹² This was calculable and he consequently argued that the best way to discover a path for the betterment of society was through statistical inquiry. He even plotted out the perfect path to this type of inquiry, beginning with the geographical, then demographics, means of subsistence, the laws and governance of the country and, finally, miscellaneous objects of inquiry, such as customs and morals. It was from this that a wise government would be able to promote the best interests of their nation and of their people.¹⁰⁹³ The formula owes a lot to the German *Statistik* and Political Arithmetic. Sinclair reached beyond these traditions, however, and argued that statistics stood for governing morally, that is, promoting the happiness and prosperity of a nation’s citizens at large.

The second exposition is a small chapter in his *Analysis* which gives the reader a brief outline of Sinclair’s theoretical position:

The foundation of all human knowledge, therefore, must be laid in examination of *particular facts*; and it is only so far as general principles are resolvable into these primary elements, that they possess either truth or utility.¹⁰⁹⁴

This was a clear reference to the collection of knowledge, especially with regards to political and social utility. He elucidated that he was influenced by the Political Economist Sir James Steuart (1707-1780), especially the latter’s idea to have a “parish by parish” survey into the state of the nation. It was from this that motivated Sinclair to employ a large-scale statistical survey as the best method of improving the governance and happiness of people. He added, that Baconian ideas of factuality and truth were a large influence on the minute enquiries into the local situation as an aid

¹⁰⁹⁰ Ibid, p.6. The idea invokes Rousseau, another avenue of research that could prove fruitful.

¹⁰⁹¹ Ibid, p.7.

¹⁰⁹² Ibid, pp.9-17.

¹⁰⁹³ Ibid, pp.20-21.

¹⁰⁹⁴ Sinclair, *Analysis*, p.59.

to the wider situation. He also declared the aim of statistics was to allow every person to enjoy the advantages of political society and all the blessings and comforts of human life.¹⁰⁹⁵

Sinclair concluded his essay with a grand summation of the benefits of the statistics inquiry. The advantages were as listed: the collection of minute and local information allowed for the discovery of the sources of prejudice, custom, and event that may not be visible in wider information. Thus, the patriot had access to useful and practicable information. It could be of infinite use for “furnishing motives for public spirit” and a knowledge of local facts.¹⁰⁹⁶ The comparisons of ancient and modern states of the same district was suitable for determining the state of play (political, economic and social) in the present and the best method of its improvement.¹⁰⁹⁷ Thus, Sinclair’s definitions and theory did not change much at all since the publication of his *Account*. He was still committed to statistics as a discipline that aided in both governance and improving society.

This duality combined to create a vision of statistics that aimed to produce good and stable governance. Sinclair also became clearer on its purpose. Ascertaining human happiness by ‘furnishing motives for public spirit’ was a deeply entrenched political philosophy that he believed would lead to the best form of governance. He also indicated that it was crucial to understand the underlying causes of what made a political society work, a crucial aspect of statistical inquiry:

...the result of such extensive [statistical] inquiries... would bring the science of government, and the happiness of the human race, in every civilized country, to greater perfection, than any other method that has hitherto been devised.¹⁰⁹⁸

It is this definition as well as a methodology that was ground-breaking, so much so that his work was quickly translated.

Sinclair’s wider influence

His work was translated into French and German within the 1790s. Neither language translation contains the full works but they both illustrate an important point: Sinclair’s work was being read across Europe. The first translation was the French *Prospectus d’un Ouvrage intitulé: Analyse de*

¹⁰⁹⁵ Ibid, pp.60, 62.

¹⁰⁹⁶ Ibid, p.63.

¹⁰⁹⁷ Ibid, pp.62-63.

¹⁰⁹⁸ Ibid, p.63.

l'état politique d'Écosse in 1792.¹⁰⁹⁹ This was designed as a publicity piece to introduce Sinclair's statistical method as well as descriptions of six Scottish parishes that were "skilfully chosen, well edited and translated".¹¹⁰⁰ As the subtitle made clear, "les Principes de la Philosophie *Statistique*" ('the principles of the philosophy of statistics'),¹¹⁰¹ emphasised the significance of the new science as well as Sinclair's philosophy about good governance, it also bore a moral responsibility to be of benefit to the people.¹¹⁰² The book seems to have been popular in Europe and was selected by Zimmermann for inclusion in his *Annalen der Geographie und Statistik* in 1792.¹¹⁰³ It was taken as an abstract and translated into German testifying to the circulation Sinclair's work began to have from its initial publication onwards.

His work was discussed long after its initial publication and translation in France. In 1817, it was mentioned by Comte d'Hauterive (1754-1830) in his *Éléments d'Économie Politique*. He noted that the statistical tables of Scotland that he had used were derived from Sinclair.¹¹⁰⁴ He was positive about it, going so far as to say that it made a good addition to the field of Political Economy.¹¹⁰⁵ The fact that such sentiments were held in 1817 about Sinclair's ideas was a clear indication of their longevity. The argument that *The Account* had perfected the science of statistical inquiry in Britain highlights this.

Sinclair was also translated into German in two volumes,¹¹⁰⁶ first in 1794 and then in 1796 by Johann Philipp Ebeling (1753-1795). He was a graduate of the University of Glasgow (1779),¹¹⁰⁷ who had moved back to Leipzig after graduating. The works were well-known in Germany, so much so that they were included in Meusel's compendium *Litteratur der Statistik*.¹¹⁰⁸ Not only did Meusel include references to the English work and its German translation but also a

¹⁰⁹⁹ Sir John Sinclair, *Prospectus d'un Ouvrage intitulé: Analyse de l'état politique d'Écosse* (London: n.p., 1792)

¹¹⁰⁰ Withrington, 'Note on Publicity etc.' in *The Statistical Account of Scotland*, Vol. 1, p.liii.

¹¹⁰¹ Sinclair, *Prospectus*, Front Piece.

¹¹⁰² *Ibid*, p.vii.

¹¹⁰³ Zimmermann (ed.), *Annalen der Geographie und Statistik*, Dritter Band, pp.470-479.

¹¹⁰⁴ Alexandre Maurice Blanc de Lanautte, Comte d'Hauterive, *Éléments d'Économie Politique* (Paris: Pantin, 1817), pp.365-366.

¹¹⁰⁵ *Ibid*, pp.367-368.

¹¹⁰⁶ Sir John Sinclair, *Statistische Nachrichten von Schottland, Erster und Zweiter Band* (Leipzig: Weidmannischen Buchhandlung, 1796).

¹¹⁰⁷ Addison W. Innes (ed.), *A Roll of the Graduates of the University of Glasgow; From 31st December, 1727 to 31st December 1897, with short biographical notes* (Glasgow: James MacLehose & Sons, 1898), p.176.

¹¹⁰⁸ Johann Georg Meusel, *Zweyter Nachtrag zu der Litteratur der Statistik* (Leipzig: Casper Fritsch, 1797), p.62.

complete list of authors who had used Sinclair in their own. It included reports on German reviews. One such example was the *Allgemeine Literatur-Zeitung*'s review in 1793.¹¹⁰⁹

Sinclair's statistical works must be considered a watershed moment in the history of statistics. His *Statistical Account* was the largest of its kind at the time and one of the most influential. Both his methodology and his theory had impact in Britain and beyond. He added a moral edge to statistics that was considered important almost immediately. His methodology introduced a different way of collecting information. It also combined the techniques of the Political Arithmeticians with the descriptive elements of German *Statistik*. The combination of these two techniques and morally minded conception of governance created a new form of statistics. His work was a long-lasting success in Britain and helped statistics move towards mathematics and visualisation, with a stronger moral edge and more government involvement. He had a long-lasting impact on the evolution of British Statistics as the rise of the Royal Statistical Society and the state-run census demonstrate.

