Aleksandr Obodovsky
Ordinary professor of statistics,
the Main Pedagogic Institute

The theory of statistics in its present state
with a short history of statistics

Translated by Oscar Sheynin

To scorn theory means to claim the
right to act exceedingly ignorantly
without knowing what will happen
and to speak without understanding
what is said
Benjamin Constant[1]

Berlin
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Теория статистики

в настоящем состоянии
с присовокуплением

Краткой истории статистики

Сочинение Александра Ободовского

**ординарного профессора статистики
при Главном педагогическом институте**

Mépriser la théorie, c'est avoir la prétention
excessivement orgueilleuse d'agir sans savoir ce
qu'on fait et de parler sans savoir ce qu'on dit
Benjamin Constant

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Introduction by the Translator

Aleksandr Grigorievich Obodovsky (1796 – 1852) was a pedagogue and scientist, professor of statistics. The Petersburg Academy of Sciences awarded him the Demidov prize for his book (*faute de mieu*?).

Nowadays we say that the book is devoted to the theory of statecraft (of university statistics) rather than statistics. Achenwall (1749, p. 1) was the first to say that *the so-called statistics is the Staatswissenschaft of separate states* and this opinion persisted; Roslavsky (1841, p. 13) agreed. In addition, Obodovsky (§ 61) called Graunt a political arithmetician which means that he equated it with statistics (actually, with Staatswissenschaft). At least in Germany that discipline, the statecraft, was never forgotten. Today, unlike the olden times, it happily applies numerical data and quantitative considerations, but I am unaware whether it studies medical or criminal statistics or still turns its attention to the boundaries of statecraft and history.

Bibliographic information in the book is utterly bad. Obodovsky names dozens of authors (which proves his erudition), mostly only in Russian, but without the appropriate titles. I have established many *likely* sources (sometimes without dates of publication) and included them in the Author's Bibliography (See *Bibliography*) but did not dare to link them directly with the text.

Contrary to Süssmilch (1758) and ignoring Daniel Bernoulli's 1766 study of smallpox epidemics, Obodovsky (as almost all the other authors of statistical work of later decades) paid no attention to describing the health of population (cf. Note 5 to § 40) although even Leibniz is known to have been interested in public hygiene. Another important subject missed by Obodovsky (just as by later authors) was criminal statistics although he (§ 40) noted that criminality indicated the moral quality of the population.

Then, Obodovsky thought that the study of causes and effects was not really needed (cf. § 54) and he had insufficiently emphasized the value of comparing states or different moments in the life of a given state, although, once more, even Leibniz recommended it (Note 4 to § 25). Finally, there is too many abstract reasoning without justification of the inferences. Cf. Druzhinin (1963) who reprinted a large portion of Obodovsky's book. He maintained, on p. 8, that he,

Obodovsky, *scholastically* reasoned about the definition of statistics.

Finally, Obodovsky properly stresses the importance of the theory of statistics, but, just as apparently all statisticians before, say, 1930, he understands it as the means for properly arranging statistics. I follow Pearson (1892, p. 15):

The unity of all [of any given] *science consists alone in its method*.

Then, I maintain that statistical theory or mathematical statistics can be likened to a statistical method with a single specification: theoretical statistics rather than mathematical since only it studies the collection and preliminary investigation of data.

Obodovsky's book is valuable since it provides a picture of statecraft at that time. It also illustrates the well-known fact: except for about the last decade of the bloodiest dictator, Russian scientists knew Western literature; nothing similar can be said about their Western counterparts.

General Introduction

In this century, tireless investigations in the field of political sciences had beneficially influenced statistics. In spite of Lüder's scurvy tricks and threats[2] these sciences, based [only?] on the requirements of the human spirit, could not have perished. The truth triumphed and the Achenwallian – Schlözerian idea came even nearer to light[3] and statistics once more took that honourable place among the political sciences on which it was put by the immortal Schlözer.

Everyone finally became convinced in that political measures cannot be appropriate if not based on statistical data. However, for its triumph statistics is only obliged to its theory. No one anymore doubts that in higher educational institutions the theory ought to constitute the main and essential part of a course on statistics since it alone provides a proper view of this science and directs it to thorough and systematic investigations.

Indeed, only the theory invests independence to statistics and discovers invariable elements in this science. For statistics, theory is like a soul is for the body. Material statistics is similar to an unmeasurable and incessantly billowing ocean and all that, which is studied about it in universities, would have only been a fruitless coastwise navigation. Indeed, the instructor ought to teach his listeners statistics itself rather than exercise them in the difficult art of discerning, valuing, collecting and arranging statistical data. It is that goal to which the theory guides the beginners.

The aim of my book is to represent the theory of statistics to the beginners in its present state and, at the same time, to acquaint them with the historical destiny of statistics[4]. The publication of the theory seemed to be all the more necessary since not a single contribution in our national literature had appeared after 1809[5] in which that science was treated systematically as required at present.

Notes

1. Henri-Benjamin Constant de Rebeque (1767 – 1830) was a writer on politics and religion. O. S.

2. Lüder (1817, p. v) formulated his aim as destroying statistics and politics which is closely connected with it and likened statistics with astrology (p. ix). I am unaware of Lüder's influence on the development of this science. Anyway, Schlözer had not mentioned that contribution; Obodovsky did (see below) but dismissed it. O. S.

3. Obodovsky had not explained what exactly did the *immortal Schlözer* achieve in statistics. I consider his main statistical work (1804) barely useful, see its translation on my website www.sheynin.de downloadable file 86, Introduction. O. S.

4. Obodovsky had not shown the *historical destiny* of statistics. O. S.

5. In 1809 Hermann (Herrmann) published (in Russian) his *General theory of statistics.* See a discussion of its first chapter in Sheynin (2014/2016, pp. 9 – 10). O. S.

The Theory of Statistics

Introduction

1. On science in general

A mind, after preparing itself for highest activity, shuns scattered and fragmentary notions. Seeking everywhere unification, it searches according to natural tendency for such an elevated point from which it will be able without distraction to cast a glance into the depth of the mastered knowledge. Being fully cognisant of its triumph and power, it assimilates and surveys that knowledge. To attain this aim, the mind collects homogeneous notions under particular ideas into general notions and subdues many similar truths under one single main idea.

Thus each science is created. But how many notions should constitute a science? This is determined by the powerful human spirit and some superior gift of construction peculiar to a creative genius.

2. On theory in general and on the theory of statistics

Sciences are subdivided into philosophical and experimental or historical depending on their belonging either to [studies of] mental or material objects. Any philosophical science is called a theory if expounded without any applications. In each experimental science subject and form are necessarily discerned. Its subjects are facts or data (§ 22) whereas the form is the method of uniting those facts or data.

And so, each experimental science has two parts, material and mental[1] and together they constitute the system of the science. The latter part is its theory and in this sense a theory only belongs to the system of a science. But the theory is also understood as an investigation of the properties and components of a science in general and its peculiar features. In statistics, both these studies are adopted jointly.

Notes

1. This (which is also mentioned below) contradicts the above. O. S.

3. The necessity of a theory and especially of a theory of statistics

The critical spirit of our century proves that a theory is needed for each experimental science. Indeed, each requires it

since only a theory can completely separate a science from other sciences[1]. Only it provides independence and internal order, indicates its merits, goals and usage and teaches us how to cultivate it.

Experience convinces us that a proper theory greatly influences the success of the science and its practical value. Statistics especially needs a robust and thorough theory because of the peculiar property of its subject which is fused together from material and mental components. Being so complicated, its subject often became an occasion for misunderstandings and delusions which are so pernicious for each science.

Note

1. Sciences are interconnected. Mathematics, for example, is connected with physics, biology and economics, to mention only three other sciences. And, for an example, William Herschel originated stellar statistics. O. S.

4. Subdivision of the theory of statistics

We understand the theory of statistics as the investigation of the properties and accessories of statistics understood as a science in general and also of its peculiar features and its system. Its properties, accessories and peculiar features are perceived by its subject or the problems which it solves, by its name, definition, boundaries and usefulness.

The system is determined by that definition. Cultivation of a science requires the knowledge of the methods of acquiring and expounding statistical information.

Part 1. The Notion of Statistics

5. The aim of statistics in general

A state is a society which aims at security[1] and welfare[2], both physical and mental. It is a moral organism[3], i. e., a system of moral powers directed towards the aim required by reason.

Notes

1. Those people who are united into societies because of a natural inclination, cannot enjoy unbounded freedom of action. Indeed, such freedom will become a source of mutual resentment and oppression. Each member of a society certainly ought to restrain his freedom of action so that he will not prevent the actions of other members. This means that a member of a society only has a *right* to act without restraining others. However, in such a society with each being his own judge most governing will be the right of the strong. [Cf. Schlözer (1804, §§ 11 and 12). O. S.]

Moreover, people will be unable to agree about the boundaries of the freedom of action since they differ in intellectual abilities, moral qualities, temperament etc. The *law of rights* is therefore needed which should certainly physically prevail over their denial and eliminate all hindrances to the security of *rights*. Only such societies may be called states which have *the law of rights* and consequently *security*. A. O.

In the beginning of § 39 and in § 51 Obodovsky called the state a political body which is not a moral organism at all! O. S.

2. The aim of a state does not only consist of security for each. When entering a state, a man brings along not only all his abilities and forces, but the general final aim of the entire human existence, morality and welfare as well. The aim of a state should therefore also to the same extent include decrees necessary for the moral perfection and physical comfort, or, in one word, decrees, directed towards the welfare of the citizens. At the very least, the aim of a state ought not to oppose the aim of humanity.

The law of rights or security issues from the government whereas welfare is rather the concern of the citizens. An enlightened government helps the citizen to attain welfare only in such cases in which their private forces are unable to overcome the encountered difficulties. A. O.

Concerning the aim of the human existence see Note 1 to § 41. O. S.

3. Just like an individual, a state, considered as a whole, consists of body and soul; it is a moral person or a complicated man. Its combined members are its body, the love of the Tsar and Fatherland is the soul, and the heart is the Church. The spirit of government or the totality of the actions of all its moral forces is revealed in its political life.

The aim of human existence is the highest possible harmonious development of the forces granted humans by God [This contradicts the statement in Note 2. O. S.]. The aim of the state concerning its composition is the most perfect security as the first condition of political existence, just like health of the human body is the condition for perfecting the soul. The aim of an unbroken political life of a state is welfare, and since the state consists of reasonable beings, its welfare needs material comfort, the

people's wealth and, just like a moral organism, it also needs art, science, morality, religion. A. O.

In the beginning of § 39 and in § 51 Obodovsky called the state a political organism, see also § 7, but in § 27 he mentioned moral organism once more. O. S.

6. Continued

In the physical world, everything is interconnected like cause and effect according to the law of necessity, and the aim of a physical organism is attained by the same law. In the moral world, the connection between cause and effect is established by reason and the aim is achieved by freely chosen methods. Those methods infinitely differ not only as such but also in the extent of their effectiveness and therefore lead to differing results.

However, if the methods are chosen prudently rather than at random, the aim of the pertinent investigation will be necessarily and most clearly seen[1]. But even then there remain so many and so different methods that the attainment of the aim will not be equally successful. Under given circumstances the mind will consider as sufficient only definite methods which still can infinitely differ[2].

Notes

1. The grammatical construction of that phrase was faulty and the translation is only probable. O. S.

2. All this reasoning seems artificial and meaningless. O. S

7. Continued

What was said in § 6 about the moral organism can be easily adapted to a political organism. When considering some particular state we should first of all imagine its aim whereas the methods for attaining that aim are known to it. The study of these different methods and their actual application as well as the results obtained provides a very fruitful subject for reflection.

If, in the course of such investigations, we begin to discover general notions in our [acquired] arsenal of knowledge and arrange them according to their interconnections or systematically, we will thus create a new science. Such a science really exists and is called *statistics*[1].

Note

1. This reasoning seems too simplified. O. S.

8. An exposition of the name *statistics*

The origin of the word *statistics* as a designation of a science whose aim we have determined is obscure. It was probably borrowed from the word *statista* first applied by Oldenburger, a professor at Geneva [at that time] in 1675 in his Itinerario Germanica Politico[1] for denoting the merits of V. L. Seckendorf. That latter (1756, Introduction) stated [translation from the Russian translation]:

I had no intention of depicting a general German politics[2] or rules of governing a state. My aim and intention were, to describe the condition of most German states in their proper and well organised way. But I was the first to venture such an enterprise so that my bold action or my defects will prompt others to do something better.

Such an explanation clearly shows that Seckendorf thought that his work absolutely differed from politics. Had Oldenburger called him a politician, he would have been censured for looking at him from an inappropriate angle. And since Seckendorf specifically based himself on the word *status*, Oldenburger who intended to define Seckendorf's moral quality (?) should have invented a new word, and called him an *egrerius* [honourable] *statista Christianus*[3].

Notes

1. Germany had not existed yet but in those times that word denoted the German world in general. O. S.

2. See Oldenburger (1675, t. 4, p. 824) and Klotz (1821). A. O.

3. Schlözer (1804, p. 3); Klotz (1821, p. 11ff); Holzgethan (1829, p. 1). Hassel, Gassel (1822a, p. 1) supposes that the word *statistics* was compiled from the Latin *status* and the Greek *aritmetika*. Some authors advise others to write *statistics* with a double *a* since they believe that that word originated from the German *Staat*. A. O.

Lovric who wrote § 1 of my essay (2011) discovered that the word *statistics* or similar words had appeared several times before 1600 although perhaps not to denote a science. But neither did it apply to a science for Oldenburger! And Obodovsky himself (beginning of § 9) noted that much time had to pass until this happened. O. S.

9. Continued

The word *statistics* had thus been composed about the mid-17th century but rather much time had to pass before its derivative, *statistics*, became used for designating a science[1]. Achenwall, in the mid-18th century, was the first to apply the word *statista* as a noun designating a science. Although it did not appear in the title of his book nor was he its inventor, as everyone believes [contrary to what everyone … ?], we should regard it as a merit that he introduced it into general usage.

Schlözer [1804, § 1] called it barbarian and corrupted (*vox hybrida*)**2** but in the newest languages there is no other word precisely answering the required notion. And so, the previous allegoric Latin *notitia rerum publicarum, notitia orbis imperantis, notitia statuum* remained in use also by those authors who still write in Latin. And that word, *statistics*, was introduced into all European languages**3**.

Notes

1. Schlözer [1804, § 1] testifies that it was first used as an adjective by Thurmann (1701), than in Schmeizel's (Шмейцель) 1725 announcement of his lectures which he called *Collegium Statisticum*. However, Thurmann's *Bibliotheca Statistica* is known to be *Bibliotheca Politica* [as previously noted by Schlözer – O. S.]. And, having only an announcement, we are unable to say whether Schmeizel meant statistical lectures in our sense. A. O.

2. Humboldt (1815, p. viii) wrote *political arithmetic or, in latino barbare, statistics*. And he wrongly equated both sciences. O. S.

3. In France, it first appeared in a book of Brion de la Tour in 1709 and, the same year, in England, in *Monthly Review*. In Russia, still earlier (Noveishee 1795). See *Vseobshchaia* (1809). A. O.

10. The need to define statistics

According to the meaning of the word, it is the study of the conditions of some state. However, this explanation is not sufficient for precisely understanding statistics as a science. For statistics to solve systematically its problem (§ 7), we ought to define it since only a definition provides an exact understanding of a science. Not only the independence of a science depends on its definition, but its internal order and its distinction from other sciences and, finally, the very viewpoint on the science from which authors had attempted to deal with it in different times.

A perfect notion or definition is, as Butte formulated it, a sanctuary in which there lives the main, the general idea which serves as an Ariadna's clue. From that clue as from an embryo harmoniously develops a definite notion of a complete statistics. And who denies the need of a definite notion of statistics, thus certainly deprives it of its worth among other sciences and leaves it without any systematic order.

11. What kind of a definition of statistics should there be?

A definition of statistics, just as of any other science, ought to conform precisely to its subject, represent neither more nor less. It should signify the content of that subject**1** and show the creative idea of the science in all its worth; should eliminate all

the alien but collect the homogeneous; impart originality, completely separate it from other sciences[2] and indicate the path to the internal connections of those diverse matters[3] which ought to be united into a single harmonious whole.

A true [a proper; I will not repeat this remark – O. S.] definition of a science should also represent the notion of its entire structure in an extremely abstract way so as to include superior indications. Finally, that definition ought to represent the matter created by the idea and include that idea itself. Then, who grasps the definition in all its completeness will be himself able (certainly under favourable circumstances) to create a science[4]. It should represent the measured magnitude (?) and provide a scale for the measurement.

Notes

1. Indeed, ancient mathematicians defined a point as an object without dimensions, but modern science (logic and mathematics) require a positive definition and have to leave the point without any definition at all. O. S.

2. See Note to § 3. O. S.

3. Diverse but homogeneous! O. S.

4. The same science (statistics) anew? Anyway, this statement is certainly far-fetched. Concerning the next sentence see Note 1 to § 18. O. S.

12. Authors disagree about the definition

Thus, then, the definition of statistics should be for placing it among other sciences and enjoying originality. However, not every author, for example, Malchus (1826, p. 6), believe that such a definition is really needed, but they base this conclusion on stating that the subject of statistics is facts and their description, that statistician is only a reviewer. For them, a systematic development of the facts by issuing from superior elements or the submission of the former to the latter is really foreign to the notion of statistics.

Those who think so forget that the data which concern a state are not yet statistical; they become statistical when considered from a certain viewpoint. And this condition is only met by a definition which includes an idea of a science.

13. Continued

For about a hundred years now, the scientific world is regarding statistics as a science[1] but almost each statistical contribution includes a definition of statistics more or less deviating from those provided earlier[2]. Many of them are actually descriptions which had been satisfied with minor and

accidental indications and represent a science [represent statistics] either too extensively or too narrowly.

Some statisticians (among the latest of them are Malchus [see § 12] and Schubert) have not offered any definition at all. Perhaps they agreed with those which had appeared previously, or understood that it was impossible to squeeze all that which they included in their contributions into the narrow confines of a definition.

Notes

1. At least after 1839 (after the publication of this book) several authors (Fox 1860, p. 331; Alph. DeCandolle 1873, p. 12; Miklashevsky 1901, p. 476) stated that statistics was only a method. O. S.

2. Lüder (1817, pp. 98 – 109) collected many definitions and sharply discussed the contradictions between them. A. O.

14. A survey of the most important definitions of statistics including those which exist nowadays

A criticism of all the existing notions of statistics would be fruitless and uninteresting. However, before approaching the true definition of statistics it is necessary to survey the definitions of the most important authors. We will then find out what was achieved in statistics as a science and become able to compare the present and the previous views about statistics.

Concerning definitions, the authors can be divided into five groups. (a) Those who think that statistics is the cognition of the real conditions and quality of states. (b) (The first class.) Others, and especially French authors, call statistics the study of the power and might of states. (The second class.) (c) Niemann and Malchus equate statistics with its theory. (d) (The third class.) According to their definitions, Sinclair and Gioja do not recognize statistics as a political science. Sinclair believes that statistics is a study of the conditions of some territory aimed at discovering the degree of the welfare of its inhabitants and the means for increasing it. (e) Gioja defines statistics of some territory as all the information which can be useful in general to anyone or to most inhabitants, or to the government. (The fourth class.) Finally, Achenwall and his followers call statistics the cognition of the remarkable features of the state. (f) (The fifth class)*.

Notes

*The subdivision into classes is not easy to understand. I have left the letters (a), (b), … as inserted by the author rather than replacing them by numbers. O. S.

(a) *Noveishee* (1795) admits two classes of definitions, see § 31. Gess (Гесс): in his *Comments* (p. 10) admits three classes; Butte (1808, p. 197), four and Holzhethan (1829, p. 14), six classes; Klotz (1821), eight classes. On the contrary, Malchus (1826, § 2) considers the subdivision of definitions into classes superfluous, their distinction illusory rather than essential since all the authors, as he thinks, have the same aim although approach it from different directions and admit similar distinctions in science. [The author repeats *science* many times; did he mean statistics? O. S.] But still, who can offer the best definition of a science?

(b) Here we have **Conring**: statistics is [I am not repeating these two words – O. S.] a complete cognizance of mostly the present and the previous conditions of a state and, as far as possible, its future condition. **Toze** (1762): the recent history of a state and a description of its present condition. **Lüder** (1792): it represents the conditions of a state at present or at a definite time. **Mader** (1793): it is knowledge of the real condition of a state. **Sprengler** (1793): the historical science which entirely and reliably describes the present or normal situation of a people. **Lucka** (1796): Practical statistics is the cognizance of the real quality of a state in all its parts. **Mone** (1824): the representation of the conditions of a state at the present and continuing time. **Koch-Sternfeld** (1826): cognition guided by theory and experience of the recent conditions of a state. That cognition is necessarily combined with the study of its organic and real basic power and its essential change due to events and political rules. **G. Boulgarin**: a science of the recent conditions of states represented by the entire display of their internal and external life.

(c) 1) **Peuchet** (1805): a science of the real forces and means of the power of some state. 2) **Mannert** (1805): a representation of the forces of some state. 3) **Donnant**: a science which considers the physical, moral and political forces of some territory.

4) **Fischer**: a science which teaches us how to study the forces of a state, to judge and describe them according to their properties, unification and usage. 5) The **Hassel (Gassel)** definition can be included here: a description of states according to their structure and internal and external actions. 6) **Zizius:** a systematic representation of the data from which we are able to study the conditions of the real political might of some state.

(d) Both authors call the material part of statistics *Statecraft* (Staatskunde) and its formal part, *statistics.* **Niemann** (1807, pp. 7 and 8):

Statecraft is neither a mass of numbers or information collected without any plan, nor a unification of that which seems remarkable according to the tastes of any individuals. It is *a correct representation of the state authorities and order in that state and of the civil way of life under their influence*.

The statecraft, thus understood, is a special subject for study. *The representation of a state has its own rules for both considering it from the single proper point and for its usage to attain the supreme aim.* Statistics is the totality of those rules.

(e) See **Sinclair** (1791 – 1799, vol. 20, p. XIII):
Many people were at first surprised at my using the new words Statistics *and* statistical, *as it was supposed that some term in our own language might have expressed the same meaning. 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; *and though I apply a different idea to that word, for in Germany statistical meant an*

inquiry for the purpose of ascertaining the <u>political strength</u> of a country, or questions respecting <u>matters of state</u>; whereas the idea I annex to the term, is an inquiry into the state of a country for the purpose of ascertaining the <u>quantum of happiness</u> enjoyed by its inhabitants, and the <u>means</u> of its future improvement; 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.

[Schlözer (1804, § 5) quoted that passage and noted that Sinclair *certainly had not read a single German statistical handbook*. He also explained practical politics: it is the *doctrine of governing the state or the science of governing*. O. S.]

(f) 1) **Achenwall** (1768, fifth edition [of his book of 1749]: the totality of the real remarkable features of some state [kingdom] or republic. In the broadest sense it is the structure (Staatsverfassung) of that state. And the science of that structure is statistics. 2) **Schlözer** [1804, § 14]:

Statistics of a land and people is the embodiment of the remarkable features of the state.

3) **Remer:** the science of the structure (Verfassung) of various states. 4) **Meusel:** the statistical representation of the quality and structure of a state. 5) **Goes** (1806): [Obodovsky repeats the title of that book]. 6) **Schnabel:** a statistical representation of the real situation for fostering the art of managing the state. 7) **Heim, Ziablovsky** (Гейм, Зябловский): a thorough cognizance of the real remarkable features.

Druzhinin (1963, p. 67) mentioned E. F. Ziablovsky (1763 – 1846), professor of history and geography, later, of statistics in Petersburg and called him a reactionary. O. S.

15. Criticism of the definitions of statistics[1]

When we consider these classes of definitions and recall what was said in § 11 about a perfect notion of science, we easily see that all of them are more or less unsatisfactory. The definitions of the first class provide statistics with a superfluous scope. Indeed, statistics will then include all the details of the description. On the contrary, the definitions of the second class are too narrow and one-sided since forces are only natural abilities and mean something positive whereas statistics considers negatives as well. In addition, statistics cannot avoid studies of the established order or management or enlightenment of the state whereas forces and might only have to do with its external relations..

Niemann and Malchus unjustifiably deny the adopted nomenclature and separate the theory of statistics from statistics itself. The theoretical part of statistics which we, together with Schlözer, call its theory, had not yet achieved a degree of perfection sufficient for separating it[2]; again, the two parts of statistics thus separated will be based on the same main idea and cannot therefore be different sciences. Finally, how then to name the science in which the practical and the theoretical part are fused? The definition offered by Sinclair shows that he had not thought about studies of states and his contribution only belongs to statistics by name.

Most satisfactory among all the definitions are those suggested by Achenwall and Schlözer and they therefore deserve to be specially studied.

Notes
  1. See a most detailed criticism in Lüder (1817, p. 98) and Klotz (1821, p. 19). A. O.
  2. A most extensive attempt of such a separation is Gioja (1838). A. O.

16. Continued

The definition of statistics as a cognition of the remarkable features of a state clearly shows that statistics has to do not with physical, geographical, literary, or technical remarkable features but with those of the state. However, a question remains: What is included into them? Or, which is the same, why can some information be called statistical? Achenwall himself was not satisfied by that expression and interpreted it (p. 5):

Infinitely many objects indeed exist in each state. Some of them noticeably influence its welfare, either furthering or hampering it. Such objects can be called remarkable features of the state.

Schlözer (1804, §§ 12 and 13) explained the situation more skilfully and in great detail: there are

Descriptions by the physicist, the geographer, the naturalist (botanist, zoologist, mineralogist[1]), by the historian, antiquarian, economist, publicist, teacher of religion and by a dozen others, each keeping to his own field. Even in a tiniest state they will find sufficient material for description. […]

For each realm and each of its provinces there can appear 20 or still more such conceivable special skilful descriptions. […]

All the data for which the statistician is searching, should also be in those 20 special descriptions if they are supposed to be complete. However, since each compiler had his own aim, I imagine one other aim which no one of the former compilers had but which is of a convincing importance and worth. The scientist who studies the state, either a practical worker or a theoretician, enters as the 21st man with the intention to elicit only those features which <u>apparently or conceivably influence the welfare of a state in a larger or smaller measure</u>. He takes for himself only these and orders them properly one after another.

Note
  1. In 1857, the International Statistical Congress (Congrès 1858, pp. 390 – 397) published a questionnaire naively entitled *Eléments qui les sciences naturelles fournir à la* [ought to provide] *statistique*. See also Sheynin (1980, p. 332). O. S.

17. Continued

Who reads Schlözer's (1804, §§ 14 and 15) explanation of remarkable features of the state certainly will not deny the truth [the propriety] of the Achenwall – Schlözer definition.

However, after considering in all rigour the property of the definition, we will have to agree that their choice is not understandable without a special interpretation.

Both Achenwall and Schlözer believed that the statistical data are distinguished from non-statistical by their influence on the welfare of the state (§ 16) and both also agree that welfare is the aim of state. It follows that statistical data are only those which influence the aim of the state[1]. Therefore, the aim of the state is the truest and initial indication of a statistical datum. And since a definition ought to offer a notion as abstract as possible (§ 11), it also follows that they both only gave an understandable explanation or description of statistics rather than its definition. Indeed, their definition includes lower derivative information. Only a rigorous, true definition can be useful for cultivating science. The description offered by Achenwall and Schlözer is unsatisfactory although correct and true.

Note
1. The following definition is also relevant here:

Statistics is a science which considers the actual condition of a state to show the extent of its security and welfare at some definite time. A. O.

18. The true definition of statistics

Now it seems easy to express properly the Achenwall – Schlözer explanation of a remarkable feature of a state. Butte had fulfilled that important service. Authors who agreed with this definition apparently belong to a special class but actually they are Achewall's followers. Butte himself did not consider his definition new, he only indicated that he adapted the Schlözer definition to the requirements of science. He formulated that definition so that it represented science in the highest possible abstract way. Being a measurable magnitude it also offers a scale for the measurement[1]. The essential difference between the two definitions consists in that Butte, instead of a minor, included the highest indication, and along with it other indications concealed in the notion of remarkable feature of the state which occur in the definitions of other authors in a scattered way.

We acknowledge the Butte definition[2] in the following form:

Statistics is the systematic representation of those data which allow a thorough discovery to what extent had the state attained its aim at some definite moment understood as the present.

Notes
1. Measurement and scale are also mentioned at the end of § 11, but remain mysterious. O. S.

2. *Statistik ist die wissenschaftliche Darstellung derjenigen Daten, aus welchen das Wirkliche der Realisation des Staatszweckes gegebener Staaten in einem als Jetzzeit fixierten Momente, gründlich erkannt wird.*

19. Explanation of the true definition of statistics

However clear that definition is all by itself, an explanation ought to be attached to it to prevent misunderstanding. Judging by the importance of definitions such misunderstandings are often dangerous for the success of science. An explanation seems all the more necessary since some authors had not quite agreed with the Butte definition and corrupted it by useless additions or gaps[1].

Note
1. For example, Lichterstern Tl. 1, p. 6 [see Bibliography] provides a very long definition. Klotz (1821, § 14, p. 25) translated the Butte successful definition into Latin: […]. However the [obviously, his] subdivision of the aims of the state into internal and external aims is wrong. A. O.

20. Continued

Statistics is a systematic representation. In general, science is a systematic totality of truths. It ceases to be a science as soon as it has no system, i. e., no order determined by a single main idea which unites all those truths and links them into a single whole. Without such an idea science naturally becomes disordered, lacks any plan and connections. We will then be liable to the danger of losing our way in an unmeasurable sphere of knowledge and include into the science such subjects which do not belong to it. What concerns science in general can be applied to statistics.

21. Continued

Statistics is a representation. Some authors say that statistics is a description but it represents measurable data by numbers which cannot serve for description. And if statistics concerns moral matters, it does not restrict itself by a simple description but offers a picture as clearly as is necessary for its goals.

In any case, statistics attempts to represent the aim of the state clearly and lively. It should therefore be called a picture rather than a description. This consideration shows that statistics is a historical science[1].

Note
1. This statement is not explained. Furthermore, it contradicts the end of § 22. O. S.

22. Continued

Those data. All the existing can be thought as phenomena liable to cause and effect and therefore as something created, or, just as something existing in time and space without any connections to cause and effect[1]. In the first case we have a fact, in the second instance, a datum. It is impossible not to agree that each fact can be a datum and vice versa. However,

since each indication offers its own viewpoint, it is better to call statistical objects *data*. Here is an example: the territory of Russia. Who shows how Russia acquired its great territory which constitutes 1/6 of all inhabited land, understands that territory as a fact. On the contrary, someone who reports about it as about something given, has no need to enter into historical studies, he just says that its area is four hundred thousand square miles. In essence, statistics only collects data whereas the objects of history are facts[1].

Note

1. First, it seems that randomness does not exist (see the beginning of this section)! Second, history is not restricted to chronology, as noted by Schlözer (1804, § 26). And about twenty years later his son, Christian von Schlözer (Sheynin 2014/2016, p. 18) maintained that only narrow-minded people restricted history to chronology and believed that it does not need general principles. But my main comment is that Obodovsky had here (and elsewhere) excluded the discovery of causes and effects from statistics as well. An important addition is needed. In many cases cause and effect are immediately seen in the statistical data, and only one question then remains: why not report such cases, if essential for the state, to the authorities at once, why wait indifferently? Schlözer (1804, § 14, Item 3) all but failed here. O. S.

2. This conclusion seems artificial. O. S.

23. Conclusion

Which allow a thorough discovery. Thoroughness is required of each science and constitutes a necessary condition for any system of truths. It means depth of cognition; generality of notions which is able to discover mistakes in particulars; invariability which is often alien to the material part of science.

Misunderstandings about the thoroughness of statistics had prevailed and many authors had attempted to be called thorough statisticians by offering infinitely long series of numbers, or, by trying to be clear and therefore flooding statistics with many notions belonging to other sciences. Thoroughness in statistics does not consist in the knowledge of numbers or in borrowed explanations, but in proper distinction, estimation and arrangement of statistical data. An author can be called a thorough statistician if he knows the theory of statistics perfectly well as also the material matter based on it.

Given the variability of statistical data thoroughness consists of grasping the invariable elements of statistics which may serve as rules (?) for an entire life. Then any statistical investigation will be surely successful.

24. Continued

To what extent had the state attained its aim. We see here that in the strict sense statistics is a political science since its subject is the state. However, the state is also the subject of other sciences. The science of the state (Staatslehre) shows the ideal condition of a state, politics sets forth rules for the state to attain its aim, whereas statistics shows to what extent the state has attained it.

Here was the clear difference between statistics and the science of the state and politics. It also follows that statistics is an experimental science since its subject is not the ideal, but the real state. It only depicts the really existing without bothering about what could or should be. Nevertheless, we ask readers not to forget that an experimental science is only possible when it is arranged according to a general idea rather than blindly following experience. In this latter case observations are accidentally carried out without any plan, are not connected necessarily, and statistics is not a science anymore. In an experimental science, experience, so to say, is required by reason to answer its questions. Only then a unity and a system are possible.

Note also that the aim of a state can be either necessary or empirical. The former is that essential indication without which we cannot imagine a state. It consists of security and welfare (§ 5). Apart from this general purpose any state considered along with other states aspires, just as any indivisible unity, to attain the aim of its existence. This aim is assigned by its natural or acquired abilities or appears according to special rules adopted by its government.

A state can aspire to extend its trade as Great Britain, or, as France under Napoleon, to conquer other countries. Such aims are called *empirical*. Statistics, a science and therefore a child of reason, when depicting a state, should pursue only one aim which is grasped by reason rather than being empirical and accidental[1].

The state should regard as necessary everything contained in itself and apply it for checking everything. The scope of statistics is restricted by that necessary aim[2]. Only when having it before our eyes we are able to detect deficiencies by comparison. Indeed, in general a deficiency is discovered by comparison with what ought to be. Only the recognition of this aim can lead to unity of the material statistics without which a systematic statistics cannot exist. Nevertheless, given that unity, the statistics of states will not be uniform. On the

contrary, even with the common character of the general ideas they will manifest an infinite variety since the aim of a government is attained by infinitely many methods (§ 6).

Notes
1. Foreign trade is hardly accidental for any state. O. S.
2. The study of foreign trade is beyond the scope of statistics? And the previous sentence is hardly understandable. O. S.

25. Continued

At some definite moment understood as the present. All the authors of statistical contributions agree that the subject of statistics is the information about the present time. It does not therefore study the past or the future. The former belongs to history, the latter, to philosophers and poets[1]. However, after understanding that under the pen of the statistician the present is determined by the past[2], we may think that statistics never solves its problems, or, simply, that it is an impossible science. On the other hand, those same authors believe that the notion of statistics should not reject the possibility of compiling the statistics of Greece at the time of Pericles; or of Rome at the time of Augustus; of the kingdom of the Franks under Carl [Carolus Magnus, 742 or 748 – 814, or Charles Martel, 686 or 688 – 741], or the Russian Empire of Peter the Great. So how to reconcile these contrary views? There exists only one means:

For compiling the statistics of some state we should imagine some arbitrary time, place and remoteness [from our time?] *in its life; mentally separate this* [moment?] *from the past and future; and thus construct an imaginary present.*

Thus it is done in contributions and universities in present-day Great Britain and France. However, if a statistician incessantly receives information about those states [certainly not about Great Britain or France!] its [their] present condition will still be imaginary. In such a way we say in 1839 about 1838 as about the present time.

Let us apply this method of imagining the present, separating it from the past and future, for any arbitrary selected moment of time. We will then act in the spirit of our science. A mental separation of some moment from past and future is its complete separation from time since time is going by whereas a statistical moment does not recognize any movement. Therefore, if statistics is called a historical science, it only signifies its contrariness to philosophical science.

History and statistics do not relate to each other as the past and the present, otherwise statistics will be, as it is usually said (Schlözer [§ 23 bis[3], Item 6]): *History is statistics flowing and statistics is history standing still*[4]. The mental separation of a statistical moment from time provides that invariability and constancy which, as it appears according to its materials, are not at all foreign, but belong to it inalienably as to any other science.

Time does not diminish the worth of a good statistics and Niemann justly called such contributions as Middleton's (1750) biography of Cicero, Gibbon's (1776 – 1788, Chapters 1 – 3 and 6 [of which volume?]) *History* or Voltaire's description of France at the time of Louis XIV [1638 – 1715] fragments of statistics which will always be read with pleasure.

Statistics of Russia, Prussia, … only exist when that viewpoint on science is adopted. It will always remain true that already during compilation and printing contributions, they present the past. The moment in the life of a state selected by the statistician represents the continuing condition of the state during which it is not subjected to any serious change. But how long is that period? As one of our honourable authors of statistical contributions, the late Hermann (Herrmann) put it:

I maintain that a good statistics shows the condition of the people at least for twenty years. Everything (in the state A. O.) *remains for quite a long time as it was. Objects are necessarily moving, but they always rotate about the same axis and their relations to each other remain without change.*

These relations are so invariable that the condition of one object can be judged by the condition of the other one even when numbers change by a few hundreds or a few thousands. They certainly do not change by millions.

However, the space [the period of time] which corresponds to the statistical moment cannot be the same for all states (Mone 1824). After a state had attained a certain level of development, its successes slow down. The state remains on that level for a long time especially if its natural situation hampers industrial activity and participation in world trade. On the contrary, states naturally beneficially situated and having the possibility to participate in that trade promptly develop their forces and under favourable circumstances grow and change and require an often repetition of general statistical studies.

Notes

1. Nowadays attempts are incessantly made to foresee the economic and/or political future of states. O. S.

2. Apparently: after statisticians study the past. O. S.

3. Schlözer mistakenly numbered his sections: numbers 23 and 24 appeared for the second time after number 24. So 24 bis means the second number 24. O. S.

4. Schlözer (beginning of § 24 and § 26) also stated that statistics is a part of history. Again (§ 14, Item 3 and Note 4; §15, Item 12) it is necessary to compare

one state with another and the same state at different times. Statistics therefore does not stand still. This recommendation was first formulated by Leibniz in a manuscript of 1680 (Sheynin 1977, p. 224). O. S.

Part 2. The Boundaries and the Benefit of Statistics

26. Knowledge ought to be subdivided

The field of human knowledge is unmeasurable and the human mind, even when applying its highest possible efforts is unable to embrace it, so it ought to restrict itself and study that field by parts. After combining a certain number of kindred knowledge under a single general idea it considers such a combination as an independent whole, as a specific science and separates it from all the rest.

The experience of three centuries proved that such a division of labour especially fosters the success of mankind and that the perfection of knowledge mostly depends on this condition. Each science considered by itself is always more or less connected with other sciences, but the philosophical mind incessantly attempts to extend the scope of the separate sciences and restore [or reveal] its internal connections with other sciences. However, we should nevertheless try to define exactly the boundaries of each to prevent confusion and inconsistences in the notions which are so harmful for the success of sciences.

The boundaries of statistics as compared with those of other branches of knowledge are clearly seen in its definition but it is not superfluous to study its distinctive nature more precisely and the more so since its independence had been formerly questioned[1].

Notes
1. See however Note 1 to § 13. O. S.

27. Similarity of statistics and political sciences and their separation

The subject of statistics is the state and it therefore ought to be connected necessarily with all those sciences which have the same subject, i. e., with political sciences. For precisely explaining the relations between statistics and those sciences it is necessary to show their scope or content.

The state is a moral organism. It is living, organically developing in space and time. A reasonable life develops in conformity with its aim. So how had it developed, what it is now and what will and should it be in the future?

If security and welfare constitute the main aim of the entire government activity, then the scope of political sciences includes all the knowledge which enables us to grasp how to attain that aim in the best way and how was it attained previously and is attained actually by the previously existed and nowadays existing states.

Therefore, according to Schlözer, in general the entire field of political sciences is subdivided into philosophical and historical sciences. This subdivision is not sufficient because some political sciences can only become systematic when philosophical rules are combined with historical facts. Indeed, political sciences are those which teach us how states under given conditions can become such as they should be. It follows that political sciences cannot be either purely philosophical or purely historical and therefore constitute a separate class. And so, political sciences are subdivided into three classes of the sciences of the state:

Philosophical. Here are the public and common law. Both are subdivided into philosophical or general and positive depending on whether they issue from reason or the existing established order of a state or of several states[1].

Philosophical-historic. Here we have politics, i. e., the science about the best way to arrange a state and manage it. Its parts are concerned with the internal structure and external relations of the state respectively. The former consists of *the science of the measures of state security and organisation* (Polizei-Wissenschaft), the latter is diplomacy.

Historical. These include political history and statistics.

Note
1. This, then, is an explanation of a positive science. O. S.

28. Statistics and the philosophical public and common law
Statistics is distinguished from the philosophical public and common law. Indeed, the latter issues from reasoning and their subjects are notions whereas the former borrows its materials from reality and experience. However, there also exists a connection between them, distinct but important. Many data borrowed by statistics from the positive public law can only become understandable and clear by those philosophical laws, for example, from the doctrine on the succession to the throne.

29. Statistics and the positive public law
Because of its historical direction the latter has a direct similarity with the former. At the beginning of the independent cultivation of statistics the positive public law only seemed to be its part since statistics borrowed very much from it. At that time, some authors complained that statistics had done away with the independence of that law and consequently some contributors of statistical writings attempted to banish it completely from statistics. However, after considering how greatly some rules about the mutual relations between government and subjects influence the attainment of the aim of the state, we ought to agree that a representation of a state will

be incomplete and imperfect if these features are missed. In the practical European law a statistician will also find many indications which are necessary for a complete understanding of the external life of a state.

And so, statistics ought to borrow some objects from the positive public law although only those which have relations with its goal. It is exactly this goal which constitutes the essential difference between both sciences. The positive public law simply sets forth its notions without considering the results of their practical application. Statistics, however, is only studying that, which, belonging to that law, influences the aim of the state. In this sense statistics can never avoid public law, but the borrowing mentioned above does not at all harm the latter's independence since the borrowed is only its part.

30. Statistics and politics

The connections between the two are much closer than between statistics and the science of laws. It is situated in the middle between general politics and practical politics or the art of governing. Furthermore, the distinction between statistics and politics is also easily seen from their very essence. Politics considers measures for improving security and increasing welfare whereas statistics shows reality and to what extent is that aim indeed attained. Politics studies the methods of increasing the public wealth whereas statistics is only investigating the existing. Politics attempts to preserve and improve the external relations of the state whereas statistics compares the merits of the state and other states and its relations with others.

However, in spite of the distinction between the general ideas of those two sciences they are closely connected. Politics uses statistical remarks for explaining its rules but does not consider the time to which these borrowed statistical data belong[1]. For a deep understanding of statistics we need the knowledge of politics and the statistician must arrange his objects so that his science will be able to answer all the questions of politics and political history. Just the same, politics cannot become perfect or thorough without statistics.

Note
1. Remarks had somehow become data. O. S.

31. Statistics and the general political history

Statistics had been often confused with history, namely, when the indications of the distinctive features of both were

confused. Nevertheless, all authors had agreed that these sciences are different and indeed, even their subjects differ. History describes man-made remarkable features in any territory whereas statistics only describes remarkable features of the state [not only man-made!] so that it only deals with states. Then, history describes events and coups d'état whereas the subjects of statistics are the components of the state. History deals with any time period, statistics only considers one moment.

When authors reason about history from the political angle, as did Schlözer, Schpittler, Johann Miller, Geren (Герен), Wachler, Salfeld (Зальфельд), Rotteck, Lüder, Pölitz and others, the distinction between the two sciences becomes difficult. History, thus considered, explains not only the internal, necessary connections of cause and effect between events, i. e., pragmatically, but the conditions of the internal and external life of previous and present states. In this respect statistics is very close to history since its subject is also the explanation of the internal and external life of states[1].

Many authors looked for the distinction between history and statistics in that the latter only describes the present conditions of states whereas the former pictures such events which show how a state had passed all its previous conditions up to the present. Nevertheless, such a distinction is superficial since it would have followed that, on the one hand, statistics is impossible because time is incessantly going on, and, on the other hand, that history is a collection of statistics because in the old days each past time was present.

It will then be even possible to say that a dated statistics becomes history and that statistics is a part of history and Toze's definition will be true: *Statistics is recent history.*

Much more thorough is the distinction between pragmatic history and statistics which allows that statistics, since it describes states as they really are, should not restrict its efforts only by present events, but, without considering the time, can include data which follow from remote events if only they influence the present aim of the state. Then statistics will describe not what had been occurring *successively*, but what exists in the state *now*. Without describing past or present events it is then satisfied by considering their results which influence the achievement of the aim of the state.

It cannot be denied that the modernity of the described objects only lasts for a moment since everything changes with time so that, as it seems, statistics cannot compile an enclosed whole. However, we said in the definition that a statistician describes exactly such a moment, considers it as present and completely isolates it from the past and future. It follows that the Shlözer formula which I mentioned in § 25, *History is statistics flowing and statistics is history standing still,* not quite satisfactorily separates those sciences and weakly expresses their relations to each other.

It is much better to say that history relates to statistics as poetry to painting. The last mentioned can only represent an action at a certain moment whereas the former bravely hovers and dares to describe not only the present but the past and the future as well. In spite of the distinction of these sciences in that their main ideas and aims are different, it is impossible to say that one of them can do without the other. Statistics often seeks help from history, and history often needs statistical remarks. At the same time none of them can yield its materials to the other without essentially changing its properties. In statistics, historical facts become statistical and vice versa.

Note
1. This is an important statement. See however § 54. O. S.

32. Similarity between statistics and descriptive and historical sciences and its distinction from them

Thus, statistics is a descriptive historical science and it should therefore be similar to all these sciences which consider and describe territories with their produce and man himself. For this reason statistics had been combined with **geography** because it borrows many objects from it. Statistics includes the entire political geography. Description of the situation, size, climate and soils of states and many other objects are borrowed from mathematical (?) and physical geography. Indeed, geography provides statistics with many important materials, especially when it expresses the main forces and statistics cannot be studied before geography. At the same time statistics is not a branch of geography and essentially differs from it: its subject is the state whereas for geography it is the Earth.

Statistics can only exist for countries which are territories of states, but geography studies any country. The essential difference however consists in that the former, although it borrows geographical objects, considers them from another higher point of view and explicates them in a different way in relation to the aim of the state. Thus, if geography indicates that Great Britain is an island, statistics, after borrowing this fact, represents it as the basis of the might of this country[1]. It follows that statistics differs from geography as much as from any other science which has [is based on] another main idea.

In the same way statistics differs from **topography** which is a part of geography and describes a country in the smallest details[2]. Statistics relates to topography just as to geography. The confusion of geographical, topographical and statistical notions in the so-called descriptions of countries, just as any other confusion of heterogeneous knowledge, can be unfavourable for the success of these sciences if it becomes widespread. Only a study of those separate sciences can guarantee success.

Ethnography also differs from statistics. It is a description of various nations and tribes according to their geographical

dissemination and character. The subject of ethnography is a nation of the same origin and language[3] and it therefore follows a nation in different and most remote countries. If, for example, it describes the inhabitants of Graubunden [a canton in Switzerland] and Vlachs of Transylvania and Turkey as a nation of common origin and language it does not think whether this nation is living in the same state or in many states. If otherwise, then it is only to show the influence of civil life on the character of the nations and on the change of its natural properties.

Statistics deals quite differently. The state is its main thought. Cimbri, the inhabitants of Wales, Caledonians, who live in northern Scotland, and the English are described as a single nation since they belong to the same state.

Notes

1. Obodovsky borrowed this example from Schlözer (1804, § 14, Item 3). O. S.

2. Topography is the geographical and geometrical study of a locality. Topographical maps are compiled to large scales. O. S.

3. Nowadays ethnography is understood as a science of people and culture. O. S.

33. The benefits provided by statistics

It seems that such a question concerning any science should not be asked since we ought to like unselfishly any truth and therefore any system of truths as well. However, bearing primarily in mind the perfection of his own mind, the student of a science can imagine something ideal as material and therefore weigh the practical benefit of that science.

A government dignitary, an official in the supreme circle of state service and each citizen, – all of them need statistics. The dignitary with an ardent zeal for his fatherland, deep knowledge of theoretical politics and unusual mind but without statistical knowledge will not be useful for the state and can even be harmful. Just so the most skilful physician who did not carefully consider the condition of the patient is useless and possibly harmful for him. Let someone say that experience, reports of offices, protocols, official evidence can better guide a dignitary than statistics. But will not his mind be refined by statistical knowledge and become able to apply duly the sources which are thus opened for him?

Statistics is especially needed by diplomats. A correct estimate of forces of his own and foreign states, a sure view of the mutual interests of states, an exact knowledge of the established order of the state determine political relations and even the measures of internal management, for example,

national economy, finance, military force. A wrong viewpoint on these objects of superior state management can be pernicious.

Statistics is both necessary and useful for officials who are moving in the circle of the superior state activities not only for their own advancement but also because without statistical information, possibly apart from mechanical clerky work, they will be totally or partly worthless.

If some state manager does not feel the spirit which animates the government and does not see the connection of his field of work with its entire activity then even the most proper and wisest measures adopted by the highest authorities often cannot be duly realized. What can an excellent master achieve without skilful assistants and tools? Can an official, who is directly connected with the people and on whose reports important state measures are sometimes based, duly describe the conditions of the studied objects if he is unable to view them from a proper angle?

Finally, each citizen needs statistics which is useful for him. It nourishes his patriotism and preserves his national character, these inexhaustible sources of civil virtue and heroic sacrifice of himself for the defence of throne and fatherland. Each educated citizen wishes to know what is going on in the state. The question: what new events are occurring? is always on the [educated] citizen's lips. It proves his participation in public affairs and is closely linked with his affection for the sovereign and fatherland, but often leads to absurd delusions, false trends, harmful opinions if only their alarming current is not quenched by open and well-founded statistical information.

Part 3. The System of Statistics

34. The notion of system and its necessity

A system of statistics is the totality of duly arranged objects belonging to the knowledge of a state or many states. Scattered remarks about separate statistical objects or their unplanned combination cannot constitute a science. The property of science requires a strict order of its parts and their incessant connection which depends on the main idea.

The necessity of a system is based on the general striving of the spirit for unity. To satisfy it is the more necessary the more does the mass of our knowledge increase and the more are we convinced in that our knowledge becomes thorough and clear due to its logical unity.

35. Statisticians do not agree about the [required] system

The system of statistics depends on the definition [of this science]. There exists a necessary and tight connection between the latter and the parts of statistics. If the definition is correct then the separation of statistics into parts is also true[1] and vice versa. When the definition of the parts of statistics is true, it becomes easy to imagine its true definition.

Consequently, the authors, who disagree about the definition of statistics, cannot have one and the same system of this science. Indeed, almost each statistician keeps to his own order and is even guided by distinct plans when describing various states or the same state at different moments. One of them admits as an essential part of statistics what another statistician unconditionally rejects[2].

Notes

1. This is doubtful. O. S.

2. Thus, Schlözer had totally banished geography from statistics. [In 1804, in § 8, he touched on this point. O. S.] Donnant thought that it was a branch of statistics; Lucka decided that a geographical description of territories should even be a main part of statistics; Clament stated that statistics and geography are absolutely different just like a deep investigation of an object differs from its superficial study. According to Mannert geography is the assistant, the mother and sister of statistics. Some authors considered topography the daughter of special geography, of another branch of statistics (Clament and French statisticians) whereas the German authors banished topography from statistics. True, Schummel (Шуммель) ardently defends the opposite view.

[Obodovsky continues to discuss the disagreement among the authors:]

Sprengel thought that the description of national character was difficult and therefore unnecessary and moreover that it is seen in the way of life,

amusements etc., but Meusel and many other authors described it. Schlözer attached unusual significance to the national character. He thought of precisely, numerically defining how diligent are people, how nimble and strong they are. [There is nothing of the sort in Schlözer (1804). O. S.] A. O.

36. The most important systems of statistics

However, since the notions of statistics of various authors are in many respects similar, so some similarity is also seen in the subdivision of statistics. Three systems, those of Schlözer, Niemann and Hassel (Gassel) can serve as prototypes whereas all other statisticians only differed from one of them by some nuances.

1. The Schlözer system is based on the formula *vires, unitae, agunt*. The first word signifies the main forces (the people, the land, the produce and the money in circulation). The second one, of combining those forces (the regime of the state [monarchy, republic etc.]) and the established order of the state, and the last word means the actual use of those forces, i. e., the management of the state.

2. The Niemann system. It combines the statistical data in two parts:

2.1. The statistical description of the land or territory belonging to the state (its origin and combination of its parts, their interconnections, the ability of fertilizing the soil, the inhabitants).

1) Historical description (the components, the tribes of population).

2) Geographical description (size of territory, boundaries, political subdivision, number of inhabitants).

3) Physical description (the kind of surface, climate, produce, inhabitants).

2.2. Statecraft

A. Statecraft proper

1) Established order of the state (the established order of the state proper, civil, church, educational established orders)

2) Management of government

a) Organisation of the legislative and executive authorities

b) Legislation and its administration or the description of the acting government institutions

c) Political statecraft

B. The science of the people (Nationalkunde)

1) The study of the industry and national economy (cultivation of land, raw materials, manufactures, trade). The

components of the people's property (forces (?), immovable property, cattle-breeding, money), welfare

2) National character and enlightenment

3. Hassel (Gassel) (1822b) describes the state with regard to physical forces, then how and by which method does it act. He also subdivides the statistical data in two parts

A. Elements of the main might

The location, boundaries, size, components of states. Inhabitants. The extent of cultivation of the land, produce. Technical diligence, trade. Enlightenment. Finances of the state, military might.

B. Elememts of political life

a) Established order of the state. Main laws. Regime of the state. Monarch and his house. Established civil order.

b) Management of the state

c) Political relations with other countries[1].

Note

1. Here are examples of the deviations from those forms (?).

Donnant (1876) subdivides statistics into analytic (everything about the balance of various states in some parts of the world); particular (the study of topography). He also considers properties (physical and moral sources of the might of a state) and internal statistics (it deals with both particular and general facts and distinguishes each part of a vast state).

Gatterer and Toze subdivide the objects of statistics into four sections (and Remer into five sections): geographical and natural conditions of the state, its civil and church established orders, the condition of erudition and enlightenment, political relations.

Lüder, in his Introduction, numbers almost a hundred sections placed under 80 categories, very thoroughly but without any discussion or systematic order.

De Lucka (1796) placed in his Introduction those objects which, in contributions of other authors, determine the content of statistics. He surveys physical and moral forces (and reckons among the latter the regime, the established order and management of the state). He calls all the rest statistics proper (statistics of the police, of politics, trade, finance, clerical work, state power).

Malchus follows Schlözer with some changes. His sections are 1) *the sources of the main forces* (the land, natural yield, inhabitants); 2) *elements of the wealth of the state*, industry; 3) *the results of using the power of the sources and elements*, national wealth etc. 4) *established order of the state*; 5) *the regime and the management of the state*; 6) *political relations with other states*.

37. Criticism of the systems of statistics

The Schlözer system is undoubtedly better than the others since he clearly separates the statistical objects from each other according to their properties and arranges them in a manner in which they appear in a tighter connection as cause and effect,

as the condition and the means for its fulfilment. But it is impossible not to agree that his first section contains too heterogeneous objects and is too extensive and arbitrary. And the deep investigations of Adam Smith had proved that the money in circulation in a state cannot be considered among the principal forces.

The main defect of all the described systems and of many others is that the principal parts of statistics are determined by some main objects of the state, and that those parts are subdivided in the same way. Three statistics are usually named: those of the state, of the people and government. They are subdivided into innumerably many other statistics, each being a separate whole. Thus, the statistics of the state is separated into statistics of agriculture, wine making, cattle breeding, hunting, fishing. Then, statistics of the people means statistics of their physical and moral strength. Statistics of the government means statistics of the police, of jurisprudence, military forces etc[1].

The imperfection of such statistical systems is clearly perceived: statistics as a science seems to be a collection or compilation of heterogeneous knowledge. Take any statistical contribution written according to such a system, forget its title and try to determine: to which science belong its sections? Even the most knowledgeable statistician will experience difficulties in deciding whether to statistics or to any other science. Indeed, he will find there fragments of physical geography, ethnography, commerce, technology etc.

True, statistics, like other sciences, gets materials from various sources and necessarily deals with them in its own way so that it is seen at a glance that they belong to statistics. If, in a certain contribution, we see something contrary, we ought to doubt that a true system of statistics is present there.

Note
1. The grammatical construction of the Russian phrase was wrong and the translation is only probable. O. S.

38. The reason why systems of statistics are imperfect and the means to overcome it

So what is the reason for the failure of most systems of statistics? We may surely answer: any statistical contribution fails if statistics is there subdivided according to material objects. There are innumerably variable objects and unity in their subdivision cannot be achieved. How absurd it is to subdivide philosophy according to the objects of the external

world since any such objects can be studied by that science. And it is equally absurd to subdivide statistics according to the immeasurably many variable objects belonging to a state.

Let someone say that statistics is an experimental science! It proves nothing since the conclusions which follow belong not to a science but to those objects which are certainly subjected to rapid changes. And so, the parts of statistics cannot be determined according to the variable objects of the external world. We ought to search for its subdivision in the field of the mind whose knowledge is distinguished by strict unity and necessity of order. If statistics should find out to what extent the aim of the state has been actually achieved, it should determine beforehand those means which secure the achievement of that aim in general and in a systematic scientific way determine their *internal and external* nature. If successful, that study will arrange the necessary means for attaining the aim of the state in an entirely systematic way. Only then it will be possible to consider and study the great variety of the objects to find the general concealed in them if only our observations are faultless and attention is paid to all the essential and heterogeneous.

Only thus we can keep to the true path and save for statistics the merit of a science. Otherwise its study will not be attractive for a philosophical mind and, furthermore, impossible in its entirety. The authors of theories, Niemann, Zizius, Klotz, Pölitz, Koch-Sternfeld, Holzgethan and the practical statistician Schubert had applied that proper method.

39. Statistics of the internal and external relations of a state

When considering a state, a political body, from that viewpoint, it should be presented according to its internal and external relations. A man can be studied all by himself and in relation to others, so also a state, all by itself or in relations to other states under whose influence it is changing.

The internal life of a man determines his external existence, and the external relations of a state depend on its internal circumstances so that consideration of the external relations should therefore be secondary. True, history shows that the external conditions sometimes completely change the internal life of a state and we may therefore think that the internal life depends on its external life as well so that the latter is more important than the former. However, thorough observations will convince us that, although the external circumstances influence the state, their result depends on internal conditions.

And we may surely maintain that a statistical study of the internal conditions of a state is more important than the investigation of the external conditions. Therefore, statistics is subdivided into a representation of both its internal and external conditions.

40. The internal conditions. The main forces

When turning our attention to the internal condition of a state we easily see the subsequent division of the objects belonging to its very aim. If security and welfare are those boons for whose sake people unite into states, then the origin and the life of a state depend on the existence of its forces and abilities. Without them it is impossible to imagine any action so that the aim of the state is never achieved.

These forces and abilities consist in the territory of the state and its inhabitants. The land and the people are therefore the main forces and their existence is an essential condition for any activities of the state (*conditio sine qua non*).

The land. Even a superficial consideration of the land, the region of the state, the territory, shows that it is the sum of the abilities and forces and that it essentially influences the achievement of the aim of the state.

The location of the land (is it an island, maritime or intercontinental) essentially influences the development of the state. When parcelled out or encircled by foreign lands or of a small size it harms independence. If the territory is too large the speed of [the realization of] government measures sometimes lowers. Natural boundaries provide more measures for repulsing external enemies whereas artificial strengthening of borders is greatly expensive.

Here, scorching heat or lethargic frost leads to the laziness of the inhabitants or weakens their intellectual faculties. There, on the contrary, a happy combination of heat and frost develops those faculties and makes the inhabitants industrious. Here, mountains assist fruitfulness (?), there, their lack hinders it. In a certain state a happy system of rivers connects the remotest localities and fosters the sale of the produce and an increase of production. Elsewhere, rivers are scarce and the most excellent gifts of nature become useless and perish. Here, the barrenness of the soil makes all the efforts of diligence futile, elsewhere excessive fertility lulls the strength of man.

After considering these phenomena, who will doubt that the land of a state influences all its life and all its manifestations in the political world. And we may say that a statistical

representation of a state cannot be complete if it does not discuss the forces and methods which the land is providing. Such a representation ought to be directly included in the statistics.

The people. The people which constitute the state foster the achievement of its aim in different ways and the following considerations show how to consider the people in statistics.

1. The increase or decrease of the population is a most important indication of the change of welfare and security of the state. Indeed, each citizen can assist the achievement of that aim, i. e., to help to foster security and welfare either by defending the state from external or internal enemies[1] or by increasing its wealth by his labour as a farmer, artisan, manufacturer, merchant, or by paying various duties and taxes. And the more there are such useful citizens the more secure and prosperous the state ought to be. Statistics therefore requires the knowledge of *the entire number of inhabitants*.

2. In some states the distinction of the inhabitants by their origin and language disturbs the unity of one of their main capabilities. However, we should consider the ratio of the numbers of the governing people and of those of different tribes and on their (?) geographical distribution. In the Russian Empire the Russians greatly outnumber the members of all the national minorities[2] and moreover they are living in the middle part of the country and thus beneficially united. At the same time the people of other origin are living at the edges of the Empire, their number is small and they are separated by geographical position and languages.

On the contrary, in the Austrian Empire [1804 – 1867] many peoples of different tribes are living in large numbers side by side and hamper government measures, especially legislation and administration of justice, by differences of characters and languages. This latest example shows that in some states *the separation of the inhabitants by origin and language* largely influences the attainment of the aims of the state and should be shown in its statistical representation.

3. Religion of the people is even more important than origin and language since it touches the inner life of man and, furthermore, contains the education of most. The history of Western Europe from the mid-15th to the beginning of the 18th century shows how great had been shaken many European states by religious hostility. Tolerance has since achieved essential success, but religious differences will always

influence the aim of the state and statistics ought to show *the division of the inhabitants by faith and religion*[3].

4. The development of the political life necessarily leads to the creation of different classes of citizens. The most ancient hereditary difference had been between the free citizens and slaves [not a class of citizen!] which easily shows the main features of later lifelong gentry and peasants. Then there came the honoured gentry, bestowed on some, often hereditarily, by the supreme authorities as a prise.

In the Middle Ages there appeared between the gentry and peasantry a third hereditary class: the citizenry or the middle class.

During the crusades the higher estate acquired a yearning for a comfortable life and luxury and many peasants became artisans and later traders. