
Public amateurs, secret bureaucrats

Trento, 11 September 1786 I console myself with the thought that, in our statistically minded times, all this has probably already been printed in books which one can consult if the need arises.

Edinburgh, 1 January 1798 Many people were at first surprised at my using the words, *Statistics* and *Statistical* . . . 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*. By statistical is meant in Germany an inquiry for the purpose of ascertaining the political strength of a country, or questions concerning matters of state; whereas the idea I annexed 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*.^{*1}

Every state, happy or unhappy, was statistical in its own way. The Italian cities, inventors of the modern conception of the state, made elaborate statistical inquiries and reports well before anyone else in Europe. Sweden organized its pastors to accumulate the world's best data on births and deaths. France, nation of physiocrats and probabilists, created a bureaucracy during the Napoleonic era which at the top was dedicated to innovative statistical investigations, but which in the provinces more often perpetuated pre-revolutionary structures and classifications. The English inaugurated 'political arithmetic' in 1662 when John Graunt drew demographic inferences from the century old weekly Bills of Mortality for the City of London. England was the homeland of insurance for shipping and trade. It originated many other sorts of provisions guarding against contingencies of life or illness, yet its numerical data were a free enterprise hodge-podge of genius and bumbledom.

Visionaries, accountants and generals have planned censuses in many times and places. Those of the Italian city-states now provide historians

* Goethe at the start of his *Italian Journey*. Sir John Sinclair at the completion of his *Statistical Account of Scotland*. Goethe and Sinclair were travelling at almost exactly the same time.

with a rich texture of information. In the modern era, however, a census was an affair more of colonies than of homelands. The Spanish had a census of Peru in 1548, and of their North American possessions in 1576. Virginia had censuses in 1642–5 and a decade later. Regular repeated modern censuses were perhaps first held in Acadie and Canada (now the provinces of Nova Scotia and Québec) in the 1660s. Colbert, the French minister of finance, had instructed all his regions to do this, but only New France came through systematically and on time. Ireland was completely surveyed for land, buildings, people and cattle under the directorship of William Petty, in order to facilitate the rape of that nation by the English in 1679. The sugar islands of the Caribbean reported populations and exports to their French, Spanish or English overlords. New York made a census in 1698, Connecticut in 1756, Massachusetts in 1764. The United States wrote the demand for a decennial census into the first article of their Constitution, thus continuing colonial practice, and even extending it, as westward the course of empire took its way, across the continent and in due course to the Philippines. Going east, the British took the same pains to count their subject peoples. India evolved one of the great statistical bureaucracies, and later became a major centre for theoretical as well as practical statistics.

Thus there is a story to be told about each national and colonial development, and each has its own flavour. For example the first Canadian enumerations were possible and exact because the people were few and frozen-in during midwinter when the census was taken. There was also a more pressing concern than in any of the regions of mainland France, for whereas the population of British North America was burgeoning, the number of fecund French families in Canada was small due to the lack of young women. To take a quite different concern, the 1776 Articles of Confederation of the United States called for a census to apportion war costs, and the subsequent Constitution ordered a census every ten years to assure equal representation of families (as a sop to the southern plantations, blacks were to be enumerated as $\frac{3}{4}$ of a person). Six and seven decades later, those who interpreted the Constitution strictly insisted that a census could ask no question not immediately connected with representation.

No one will doubt that each region, once it takes counting seriously, becomes statistical in its own way. Stronger theses wait in the wings. For example, the nineteenth century statistics of each state testify to its problems, sores and gnawing cankers. France was obsessed with degeneracy, its interpretation of the declining birth rate.² The great crisis in the United States Census occurred after 1840, when it was made to appear that the North was full of mad blacks, while in the South blacks were sane and

healthy – strong proof of what was good for them.³ Chapter 22 below is entitled ‘A chapter from Prussian statistics’, a phrase taken from a pamphlet of 1880. It is about antisemitism.

A survey of even one set of national statistics would be either superficial or vast. In either case it would provide excessive preparation for a reading of nineteenth-century counting. But for fear that we become fixated upon the avalanche of printed numbers that occurred after 1820 or so, I shall start with one regional example from an earlier period. I ended the last chapter by quoting Kant, writing in 1784. He wrote of the yearly registers of deaths, births and marriages which go in ‘conformity to the laws of nature’. I began the present chapter quoting Goethe, who in 1786 spoke of ‘our statistically minded times’. I shall use the German-speaking world, especially Prussia, as my example of those times. Graunt and the English began the public use of statistics. Peoples of the Italian peninsula and elsewhere had promulgated the modern notion of the state. But it was German thinkers and statesmen who brought to full consciousness the idea that the nation-state is essentially characterized by its statistics, and therefore demands a statistical office in order to define itself and its power.

Leibniz, my favourite witness to the emergence of probability in the seventeenth century, was the philosophical godfather of Prussian official statistics. His essential premises were: that a Prussian state should be brought into existence, that the true measure of the power of a state is its population, and that the state should have a central statistical office in order to know its power. Hence a new Prussian state must begin by founding a bureau of statistics.

He formulated this idea of a central statistical office about 1685, a few years after William Petty had made the same recommendation for England.⁴ Leibniz saw a central office as serving the different branches of administration: military, civil, mining, forestry and police. It would maintain a central register of deaths, baptisms and marriages. With that one could estimate the population, and hence measure the power of a state. A complete enumeration was not yet deemed to be practicable. The population of a country, as opposed to a walled city or a colony, was in those days not a measurable quantity. Only institutions could make it one.

Leibniz had a lively interest in statistical questions of all sorts, and pursued an active correspondence on issues of disease, death and population. He proposed a 56-category evaluation of a state, which would include the number of people by sex, social status, the number of able-bodied men who might bear weapons, the number of marriageable women, the population density and age distribution, child mortality, life

expectancy, distribution of diseases and causes of death.⁵ Like so many of Leibniz's schemes, such a tabulation was futurology that has long since become routine fact.

Leibniz brought these strands together in a memorandum of 17 August 1700. Prince Frederick of Prussia wanted to be king of a united Brandenburg and Prussia, and Leibniz urged his case. The argument is heavy with the future. A kingdom must be a viable unit, and its heartland must be its most powerful part. The true measure of strength is the number of people, for where there are people, there are resources for sustaining the population and making it productive. It had been contended by Frederick's opponents that Prussia could provide only a small portion of the power of a proposed Brandenburg-Prussia, and hence that the ruler should not be Prussian. That, countered Leibniz, was an error. According to the Prussian registers of births (commenced in 1683) 65,400 people were born every year in the entire region, 22,680 in Prussia. Hence Prussia was vital. Leibniz then used a multiplier of 30 to deduce that Brandenburg-Prussia had 1,962,000 inhabitants, or roughly two million. Even England, rich in people, could claim only five and a half million inhabitants.⁶

Leibniz wrote this advice in 1700. The kingdom of Brandenburg-Prussia was created next year, but, as one historian of Prussian statistics put it, with a royal court, but no state.⁷ Certainly there was no statistical office. Prussian enumerations began only with the reign of Friedrich Wilhelm I, 1713–1740, famed for administrative skills and controlled militarism. His agents had first to figure out how to count, for available numbers were far less reliable than Leibniz's rhetoric had made it appear.

Reorganization was undertaken piecemeal, starting with a machinery for registering births, deaths and marriages in the four (royal) residence cities of Brandenburg-Prussia. In 1719 an abortive enumeration of the entire state was attempted. Various systems of reporting were experimented with, and an initial summary of results was issued on 3 March 1723. By 1730 people were officially sorted into the following nine categories: landlords, goodwives, male and female children; then household members classified as journeymen, farmhands, servants, youths and maids. The rubrics endured but the subclassifications exploded. Workmen became classified according to 24 occupations, and special categories were created for the chief industry: cloth makers, fabric makers, hat makers, stocking makers etc. Quantities of worked wool were fitted into the tables. Buildings were meticulously sorted (roofed with tile or straw, new or repaired, barns or decaying), and cattle, land and roads were described. For what purpose? Often, of course, for tax-

ation; hence the way buildings were classed. Leibniz's phrase was regularly used: determine the power of the state. What might the numbers reveal to enemies? A decree of 2 January 1733 forbade publication of the population list. It became a state secret.

If there is a contrast in point of official statistics between the eighteenth and nineteenth centuries, it is that the former feared to reveal while the latter loved to publish. An anecdote will illustrate. The energetic editor, geographer and traveller A.F. Busching published, along with much other material, two journals bulging with information about the German states and their neighbours. One, a 'magazine for new history and geography', ran steadily during 1762–93, and the other, a 'weekly news', between 1773 and 1787.⁸ When Busching asked Frederick the Great for help in coordinating and publishing information already collected in the royal ministries, the king replied that he would not hinder Busching, who could publish anything he knew. But neither the king nor his agents would lift a finger to help him find anything out.⁹

A long string of private individuals like Busching collected and published myriad numbers. It was above all they to whom Goethe referred when, in his 1786 travelogue, he spoke of 'our statistically minded times'. Travel books less well remembered than that of Goethe would count anything. Take Johann Bernoulli's adventures in Brandenburg, Prussia, Pomerania, Russia and Poland, about the time of Goethe's more famous trip. You might expect a Bernoulli to be discerning with numbers, but not at all. When he went into a room with old master paintings, he would not describe the pictures; he whipped out his yardstick and measured their dimensions. He told the reader more about the (quite unexceptional) sizes of these paintings, than about what they depict or who made them.¹⁰ The contents of every local statistical news-sheet were reported as he passed through. He was shocked to find that no one in Warsaw knew how many people lived in town, but was relieved to be able to insert a footnote, while the work was in press: the March 1780 issue of Busching's weekly cleared the matter up.¹¹

The most systematic private statistical enterprise of mid-eighteenth-century Germany was J.P. Süssmilch's *Divine Order*. This was an intensely detailed study of births, deaths and sex ratios which revealed Providence at work.¹² He painstakingly studied parish registers and other unused data, following the model of the Englishman, Graunt: 'All that was needed' to start this kind of inquiry 'was a Columbus who should go further than others in his survey of old and well-known reports. That Columbus was Graunt.'¹³

Pastor Süssmilch was one of the finest exponents of natural religion, of the idea that arrangements here on earth themselves prove the existence of

a benevolent creator.*¹⁴ Here too he followed the English, for the application of birth rates to natural theology began with a bizarre twist in English political arithmetic. In 1710 John Arbuthnot had proved Divine Providence from the constant regularity between male and female births. More boys are born than girls. This could not result from chance (i.e. equal chances) so must be arranged by God to make allowance for the excess of young men killed off at sea, in war, etc.¹⁵ The idea was transmitted by the Boyle lectures in the first decade of the eighteenth century, lectures dedicated to the proof of the existence of God on the basis of His Works.¹⁶

Süssmilch's demographic theology appeared in three editions, 1741, 1747, and posthumously 1775–6. It was a prodigious compilation of facts, combining church registers and mortality statistics. The second edition of 1747 noted royal approbation; belatedly, at his life's close, he was elected to the Berlin Academy. His immense book had much straightforward moralizing, the higher mortality rate of cities being attributed more to sin than to bad sanitation. But there was also a good deal of comment on population management. The marriage rate and the age of marriage were seen to depend upon the availability of farmland. This in turn was held to fix fecundity. He predicted fluctuating birth rates. As a population grows, land is less valuable, marriage is delayed, the birth rate drops. But in due course there is a shortage of labour and land is more available, so the marriage age decreases and the birth rate climbs. If we leave out the Seven Years' War, for which statistics were lacking, the prediction was true of Prussian numbers from the time of Süssmilch's first edition until 1800. Naturally this model requires numerous constraints, such as negligible (or cancelling) immigration and emigration, and relatively minor changes in agricultural technology.

Süssmilch was one of a long and open-ended line of actors on the stage of what Michel Foucault called a biopolitics 'that gave rise to comprehensive measures, statistical assessments, and interventions aimed at the entire social body or at groups as a whole'.¹⁷ That pairs with an anatomopolitics

* In 1766 Süssmilch published 'an attempt to prove that the first language has its origin not in men, but on the contrary derives from the creator'. With the vigour of a Noam Chomsky he urged that in principle human beings cannot invent language from scratch, nor indeed can they even acquire one as infants by mere empirical generalization from the words of their parents. Linguistic competence derives from innate skills, the gift of the Creator. This thesis was so striking that the Berlin Academy set its 1769 prize essay topic on the alleged divine origin of language. Of the nineteen candidates, we remember only the winner: J.G. Herder. His essay is the announcement of the new German conception of language as a social and cultural phenomenon. It is not a matter of, as Hobbes put it, 'mental discourse', that for convenience is cast into spoken words. It is essentially public. Although Herder owed much to his mentor J. G. Hamann, and although the triumph of his views lay in the work of his successor Wilhelm Humboldt, this prize essay response to Süssmilch marks a fundamental transition in European thought: language, once essentially in the mind, a matter of mental discourse, became inherently communal and public.

focussed on the body, on ‘biological processes: propagation, births and mortality, the level of health, life expectancy and longevity’. Foucault regarded these as ‘two poles of development, linked together by a whole intermediary cluster of relations’. The distinction between the body politic and the body of the person sounds fine, but in fact I don’t see Foucault’s polarization in the texts that concern us. Süssmilch’s statistical assessments (the biopolitical pole) are directed exactly at propagation, births, mortality, health, life expectancy (the anatomopolitical pole). But no matter how we take Foucault’s polarization, biopolitics in some form has been rampant in western civilization from the eighteenth century or earlier.

The most famous piece of biopolitics is the Malthusian debate. This originated well before Malthus published in 1798, as his subtitle made plain: *With Remarks on the Speculations of Mr Godwin, M. Condorcet and Other Writers*. His celebrated proof, that production increases arithmetically while population grows geometrically, did, however, introduce a nineteenth-century preoccupation. His conclusion was that the poor must, at their own peril, have few children. Karl Pearson’s eugenics presented the same theme at the start of our century, not in order to help the poor but to save the rich.

Biopolitics has the standard feature of a risk portfolio, namely that at almost the same time opposite extremes are presented as dire perils (today it is nuclear winter/greenhouse effect).¹⁸ The ‘population problem’ denotes both the population explosion of other peoples and too low a birth rate of one’s own people. During the nineteenth century in France, one’s own people were French, the others German and British. In Prussia, as discussed in chapter 22, the others were Jewish. Today the others are the Third World. In late-Victorian England, the others were the labouring classes.

German biopolitics began in earnest after the Seven Years’ War in 1757–63, and here the issue was underpopulation. Perhaps a third of the people had died, and many regions were left almost empty. They required colonization in order to restore ravished farmland. Many features of Prussian statistics originate with this objective concern, augmented by the zealous administration-for-its-own-sake of Frederick the Great.

A list of the categories of things that were counted during his reign required seven pages.¹⁹ Many were ‘natural’, to be expected in any agricultural state whose economic development was comparable to Prussia’s. But there were idiosyncrasies. First, a fundamental distinction was imposed upon the population. Every person had to be either civil or military. The military included not only the soldiers, but also their dependants and servants. The civil list was sorted according to the nine rubrics mentioned above: the military list had five divisions. This sorting

was enduring. When we examine the excellent yearbooks published by the Prussian statistical bureau throughout the latter half of the nineteenth century we find the first division in the population: military on the left, civil on the right. You were first of all civil or military, then you were male or female, servant or master, Mennonite or Old Catholic. There was of course an unstated rationale. People were counted, as they still are, by geographic area. The civilian population stayed in one place, while the military were mobile and in garrisons. Military and civil were different aspects of the national topography. But in all of Europe, it was only Prussian official statistics that saw this as a first principle of all labelling of citizens, more fundamental, even, than their gender.

A second innovation began in 1745, probably in response to queries posed in the first edition of Süssmilch's book. We find the beginnings of tables for immigration, emigration, nationality and race. On the civilian side of the list, the nine basic categories had a subtabulation for people who were Walloons, French, Bohemians, Salzburgers or Jews. Although East Prussia was part of the kingdom, Poles, Lithuanians, Latvians etc. were not mentioned. This was partly because East Prussia was indifferently administered, and partly because it was not contiguous with Prussia proper so that migration between these two parts was less easy than between the other Prussian 'islands' in the west. Specific migration questions developed piecemeal. The Silesian towns began to record bourgeois movements from 1750. Some tables of colonists were made in 1753, but they became serious only during the reconstruction period following 1763. They started in Minden in 1768, and soon the tables covered the entire kingdom.

Most designations of minority groups were local and haphazard, the exception being Jews. They show up in the tables in 1745, and, at that time, not as a religious group. Soon there was to be a completely separate and regular enumeration of all Jewish households. Complete tables, known as the *General-Judentabellen* or *Provinzial-Judenfamilie-Listen*, became a routine part of Prussian numbers in 1769.

Aside from the tables of births, marriages and deaths, official statistics were private, for the eye of the king and his administrators. There were of course all kinds of documentation in commercial affairs, although even these tended to follow the patterns of counting people.²⁰ They ran parallel to the diligent productions of enthusiastic amateurs, of whom Süssmilch and Busching provide two different kinds of example. The third force in German statistical activity was the 'university statistics' from which our subject is said to take its name.

It is unclear (and unimportant) how far back the tradition of university statistics can be traced. Herman Conring, the great Jena professor of

politics and geography – and correspondent on these topics with Leibniz – is said to have given enthralling lectures on the economic states of various nations, and is often properly called the founder of the ‘university statistics’. He called his lectures *notitia statuum Germaniae*. A successor in Jena, B.G. Struve, lectured on *de statu regni germanici*, and then, *notitia statuum Germaniae*. Martin Schmeitzel at the same university had a *Collegium politico-statisticum* in 1725.²¹

Words on which our word ‘statistics’ could draw are hardly original with these professors, and probably have a better Italian pedigree than a German one. But it was undoubtedly a Göttingen scholar who fixed the very word ‘Statistik’. Gottfried Achenwall thought of what he called statistics as the collection of ‘remarkable facts about the state’.²² The successor to his chair valiantly defined statistics in the words, ‘History is ongoing statistics, statistics is stationary history.’ The Göttingen statisticians had a strong positivist bent:

Strictly speaking, one wants only facts from the statistician; he is not responsible for explaining causes and effects. However, he must often seize upon effects in order to show that his fact is statistically important – and moreover his work will be entirely dry, if he does not give it some life and interest by introducing, at suitable points, a mixture of history, cause and effect.²³

The work of these men was seldom quantitative. They were opposed to number-crunching of the sort represented by Süssmilch. They thereby stand for an antinumerical and anti-averaging tradition that emerges from time to time in our history. They produced giant pull-out tables, but here one found descriptions of climates (for example) more often than measures of cloudiness. Despite this, I find a very substantial continuum between the historical-political-economic-geographic-topographical-meteorological-military surveys of the university statisticians, and, for example, the contents of Busching’s two journals. Busching was thoroughly numerical – statistical in our sense of the word – but on the title pages or in the titles of many of his books he called himself an historian-geographer – a statistician in the Achenwallian sense of the word.

German culture demands definitions of concept and object. It requires an answer to the question: is X an (objective) science? Is statistics, then, a science? If so, what science is it, and what are its concepts, what its objects? ‘Until now, there have been 62 different definitions of statistics. Mine will make it 63’, wrote Gustav Rumelin in 1863.²⁴ He was director of the Württemberg statistical office, a political scientist and staunch Malthusian. I don’t know which 62 he had in mind – I think that by 1863 I can do twice as well as he can, in the German literature alone. But already there had been the correct move taught by professors of philosophy: distinguish! There are two sciences. One is descriptive and non-numerical, namely the

work of the university statisticians. Then there is the heir to English political arithmetic, commenced seriously in Germany by Süssmilch. C.G.A. Knies's 1850 *Statistik als selbständige Wissenschaft* furthered this conclusion, recommending that although we owe the word 'statistics' to Achenwall, we should transfer it, and use it to name the numerical studies of the political arithmeticians.²⁵ We ought then to say that Achenwall did something other than *Statistik*; let us call it (said Knies) *Staatskunde*.

So what? All this seems like word-play. Harald Westergaard ironically recounted this 'saga' of the word 'statistics', concluding that 'but for the curious change of names which has taken place, and which has often puzzled students of statistics, little interest would have attached to it'.²⁶ Westergaard implied that we would never even notice Achenwall were it not for his having institutionalized the word 'statistics' which we now use to name something numerical and non-Achenwallian.

Perhaps that opinion underestimates the university statisticians. For example, Austria established a statistical office, on the Prussian model, only in 1829. This was a systematic bureaucracy for the compilation of numerical data. Who would it employ? The staff was taken straight from the universities, where old-style university statistics continued to be taught. The subject was part of the curriculum at the six Austrian universities – Innsbruck, Padua, Pest, Prague, Venice and Vienna. It was also standard at numerous colleges and lycées. Rightly or wrongly, the Austrian administrators did not see teachers and students as doing something essentially different from what a statistical bureau should do.

The Austrian example is an objective item from bureaucratic history. At a more impressionistic level it looks as if the Prussian statistical bureaucracy was remarkably continuous with the old university statisticians. It was numerical, yes, but also descriptive. There was a great deal of resistance to theoretical French notions of 'statistical law'. The Prussian tabulations resembled those of Achenwall and Schlozer, although with numbers instead of words. Bureaucratic efficiency was combined with mathematical naiveté. The Prussian bureau was heir to university statisticians, just as it was heir to the administrative expertise of the ministries of Frederick the Great, and heir to the army of amateurs of numbers.

It was however the amateurs of numbers that most struck literary travellers such as Goethe and Bernoulli. The travel books constantly referred to local periodicals more ephemeral than Busching's, crammed with numerical tid-bits, collected with an indiscriminate enthusiasm not equalled in Britain or France. Travellers with an eye to policy and public affairs could also learn. None toured more diligently in the continent of Europe than gentlemen from the British Isles. Arthur Young's travels in Europe, and his subsequent role in agricultural reform, are well known.

But such travellers did not import only agricultural technique. As we have seen from my second epigraph, they acquired an enthusiasm for statistics. The very word entered English by way of one of the greatest of the Scottish agricultural reformers, Sir John Sinclair. He was the author-editor of the stupendous 21-volume *Statistical Account of Scotland*, the result of compendious answers to mighty questionnaires. The respondents were the ministers of the 938 parishes of the Church of Scotland.*²⁷ Sinclair set about this project only after his German travels. His German lessons were not confined to Scotland, however. Here is a laconic diarist of the London scene:

August 20th, 1793: Farmer George has left his harvests and come to town – not to gape at the sights but to make his voice heard in high places – Sir John Sinclair, a Scottish laird, and a group of other large landowners, have induced Mr. Pitt to form a Board of Agriculture. Arthur Young, editor of the *Annals of Agriculture*, has been appointed secretary ... its first duty, I hear, will be to collect the agricultural statistics of the country, based upon returns from every parish.²⁸

* The *Account* does provide much information that we would still call statistical, for example an analysis of the age distribution, life expectancy and estimates of the total population and its rate of change. There is also much information about lifestyles, for example the fishwives of Fisherow in Inveresk who carry 200-pound baskets of fish on their backs to the Edinburgh market, often covering the five miles in less than an hour, women who take the dominant role in their family and the community, swear much, but, according to their minister, otherwise sin seldom, who play golf on Sundays and have football matches between the married and unmarried women, the former of whom invariably win.