The individual did more than the state to drive the science of statistics precisely because the state held a monopoly over information, and it required statisticians to develop more and more sophisticated means of analysing and interpreting what information they could get. This was accompanied by a rise in the more mathematically minded statistician precisely because key information was kept from amateurs and remained in state's control. Sinclair, while being outside the state, demonstrated a method of information collection on a grand scale that gave people access to new knowledge. Additionally, his definition of statistics, which gave it a moral edge was a major influence on the development of demographic surveys and those collecting information on crime statistics.

It is often assumed that the statistical movement in Britain did not start until the 1830s.¹¹¹⁰ In some sense this is true, the great statistical societies of Britain were all founded in this period, the British Association for the Advancement of Science (BAAS) 'Section F' in 1831, Manchester in 1833 and London in 1834.¹¹¹¹ While the first British census was made in 1801, it was not until

¹¹⁰⁹ [Anonymous], *Allgemeine Literatur-Zeitung*, No. 231, Wednesday 7th August 1793.

¹¹¹⁰ C.f. Lawrence Goldman, 'The Origins of British 'Social Science': Political Economy, Natural Science and Statistics, 1830-1835', *The Historical Journal*, 26/3, (1983), pp.587-616, here p.591; M. J. Cullen, *The Statistical Movement in Early Victorian Britain: The Foundations of Empirical Social Research* (New York: The Harvester Press Limited, 1975).

¹¹¹¹ Cullen, *The Statistical Movement*, pp.77-78; Christopher O'Brien, 'The Origins and originators of early statistical societies: a comparison of Liverpool and Manchester', *Journal of the Royal Statistical Society. Series A (Statistics in Society)*, 174/1, (2011), pp.51-62, here pp.51-53.

the 1830s that new and improved methods made the census a more effective method of data collection and the connections it had with the statistical societies meant that the government became more interested in developing a statistical department.¹¹¹²

However, it was earlier statisticians, such as Sinclair, who laid the groundwork for this rise of this more mathematically minded statistics. There are two key facts that demonstrate just how relevant Sinclair remained in the eyes of later statisticians. First, he was one of the original, and oldest, founding members of the Statistical Society of London.¹¹¹³ Second, he was a member of the committee of BAAS ‘section F’, that dealt with statistical matters, voted to that position in a 1834 meeting of the BAAS in Edinburgh.¹¹¹⁴ Sinclair was mentioned several times during the meeting and, most poignantly, in connection with a Mr Gordon’s plan for a new statistical account of Scotland:

A similar work was produced upwards of forty years ago by the exertions of Sir John Sinclair, Bart., to whose enlightened enterprise so many of the most useful institutions in this country owe their existence or their improvement.¹¹¹⁵

A clear line of influence was present, indicating not only the long-lasting success of Sinclair’s work but also of his statistical thought. What suffered significant change was the methodology. The works were similar in the use of the clergy as a method of collecting information. But the report specified that Mr Gordon’s project differed in three key ways: first, in the arrangement of parishes, which were placed under their counties and not as Sinclair had done, at random. Second, with the expansion of natural history, to areas such as geology, hydrology, botany, and zoology, the account’s scope was widened. And third,

[I]n the statistical details themselves, which, from the changes that have taken place within the last forty years, are found to be so different from those of the former work as to render the present almost entirely new.¹¹¹⁶

While this statement is rather ambiguous, it suggested that the new work had a more mathematical and visual edge to it. The report indicated that maps would be used extensively as well as an

¹¹¹² Kathrin Levitan, *A Cultural History of the British Census: Envisioning the Multitude in the Nineteenth Century*, *Envisioning the Multitude in the Nineteenth Century* (Basingstoke: Palgrave Macmillan, 2011), pp.22-25.

¹¹¹³ Plackett, ‘The Old Statistical Account’, p.250.

¹¹¹⁴ [Anonymous], *Report of the Fourth Meeting of the British Association for the Advancement of Science: Held in Edinburgh in 1834* (London: John Murray, 1835), p.xxx.

¹¹¹⁵ *Report*, p.692.

¹¹¹⁶ *Ibid*, p.692.

increased use of the tabular form to illustrate various scales of comparison from the national to the local, that, indeed, the numerical aspect of the work was best utilised and analysed through tabular form.¹¹¹⁷

While Sinclair and his statistical thought and, parts of his methodology, remained relevant, much that he had done in the first *Account* was, by this point, considered outdated. Statistics was becoming more numerical. The idea of comparison of the various scales and their division into distinct categories (such as education, religion, number of poor) can all be linked back to Sinclair. What expanded was their use and complexity. The scope increased too, to match the demands of science. This included visualisation and the use of county maps to illustrate statistical information. Still, it feels like a form of Sinclair's statistical practice. It appeared, from the general outline presented, that Mr Gordon intended his account to be an aid to the improvement of the people and their happiness.¹¹¹⁸ While this was never explicitly stated, it was implied in the close connection the report seems to foster with the first *Account*, and the positive picture it aimed to paint.

His influence was apparent in the early editions of the *Journal of the Royal Statistical Society*, first published in 1834 under the name *Proceedings of the Statistical Society of London* and renamed in 1838 as the *Journal of the Statistical Society of London*. In its introductory volume, the culmination of numerous trends, all influenced by Sinclair, were apparent. It was noted that statistics evolved out of the German word *Staat*, meaning state.¹¹¹⁹ The same derivation had been reached by Sinclair and his conclusions had found their way into the origins and definitions of statistics of Britain:

Statistics, therefore, may said to be... the ascertaining and bringing together of those “facts which are calculated to illustrate the condition and prospects of society;” and the object of Statistics Science is to consider the results which they produce, with the view to determine those principles upon which the well-being of society depends.¹¹²⁰

This highlights a two-fold phenomenon. First, the idea that statistics was a moral exercise in governance, thus examined how best to improve the lives of people. This idea was directly derived from Sinclair, who proposed statistics was designed to ascertain the happiness of the subjects and ways to improve this. Second, the method had changed since Sinclair's time and became more

¹¹¹⁷ Ibid, p.693.

¹¹¹⁸ Ibid, pp.692-693.

¹¹¹⁹ [Anonymous], 'Introduction', *Journal of the Statistical Society of London*, 1/1, (1838), pp.1-5.

¹¹²⁰ Ibid, p.1.

sophisticated. Determining ‘those principle upon which the well-being of society depends’ was a subtle indication that statistics was becoming more scientific and mathematical. The discovery of laws was something that Sinclair or earlier generations of statisticians had not given thought to because the techniques they had used were not sophisticated enough to allow them to think in this way. The idea of laws in statistics was being pioneered not just in Britain but also by the Belgian statistician Adolphe Quetelet whose thesis on the ‘average man’ was influential across Europe.¹¹²¹ Quetelet’s new ideas and form of ‘positivism’ brought about a more sophisticated version of statistics based on laws and theories developed by men like Gauss and Laplace.¹¹²² Sinclair’s ideas had been replaced and the science of statistics began to be dominated by universal laws based on complex mathematical theories.

Another striking feature, which was only hinted at in the works of Sinclair, were the concepts of truth, facts, and knowledge. While Sinclair talked of gathering information for improving society, the journal aimed for “diffusing the knowledge of truth... detecting and removing error and prejudice”,¹¹²³ “it seeks only to collect, arrange, and compare, that class of facts which alone can form the basis of correct conclusions”,¹¹²⁴ and “the knowledge and proper appreciation of those facts that determine and explain civilisation”.¹¹²⁵ The rhetoric was becoming more scientific, moving away from the grand rhetoric of Sinclair’s ‘quantum of happiness’ and toward the discussion of theory and formula. The article author was concerned with demonstrating how statistic was “closely allied to the other sciences and receive contributions from all of them”.¹¹²⁶ He made clear that statistics was “not inferior in usefulness to any other science”.¹¹²⁷

By the mid-nineteenth century statisticians were trying to carve out their discipline as a legitimate and useful science. This process would come to a head with the organisation of the international statistical conferences from 1853 onwards.¹¹²⁸ These conferences, organised by Quetelet until his death in 1874, would help promote governmental use of the nominative census (mathematical) as well as professionalise the image of statistics.¹¹²⁹ This evolutionary trend was

¹¹²¹ Thorvaldsen, *Censuses and Census Takers*, p.66; Hacking, *The Taming of Chance*, pp.106-108.

¹¹²² Hacking, *The Taming of Chance*, p.106; Desrosières, *The Politics of Large Numbers*, pp.69-70.

¹¹²³ ‘Introduction’, *Journal of the Statistical Society of London*, p.2.

¹¹²⁴ *Ibid*, p.1.

¹¹²⁵ *Ibid*, p.2.

¹¹²⁶ *Ibid*, p.2.

¹¹²⁷ *Ibid*, p.2.

¹¹²⁸ Randeraad, *States and Statistics*, pp.1-9.

¹¹²⁹ Thorvaldsen, *Censuses and Census Takers*, p.67.

started by Sinclair and concluded with the rise of the professional and mathematical in statistics and the more formalised transnational networks that surrounded it.¹¹³⁰ The *Journal of the Statistical Society of London* article concurred:

Like other sciences, that of Statistics seeks to deduce from well-established facts and certain general principles which interest and affect mankind; it uses the same instruments of comparison, calculation, and deduction: but its peculiarity is that it proceeds wholly by accumulation and comparison of facts, and does not admit any kind of speculation; it aims, like other sciences, at truth, and advances, *pari passu*, with its development.¹¹³¹

The statistician “commonly prefers to employ figures and tabular exhibitions”.¹¹³² It revealed joint goals; first, that statistics had progressed methodologically into a realm of science and mathematics, where the discovery of rules, use of formula, and the numerical nature of statistical work were its new hallmarks. Second, that statistics was attempting to legitimate itself in the eyes of the scientific world, by the strong emphasis on laws and facts, and in the eyes of the government by illustrating its usefulness to improving the state.

Sinclair was thought of as the first great statistician in Britain:

Many other similar publications in particular branches of the science might be mentioned; but the first which comprehends all the details of Statistical Science was the account of Scotland already noticed, which appeared in 1791.¹¹³³

Clearly, Sinclair’s work was the major progenitor of statistics. He was the first to truly understand the details of the statistical science and the first to produce such a vast and informative text. Others are mentioned; Arthur Young for his contributions to agriculture, William Petty for his work with Political Arithmetic and William Playfair for his work on statistical maps and graphs.¹¹³⁴ However, for the article author and for the *Statistical Society of London* his work reigned supreme. The Board of Agriculture is mentioned in relation to developments in statistics, and the Board was Sinclair’s brainchild for which he served as its first president.¹¹³⁵ Thus, Sinclair’s influence is pervasive throughout British Statistics in the early nineteenth century with his work held in the highest regard.

¹¹³⁰ C.f. Davide Rodogno Bernhard Struck and Jakob Vogel (eds.), *Shaping the Transnational Sphere: Experts, Networks and Issues from the 1840s to the 1930s* (New York: Berghahn Books, 2015).

¹¹³¹ ‘Introduction’, *Journal of the Statistical Society of London*, p.3.

¹¹³² *Ibid*, p.3.

¹¹³³ *Ibid*, p.4.

¹¹³⁴ *Ibid*, pp.3-4.

¹¹³⁵ *Ibid*, p.4.

His work, while not being as mathematical as the new generation, was viewed as the progenitor of their statistical thought. Not only did his methodology stay relevant but it was actively built upon to incorporate new techniques in the production of knowledge.¹¹³⁶ His work was the first to combine the political and the mathematical elements in statistical thought. While, his successors were much more concerned with numbers, formula and science than he ever was, his work were the first clear steps in this direction. And statisticians of the early nineteenth century were happy to admit their debt to his work. However, Sinclair's influence lay within the realm of definition. His idea of statistics as a science of morality, designed not only to improve governance, but also to improve the conditions of society and its happiness, was accepted openly, especially in the early nineteenth century. He set statistics on a more mathematical and moral path, one that required justification from both science and state; and, as a result, became more complex.

Sinclair created a vast transnational network of contacts across the world that acted as conduits for his ideas. From here his work could gain a wider audience. His work was considered one of the most useful produced under the name of statistics some four decades after its publication. His ideas regarding the direction and definition of statistics were keenly observed and used by later generations. Sinclair played an integral role in this evolutionary process and demonstrates the importance that individuals working on a transnational scale had in the evolution of statistical thought in the later eighteenth and early nineteenth century.

¹¹³⁶ C.f. Poovey, *A History*, which traces this trend into the nineteenth century.

Conclusion

Summary

By the end of Sir John Sinclair's life in 1834 the statistical landscape had morphed into something that would have hardly been recognisable, even thirty years previous. As highlighted above, Sinclair was seen as someone who had helped to develop the discipline but, ultimately, was too old fashioned and out of touch to be relevant to the statistician of the 1830s. Schlözer had suffered a similar fate, though he died considerably earlier in 1809, and was seen by the 1830s as a relic of a bygone statistical age. They had become dinosaurs. However, their work remained influential, altering the course of the evolution of statistics, from a static narrative, dependent on description, to a mathematically minded, visualised, science that focused on accuracy and clarity.

This project has aimed to illustrate how these men came to have such an immense influence on the history of statistics. It has traced their lives and their intellectual development through a transnational lens and illuminated that the evolution of statistical thought occurred on a much wider spectrum than has been believed. These two case studies demonstrate that statistics changed and evolved from the eighteenth to the nineteenth century through the influence of amateur statisticians who worked either beyond or on the margins of the state. The effect of Sinclair and Schlözer is not only illustrative of this trend but also exemplary as they can both be considered key actors in the evolution of statistics. Their ability to move beyond the state and nation, to act beyond the state borders, to influence and be influenced by many different trends and ideas in the political sciences and statistics is an aspect of statistical thought that has been deeply under appreciated. By virtue of their position at the periphery of the state and its mechanisms their works and ideas, like all those positioned beyond the halls of power, evolved into more and more complex forms and methodologies to better decipher and interpret the limited information they could gain from the state. These individuals facilitated a shift in statistical thought and practice, they helped morph it into a science that focused less on descriptions of the state and more on the use of mathematical and visual elements to interpret and present information. Of course, this is not the whole story and the history of statistics is made of many strands. However, this is one of the most overlooked and undervalued strands of the historiographical landscape. These individuals, working on a transnational level and creating vast networks of contacts, helped facilitate the first statistical communities and mould practices and ideas through collaborative action across the globe.

August Ludwig von Schlözer and Sir John Sinclair, were crucial to this evolution in statistical thought. The project has gone so far as to frame these two actors as potentially the key components in this evolutionary process during the *Sattelzeit*, establishing their agency on a transnational scale, paying special attention to the networks they created and maintained. The use of network analysis helped established how through the conventions of eighteenth-century travel and letter writing both men could have found fluid correspondence networks that are in some ways analogous to Haas's 'epistemic communities'. To capture the full complexity the ideas of Saunier and Lux and Cook were utilised to explain the essential fluidity of these networks and to give agency back to the two actors.

But what exactly did these networks facilitate? Sinclair used his network not only to discover new ideas about statistics, but, crucially, to exchange his work with other budding statisticians or even those in political power. Schlözer used his to exchange statistical information and ideas but not necessarily to send copies of his work. His correspondence and travels created a large network of contacts that could provide or be provided with statistical information. For both men, these networks were the foundation of their statistical thought. They acted as proving grounds for ideas, the basis on which to gain or spread information and the 'location' in which statistics could evolve. Indeed, the transnational network is an important aspect in this evolution, one that has previously been understudied but this project has, hopefully, rectified.

The ideas of individuals working on the margins or beyond the state, as demonstrated in the cases of Schlözer and Sinclair, evolved into more complex forms, particularly in the combination of the descriptive and mathematical traditions prevalent in statistics at the time. A major reason for this was the lack of information that the state afforded to people beyond it. Thus, statisticians had to develop more and more complex theories, methods and analytical apparatus to deal with the lack of information they could obtain.

The significance of Enlightenment thought cannot be underestimated in this process. The rise of philanthropic and humanitarian ideas was particularly important in the changes in definition, especially the desire to use statistics to improve society and its happiness. The rise in state policing, debates about under-population, and the desire to understand the effect of medical care and illness on populations, played an influential role in the rise of demographics. This was significant for the development of Political Arithmetic and quantification in later eighteenth-century statistical thought. Additionally, the importance of agricultural improvement and reform

(including new methods of feeding increasing urban populations) fed the desire to understand geographical and natural histories and with-it statistical thought. Ultimately, this came together under the umbrella of Foucault's concept of 'Biopolitics'. These forces influenced actors into thinking about statistics in new and innovative ways and began an evolution in statistical practice and theory that culminated in the 1830s and the work of Adolphe Quetelet amongst other and the foundation of the statistical societies and their journals.

Sinclair and Schlözer were the first major proponents of this combined methodological approach, from descriptive to more mathematical. Moreover, they widened the scope of statistical enquiry and introduced a moral element to its practice, no longer focusing on simply governance but on how to improve society. Their theoretical contributions pushed the idea of statistics as a science and imagined the statistician as a collector, editor, and interpreter, continuing the eighteenth-century spirit of quantification and the rise of 'proto-disciplines' in natural science. Again, it must be stressed that these contributions would not have been possible if not for the transnational networks that were developed by men like Sinclair and Schlözer.

Both men had an impact on the spread and evolution of statistical thought well beyond their lifetimes. Schlözer was able to circulate his ideas, his information and his *Theorie* well beyond the confines of Göttingen. His works were translated into French and Dutch. It has been argued that Schlözer was a key component of spreading the word 'statistics' through Europe, including Britain. Sinclair's impact also reached well beyond his native Scotland. His work was translated into French and German, it was known from America to Russia, and he was a founding member of the London Statistical Society (now the Royal Statistical Society). This circulation of ideas would not have been possible had their interactions been limited to a specific state or controlled by a specific border. It was because they were able to interact, connect and circulate on a transnational scale (incorporating everything from the local to the global) that their statistical influence could be so broad and long-lived.

Comparison

To illustrate their individual merits, these two case studies have been analysed individually rather than as a direct comparison. However, neither man existed in an intellectual bubble and neither was completely international. Both were influenced by wider currents in European thought,

politics, and culture and both navigated their own specific national contexts. This may seem obvious to say, but it is essential to achieve a true comparison.

A direct comparison of the ideas of Schlözer and Sinclair reveals an illuminating feature of both men's thought: similar to the Political Arithmeticians they desired to understand state mechanisms through quantifiable means. They both believed in the benefit of establishing quantifiable means of understanding the state, based on populations, illness (and its causes), and the inner workings of demographics. A noticeable difference in this quantifying spirit was the hope for order through demographics. Sinclair did not seem to believe in ironclad laws discoverable through demographic investigation, only that it would be useful to understand to improve the general condition of society. Schlözer's work, and German *Statistik*, was influenced more by Süßmilch and his theological designs than the British example. He appeared to believe in an order discoverable behind population statistics.

Additionally, both men were convinced that statistics was a method by which to govern better. Their theories and methods were steeped in discovering the best modes of governance against the backdrop of better understanding state mechanisms. Here Sinclair was clearly influenced by German *Statistik*. He was intrigued by the idea of quantification in aid of the state. Schlözer was steeped in this tradition, and much like Sinclair, saw this understanding as the foundation of the statistical science. However, Sinclair began to attach a moral and ethical component to its definition. Schlözer appeared to have added this dimension later than Sinclair, possibly in response to the latter's new ideas. Thus, this moral component is difficult to place. It appeared to develop out of Sinclair's interest in agricultural reform and philanthropic enterprise. For Schlözer, it came from Sinclair and his statistics, it has no major precedent in German *Statistik* nor in Schlözer's wider thought.

There is an immediate similarity in the scope and methodological approach of their enterprises. Demonstrated in both Schlözer's *Briefwechsel* and Sinclair's *Account*, was an effort to engage in wide-ranging enquiries that were not limited to particular fields of expertise. Sinclair's questionnaire concerns itself with subjects as diverse as natural history, geography, population, economics, and politics. The correspondence in Schlözer's *Briefwechsel* demonstrates an equally broad range of interests. They range from history (both antiquity and modern), to natural history and biology, to politics and society.

It could also be argued that the tradition of journal editing amongst university professors in the German lands was a key influence on this trend, especially from Schlözer's point of view. Sinclair, however, again received this scope from the German example as he was familiar with Achenwall's and Zimmermann's work. This drive towards a more comprehensive method of gathering and synthesising information demonstrates the eighteenth-century surge for more reliable and objective information.

It leads to a desire to not only collect information on such a diverse scope, but also to select what could be considered 'useful' or 'necessary' knowledge for presentation. Both men considered it crucial to edit what they obtained. Sinclair hired a team of editors to work on *The Account*, but remained integral to the process, providing detailed instructions and even editing a few entries himself. Schlözer performed all the editing duties himself, usually selecting his material from his correspondence. Their idea of 'useful knowledge' also appears to be similar. Information needed to relate to the state and to ways in which it could be improved, either politically or socially. This has an ambiguous feel to it due to its wide-ranging scope. To define too clearly what constituted 'useful knowledge' would have limited the range of enquiry for both men. In the Enlightenment notion of management through quantification information was a prized commodity. Schlözer and Sinclair saw information that could relate to the betterment of either state or society as potentially valuable, it just needed to be weeded out and carefully presented.

Their respective theories' of statistics were somewhat compatible, but ultimately did not represent a single coherent system of thought. This is understandable as the concepts of science and discipline was still in its infancy in the eighteenth century, in what Heilbron calls its 'pre-disciplinary' phase. Both Sinclair and Schlözer seemed to agree on the idea that statistics as a science, both believed in the need for accuracy. They also, crucially, followed the same pattern of increased quantification in their works. *The Account* and *Theorie* both highlight that they were interested in using population statistics to calculate and trace trends. The works demonstrate the increased belief in this type of arithmetic being essential for statistical enquiry. Statistics was becoming a science.

However, both men had different ideas about how to go about this. One difference was Schlözer's desire to critically reflect upon the discipline of statistics and outline a coherent theory of what he believed the new science to be (*Theorie der Statistik*, 1804). Sinclair took much longer to reflect on his statistical enterprise, in his *Analysis* in 1825, but still gave no theoretical exposition

to his statistics, beyond purpose and the advantages. He remained convinced that his work spoke for itself.

Schlözer's theories were, as stated, more coherently formed than Sinclair's. It could be postulated that Schlözer demonstrated greater dedication to the subject, especially considering his role as a professor of statistics at Göttingen. Sinclair was often engaged in numerous enterprises and intrigues at once and was known for his great energy and drive for many different subjects. Statistics for Sinclair formed part of a larger span of activities and it certainly wasn't his primary interest. It could be argued that Schlözer was more analytically minded than Sinclair, particularly due to his position at the university and the academic career path he chose.

Schlözer, therefore, presented a full method of doing statistics in which the individual statistician would take on the role of collector, synthesiser, and interpreter. This new statistician would be involved in every part of the statistical process. For Schlözer this meant a new layer of accuracy that could be obtained in statistical reports, precisely because the statistician could be present at every stage and ensure that the information and its production would be as objectively as possible. This approach illuminated the influence of the empirical methods devised by Bacon in the seventeenth century.¹¹³⁷ This link to the early 'proto-science' was a contributing factor for Schlözer in his drive towards quantification and more mathematical (arithmetic) forms of thinking. He argued that the would-be statistician should understand the theory of statistics before they began to practice the science. This, he believed, would produce better statisticians, well-equipped to produce coherent, reliable, and useful works of statistical enquiry.

Sinclair, on the other hand, did not present anything so well-defined, if at all. Any theoretical musings are left to half-sentences. Sinclair's position, if Schlözer's theory were to be applied, might make him a collector and an editor. Crucially, Sinclair did not interpret his data, instead leaving an analysis until 1824, two decades after his account had been published and he had retired from politics. Sinclair believed that statistics was a useful enterprise, its aim was to improve the lives and happiness of a particular nation by gaining a greater understanding of its people. But, unlike Schlözer, Sinclair was unable to say how a statistician should go about this.

¹¹³⁷ This connection has not been explored in depth and warrants further research. The underpinnings of Political Arithmetic with Bacon's philosophy are well documented (c.f. Poovey, *A History*), but his influence in the German lands and on *Statistik* is less well understood. Schlözer and Achenwall were aware of the Political Arithmeticians but how well they knew Bacon and his work has not been explored.

His theory was contained to generalities. Sinclair had no plan on how to interpret his information once he had obtained it. Instead, he appeared to be willing to allow others to do this for him.

Nevertheless, this interpretation does illuminate a similarity in both men's theoretical standpoint on statistics. Neither knew exactly how to implement the changes they believed statistics could bring. For example, Schlözer's *Briefwechsel* or his history of academia in Sweden were supposed to be for the budding statistician to gain a greater understanding of how politics worked but gave no advice on how it could be applied practically. Sinclair's *Account*, too, offered no instruction on the ways in which it could be used to improve the happiness of society. Moreover, its publication, which had no fixed order and occurred whenever Sinclair had enough questionnaire returns to fill a book, belies no overarching goal or message. The same can be said of Schlözer's work on smallpox in Russia to the *Stats-Anzeigen*. There is no scheme employed to make the information more accessible and no practical guidance as to how such information should be applied in politics and society.

This lack of practical application was not just symptomatic of Sinclair and Schlözer's statistical enterprises. There were few statisticians who, before Quetelet, seemed able to achieve this goal. The Political Arithmeticians attempted to do so in Britain in the seventeenth century, but had no success convincing the monarch. Still, their works do not state explicitly what their purpose was, other than possibly to illuminate the power of one nation over another. Süßmilch may have been another example of an author understanding his intention, but he offered no clear use, other than the theological applications. Halley, or others who worked on annuities rather took matters into their own hands and went beyond the state to use what information they had gathered. One would be hard-pressed to find an example of a statistician in the seventeenth or eighteenth century who could clearly state their purpose.

This inability to theorise about a practical outlet for the statistical science highlights two things. First, that statistics was the privilege of those beyond or at the margins of government. While becoming increasingly sophisticated in their ability to interpret information, statisticians were unable to find a practical outlet for it because they did not understand the inner workings of governance. Sinclair was an MP who never managed to find any real power, even his Board of Agriculture found itself funded out of Sinclair's pocket. Schlözer was a university professor in a system that valued him only so far as it meant he held no real power. His fame was more indicative

of the rise of the public and public sphere in the eighteenth century.¹¹³⁸ Wargentin, who it could be argued came close to having a practical expression of statistical thought in the eighteenth century with the Swedish census, only had this because it was useful for the government. This had more to do with the state's needs than Wargentin's statistical thought. The census came from the state not Wargentin's initiative.

Second, that the state had not yet begun to appreciate the full benefit of statistics as it was beginning to be practiced in the eighteenth century. Of course, there were some notable examples, the census in Sweden from 1749 onward, the rise of *Staatsbeschreibung* in the German lands and France,¹¹³⁹ and the wider application of the census from the beginning of the nineteenth century. However, these cases are in the minority. The eighteenth-century state was not yet fully committed to the idea of statistics, only slowly beginning to see the advantages it afforded in terms of control and governance (biopolitics).¹¹⁴⁰ Quantification only slowly took hold in the political realm during the eighteenth century, while being firmly established in the scientific and intellectual. Men like Schlözer and Sinclair were forerunners of this political quantification and crucial to its evolution. Nevertheless, these two points also demonstrate a reason for the lateness with which statistics got its first theoretical expression. It is a rather obvious similarity between the two men that their major works of statistics, *The Account* and *Theorie*, were published within less than ten years of one another.

Comparing Schlözer's and Sinclair's transnational networks helps explain how each man was, despite their originality, also caught up in more general developments in statistical thought, the Enlightenment and eighteenth-century social and political life. Their networks could be termed 'proto-epistemic communities'. While they did not conform to Haas's definition in its fullest extent, they do share similarities, i.e. they are a group of individuals who share an expertise or interest in a particular subject. It reminds, marginally, of the eighteenth-century *Republic of Letters*, in the sense that it was a network of ideas formed in the free and cosmopolitan environment of epistolary communication of the Enlightenment. This meant that networks could share information freely, not limited by national pride or state secrecy. Instead, they could act beyond borders without fear

¹¹³⁸ C.f. Habermas, *The Structural Transformation of the Public Sphere*; Melton, *The Rise of the Public in Enlightenment Europe*.

¹¹³⁹ Though how statistical this was, is debatable. It could be argued that *Staatsbeschreibung* did not have the tools or sophistication to use the information it received for more than defining its borders or illustrating its strength. C.f. Behrisch, *Die Berechnung der Glückseligkeit*; Rassem and Stagl, *Statistik und Staatsbeschreibung in der Neuzeit*.

¹¹⁴⁰ Rusnock, 'Biopolitics' in Clark, Golinski, and Schaffer (eds.), *The Sciences in Enlightened Europe*, p.50.

of political censorship. However, neither Sinclair's nor Schlözer's network fully conformed to the *Republic of Letters* notion of formality (i.e. the civility and ceremony that surrounds the construction of the epistolary form). Schlözer's network was often too personal to be considered by the eighteenth-century standards of virtue as a product of the *Republic*. This became more and more pronounced as the years passed and his correspondence became friendlier and more intimate. Sinclair was a little different. His network was full of the politeness and gentility that informed the *Republic*, however, none of this was Sinclair's doing. Sinclair did not fit into the gentility of the *Republic* because he failed to understand it. His aim was to provide help and information, not exchange pleasantries. His lack of social grace and directness even managed to earn him the moniker "Sir John Jackass" from the novelist Walter Scott.¹¹⁴¹ These attitudes shaped the networks of Sinclair and Schlözer by removing them from the formality of other network forms and introduced a wider scope in which ideas and information could circulate.

Their networks became conduits for statistical ideas and information to flow. In this sense, both networks were similar in their make-up. They were a mixture of both influence and influenced, ideas and information. Sinclair and Schlözer were both in the habit of using their correspondence network as sources of statistical information. Schlözer published his in his many journals, especially the *Briefwechsel's* and Sinclair built *The Account* on a correspondence across the Scottish clergy. Additionally, both used their networks as conduits of their own ideas. In this way, their transnational networks acted as the routes along which ideas and information could travel. It linked them to a wider world in which they could both give and take. A fascinating example of this is both men's correspondence with the Count von Hertzberg. He sat at the middle of these networks giving and receiving information of both men. He exchanged statistical ideas with Schlözer, probing him on the circulation of money as well as providing Schlözer with information on various political subjects. For Sinclair, he helped introduce him to the field of German Statistik, he sent him a variety of books on the subject that moulded Sinclair's thought and he was an avid reader of Sinclair's work, even wishing to implement some of Sinclair's ideas. This example illustrates the circulatory nature of both men's network. It highlights the ways in which they could both travel beyond borders for statistical inspiration.

Physical travel introduced both men to important figures and ideas in their field. Sinclair was introduced to statistics in the German lands, where he travelled to Berlin and Braunschweig,

¹¹⁴¹ Sir Walter Scott, '15th December 1826', *The Journal of Sir Walter Scott* (Edinburgh: Canongate, 1999), p.288.

meeting the Count von Hertzberg, who proved a valuable statistical correspondent. Schlözer went to Sweden where he was introduced to the works of the Political Arithmeticians by Wargentin, who remained valuable to Schlözer's statistical thought. Moreover, both men travelled to the north and east of Europe (Scandinavia and Russia). They developed ideas and networks in areas that were adventurous, on the edge of the civilised world and full of fascinating curiosity. This added layer of discovering as much about a society and population as possible connected to the ethnographic and anthropological developments occurring at the time. Additionally, both men had travelled to France, specifically Paris, and had met with key French statistical ideas and thinkers. In his *Theorie* Schlözer praised the example of the early incarnations of this society and the journal it produced. Only through travel could their networks become attached to the developments in France and of Enlightenment thought in general than if they remained entirely epistolary.

Thus, the networks of Schlözer and Sinclair demonstrate striking similarities in both form and function. The circulation of information and ideas reveals interesting features in the evolution of eighteenth-century statistical thought. The fact that many of its practitioners worked beyond or on the margins of the state and of the *Republic of Letters* with its stricter set of rules regarding conduct and information exchange, illuminates the ambiguous nature statistics held. It highlights the fluidity in which it could occupy both or neither of these worlds. It demonstrates the precarious situation in which their networks existed, being taken seriously at times and at others considered a distraction. Travel became an essential part of the statistician's tool kit, going beyond the usual confines of the Grand Tour they sought out information on the so-called 'margins' of Europe, such as Scandinavia and Eastern Europe. Correspondence, finally, was the key to the circulation of information and ideas.

Final Conclusions and Further Research

This particular history of statistics is one that has been little explored by historians. The influence of individuals, working beyond or on the margins of the state on a transnational scale, has been ignored or marginalised in favour of either the role of the state or the role of geniuses, beyond the reach of any other historical actor. Only the Political Arithmeticians have been explored in any depth, however, without explicit links to later, eighteenth-century, individuals working on the development of statistics like Sinclair or Schlözer. Indeed, this evolutionary trend in statistical thought has been maligned in scholarship as existing only as a counterpoint to more mathematical

forms of development, such as probability. This project redresses this balance and focuses on this equally significant part in the evolution of statistical thought in the eighteenth and nineteenth century. It illuminates the importance of the individual on a transnational scale, whose position at the edge of states and nations allowed them to move with comparative ease. The project highlights the importance of the network these men developed and how they aided in the circulation and evolution of statistical thought.

Crucially, the two case studies illuminate the importance that needs to be afforded to those individuals who would not be classed as a genius in a particular field or as a key member of a government or power broker. Instead, more attention needs to be given to those actors who did not fit neatly into these categories, those who acted on what would be considered the margins of science or politics. This project demonstrates that such a direction in the historiography can deepen our conception of the development and evolution in not only statistics, but also political thought, science, mathematics and philosophy. These relatively unknown actors played vital roles in the evolution of the discipline of statistics as well as many other disciplines and fields. They are currently considered marginal or peripheral. However, if more research into these actors is done and more attention paid to the role they performed, then we can deepen our understanding of the development of the many areas of history. Furthermore, the project also highlights the lack of attention given to the *Sattelzeit* and how a greater exploration of this period would also improve our understanding of statistics.

There are still many more research avenues and questions to be explored. One aspect that would benefit from greater analysis would be a broader inspection of trends in the evolution of statistics from individuals on a wider European platform. This would require the examination and analysis of other figures and the networks they were able to form. The survey could extend beyond the German lands and Britain to France, Austria, Scandinavia, and Italy. This would demonstrate the wider impact individuals had and include a deeper exploration of the links between the early Political Arithmeticians in the seventeenth century and later incarnations in Europe. It could also analyse the links formed in the early nineteenth century between men like Schlözer and Sinclair and later statisticians, especially those more mathematically minded like Quetelet. The wider survey would act as an expansion to the current project aimed at adding depth and breadth to our understanding of this facet in the evolution of statistical thought.

A deeper comparative element could be aimed at a better understanding and analysis of the development of transnational networks. With the techniques of the Digital Humanities, the correspondence and travel networks could be mapped out to illustrate the circulation of ideas more clearly. This move from the descriptive to the visual could be used to analyse how these connections and circulations worked in more depth, explore the translation movement and the rise of university culture in Europe.

Last, but not least, our two protagonists offer an avenue of more in-depth exploration. A more detailed exploitation of how Sinclair's work fits into Political Economy and the Scottish Enlightenment would be enlightening as a way to trace his thought in more depth. A complete exploration of Schlözer's ideas, statistical, historical and ethnographic, in English could help to bring this understudied Enlightenment figure to a wider audience. Both men's intellectual world deserves a wider analysis, exploring the connections of Rousseau, Bacon and Hobbes in the ideas and practices of Schlözer and Sinclair. A study of both men's connection to a central contemporary character, Count von Hertzberg, could produce an interesting insight into their intellectual development. Thus, many paths lay open to further study.

In conclusion, this project has brought to light a new angle on the history of statistics. It focused on the individual in the evolution of this field, the individual on a transnational scale, their networks, and the circulation of their ideas. The focus on these individuals on the margins of state and science illustrates just how crucial these understudied figures are in this development of statistics from a descriptive to more mathematical discipline. It reveals how this process took place and how it can help us better understand the modern discipline of statistics, the development of objectivity as a concept, and the rise of quantification in the modern world.

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Appendix

Copy of Sinclair's *First Circular Letter to the Clergy of Scotland*, May 25th, 1790

From Sinclair, Sir John, *History of the origin and progress of the statistical account of Scotland*
(London[?]: n.p, 1789), pp.xviii-xxvii.

A P P E N D I X, B.

First Circular Letter to the Clergy of the Church of Scotland.

S I R,

I TAKE the liberty of transmitting the inclosed Queries to you, in hopes that a plan, which has been fortunate enough to meet with the approbation of some of the most respectable and distinguished characters in these kingdoms, will be favoured with your assistance.

To procure information with regard to the real political situation of a country, is what wise Statesmen in every age have thought desirable, but which in these enlightened times is justly held of the most essential public importance*.

In

* The ancients frequently inculcated this idea: “Ad consilium de re-
“ publica dandum, caput est, nosse rempublicam.” *Cicero de Oratore*,
lib. 2. “In republica cognoscenda, multam, magnamque curam habui,
“ uti quantum armis, viris, opulentia, ea posset; cognitum haberem.” *Sal-*
lust. ad Cæsar. de Republ. ordin. Epist. seu Orat. 2. cap. 1. And M. de
Hertberg, the Prime Minister of Prussia, very justly remarks, “Qu’on re-
“ connoit de plus en plus, que la grande politique, ne consiste pas dans le
“ mystere dont les gouvernemens se couvroient jadis, mais que ceux qui a-
“ gissent à decouvert avec publicité et franchise, gagnent beaucoup plus la
“ confiance, des sujets, et des voisins.” *Dissertation sur la Population des*
Etats en general, et sur celle des Etats Prussiens en particulier. An. 1785.

In many parts of the Continent, more particularly in Germany, Statistical Inquiries, as they are called *, have been carried to a very great extent ; but in no country, it is believed, can they be brought to such perfection as in Scotland, which boasts of an ecclesiastical establishment, whose members will yield to no description of men, for public zeal, as well as for private virtue, for intelligence, and for ability.

I flatter myself, that upon this occasion, they will not be backward in contributing their aid, to promote an attempt, which may prove of considerable service to the country at large, and cannot fail to add to the reputation and character, which the Church of Scotland has already so deservedly acquired for public utility.

I have the honour to be,
Sir, your very obedient,
And faithful humble servant,
JOHN SINCLAIR.

EDINBURGH, }
May 25. 1790. }

N. B. It is not expected, that all the inclosed Queries should be answered by any individual ; nor is minute exactness looked for : but it is requested, that as many questions may be attended to, as circumstances will admit of.

In the event of a vacancy in the parish, or where the present incumbent is prevented, by sickness or otherwise, from sending an answer, it is intreated that some neighbouring clergyman would take that trouble upon himself.

It is submitted, whether it might not be proper to insert the Queries and Answers in any parochial register, that in after times the future state of the parish, may be compared with its situation at present.

Any answer to these Queries may be directed to Sir John Sinclair of Ulster, Baronet, Member of Parliament, Edinburgh, who will thankfully acknowledge the receipt of any paper upon this subject, that may be addressed to him.

It may be proper to add, that if it is thought advisable to publish such an account of Scotland, as may be drawn up from the materials, to be thus collected, any profit that can be derived from the publication, is to be dedicated to an institution lately formed, for the Benefit of the Sons of the Clergy of the Church of Scotland, which seems to merit every possible encouragement.

Copy

* Or, *Inquiries respecting the Population, the Political Circumstances, the Productions of a Country, and other Matters of State.*

Copy of the **QUERIES** drawn up for the purpose of elucidating the Natural History and Political State of Scotland, which were inclosed in the preceding letter.

QUESTIONS respecting the GEOGRAPHY 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 presbytery and synod ?
5. What is the extent and form of the parish ?
6. What 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 spot ? And in what seasons 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 sea-coast ?
18. Is the shore flat, sandy, high, or rocky ?
19. What sorts of fish are caught on the coast ? In what quantity ? At what prices sold ? When most in season ? How taken ? And to what markets sent ?
20. What other sea animals, plants, sponges, corals, shells, &c. are found on or near the coast ?
21. Are there any remarkable sea weeds used for manuring land, or curious on any other account ?
22. Is there any kelp ? And what quantity, at an average, is annually made ?
23. What are the courses of the tides on the shore or at sea ? and are there any rocks, currents, &c. worthy of notice ?
24. Are

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, sands, or islands, near the coast?

26. Have there been any battles or sea fights near the coast? and when did any remarkable wrecks or accidents happen, which can give light to any historical fact?

27. Are there any remarkable mountains? and what are their heights?

28. Are the hills covered with heath, green, 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 fishes upon them?

31. Are there any fossil marine bodies, such as shells, corals, &c. or any petrified part of animals? or any petrifying springs or waters?

32. Are there any marble, moor-stone, free-stone, slate, or other stones? How are they got at, 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 subject to inundations or land-floods? When did any remarkable event of that nature happen?

35. Hath there been any remarkable mischief 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 grottos, natural or artificial?

39. What quadrupeds and birds are there in the parish? What migratory birds? and at what times do they appear and disappear?

40. Is the parish remarkable for breeding any species of cattle, sheep, horses, hogs, or goats, of peculiar quality, size, or value?

II. QUESTIONS respecting the POPULATION of the PARISH?

41. What was the ancient state of the population of the parish, so far as it can be traced?

42. What is now the amount of its population?

43. What may be the number of males?

44. What of females;

45. How many reside in towns?

46. _____ villages?

47. _____ the country?

48. What is the annual average of births?

49. What is the annual average of deaths* ?
50. _____ marriages ?
51. _____ souls under 10 years of age ?
52. _____ from 10 to 20 ?
53. _____ 20 to 50 ?
54. _____ 50 to 70 ?
55. _____ 70 to 100 ?
56. Above 100 ?
57. Are there any instances of long lives well authenticated ?
58. What may be the number of farmers and their families ?
59. _____ manufacturers ?
60. _____ handycraftsmen ?
61. _____ apprentices ?
62. _____ seamen ?
63. _____ fishermen ?
64. _____ ferrymen ?
65. _____ miners ?
66. _____ household servants, male and female ?
67. _____ labouring servants, male and female ?
68. _____ students at colleges and universities ?
69. _____ merchants, citizens or tradesmen ?
70. _____ artists ?
71. _____ Jews ?
72. _____ negroes ?
73. _____ gipsies ?
74. _____ foreigners ?
75. _____ persons born in England, Ireland, or the
British colonies ?

76. What

* It is of peculiar importance to have the questions 48 and 49 distinctly answered ; for it is generally understood, at 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 25, or the number of deaths by 36. In Scotland, on the other hand, Mr Wilkie, minister of Cults, supposes, that the number either of births and burials, if they are equal, should be multiplied by 40 ; or, if there is any difference, the half of the whole, (both the births and the burials), should be multiplied by the expectation of an infant's life, adapted to the particular district, in order to ascertain its population. See Statistical Account, vol. II. p. 415. 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.

76. What may be the number of persons born in other districts or parishes in Scotland ?
77. What may be the number of the nobility and their families ?
78. _____ gentry ?
79. _____ clergy ?
80. _____ lawyers, and writers or attornies ?
81. What may be the number of physicians, surgeons, and apothecaries ?
82. _____ the established church ?
83. _____ seceders ?
84. _____ episcopalianians ?
85. _____ Roman catholics ?
86. Is the population of the parish materially different from what it was 5, 10, or 25 years ago ? and to what causes is the alteration attributed ?
87. What is the proportion between the annual births and the whole population ?
88. What is the proportion between the annual marriages and the whole population ?
89. What is the proportion between the annual deaths and the whole population ?
90. What is the proportion between the batchelors and the married men, widowers included ?
91. How many children does each marriage at an average produce ?
92. What may be the causes of depopulation ?
93. Are there any destructive epidemical distempers ?
94. Have any died from want ?
95. Have any murders or suicides been committed ?
96. Have many emigrated from the parish ?
97. Have any been banished from it ?
98. Have any been obliged to leave the parish for want of employment ?
99. Are there any uninhabited houses ?
100. 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.*

101. What kinds of vegetables, plants, and trees, does the parish produce ?
102. What kinds of animals ?
103. What at an average is supposed to be the number of cattle, sheep, horses, hogs, and goats, in the district ?
104. Is there any map of the parish ? and has the number of acres in it been ascertained ?

105. How

105. How many acres at an average may be employed in raising corn, roots, &c. ?
106. What number of acres to each sort respectively, as wheat, barley, rye, oats, potatoes, turnip, cabbage. &c. ?
107. Does the parish supply itself with provisions ?
108. Does it in general export or import articles of provision ?
109. How many acres are employed in raising hemp or flax ?
110. How many in sown or artificial grasses ?
111. How many in pasture ?
112. When do they in general sow and reap their different crops ?
113. What quantity of ground may lie waste or in common ?
114. What in woods, forests, marshes, lakes, and rivers ?
115. Is there any chalk, marl, fullers earth, potters earth, ochre, &c. ?
116. Are there any bitumen, naphtha, or other substances of that nature found in the soil ?

IV. MISCELLANEOUS QUESTIONS.

117. Has the parish any peculiar advantages or disadvantages ?
118. What language is principally spoken in it ?
119. From what language do the names of places in the parish seem to be derived ?
120. What are the most remarkable instances of such derivations ?
121. What may the land rent of the parish be ?
122. What the rent of houses, fishings, &c. ?
123. What is the value of the living, including the glebe ? and who is the patron ?
124. Who is now minister of the parish ?
125. How long has he been settled in it ?
126. What are the names of his predecessors as far back as they can now be traced, and the time they respectively held that office ?
127. Is the minister married, a widower, or single ?
128. If with a family, how many sons, and how many daughters ?
129. When were the church and the manse built or repaired ?
130. What is the number of heritors, or possessors of landed property in the parish ?
131. How many of them reside in it ?
132. What is the number of the poor in the parish receiving alms ?
133. What is the annual amount of the contributions for their relief, and the produce of alms, legacies, or of any other fund destined for that purpose ?
134. What are the present or ancient prices of provisions, beef, veal, mutton, lamb, pork, pigs, geese, ducks, chickens, rabbits, butter, cheese, wheat, barley, oats, &c. ?

135. What

135. What is generally a day's wages for labourers in husbandry, and other work? and what *per* day for carpenters, bricklayers, masons, tailors, &c.?

136. What is the fuel commonly made use of? Is it coal, wood, heath, peat, furze, or whins? What are the prices paid on the spot; and whence is the fuel procured?

137. What, at an average, may be the expence of a common labourer, when married? and is the wages he receives sufficient to enable him to bring up a family?

138. What are the usual wages of male and female servants in the different branches of husbandry?

139. What the wages of domestic servants?

140. How many ploughs are there in the parish? and of what kinds?

141. How many carts and waggons?

142. How many carriages; and of what sorts?

143. Are there any villages in the parish? and how are they situated?

144. Are there any crosses or obelisks erected in the parish?

145. Are there any remains or ruins of monasteries or religious houses?

146. Are there any Roman, Saxon, Danish, or Pictish castles, camps, altars, roads, forts, or other remains of antiquity? and what traditions or historical accounts are there of them?

147. Have there been any medals, coins, arms, or other pieces of antiquity dug up in the parish? When were they found? And in whose custody are they now?

148. Are there any barrows, or tumuli? Have any been opened? And what has been found therein?

149. Have there been any remarkable battles fought in the parish? On what spot? At what time? By whom? And what traditions are there respecting the same?

150. Has the parish either given birth or burial to any man eminent for learning, or distinguished for any other valuable qualification?

151. Are the people of the country remarkable for strength, size, complexion, or any other personal or mental qualities?

152. What is the general size of the people?

153. What is the greatest height which any individual in the parish has attained, properly authenticated?

154. Are the people disposed to industry? What manufactures are carried on in the parish? And what number of hands are employed therein?

155. Are the people fond of a sea-faring life? What is the number of boats and of larger vessels belonging to the parish? And what number of seamen have entered into the navy during any preceding war?

d

156. Are

156. Are the people fond of a military life? Do many enlist in the army? And principally in what corps?

157. Are the people economical, or expensive and luxurious for their circumstances? Is property, particularly in land, often changing? And at what prices is it in general sold?

158. Are the people disposed to humane and generous actions; to protect and relieve the shipwrecked, &c.? and are there any events which have happened in the parish, which do honour to human nature?

159. Do the people, on the whole, enjoy, in a reasonable degree, the comforts and advantages of society? and are they contented with their situation and circumstances?

160. Are there any means by which their condition could be ameliorated?

A D D E N D A.

1. What is the state of the roads and bridges in the parish? How were they originally made? How are they kept in repair? Is the statute labour exacted in kind, or commuted? Are there any turnpikes? and what is the general opinion of the advantages of turnpike roads?

2. What is in general the rent of the best arable and the best pasture or meadow grounds, *per acre*? What the rent of inferior?

3. What in general is the size and the average rent of the farms in the parish? And is the number of farms increasing or diminishing?

4. Is the parish in general inclosed, or uninclosed? And are the people convinced of the advantages of inclosures?

5. What was the situation of the parish *anno* 1782 and 1783? Please state any curious or important circumstances connected with that era, or with any other season of scarcity.

6. Are there any curious or important facts tending to prove any great alteration in the manners, customs, dress, stile of living, &c. of the inhabitants of the parish, now, and 20 or 50 years ago?

N. B. If you reside in a town or city, please give an account of the history and antiquities of the place; of its buildings, age, walls, sieges, charters, privileges, immunities, gates, streets, markets, fairs; the number of churches, wards, guilds, companies, fraternities, clubs, &c.: How the town is governed: if it is represented in parliament, to whom does the right of election belong, and what the number of electors? together with a comparison between its ancient and modern state, in regard to population, commerce, shipping, fisheries, manufactures, more particularly at the following periods, about the time of the Union, since the year 1745, and at present.

It

Appendix.

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It may be proper to add, that many important facts and observations may occur to those to whom this paper is addressed, not hinted at in the queries, which it would be particularly obliging in any gentleman to add to any answer which he may take the trouble of drawing up.

EDINBURGH, }
May 25. 1790. }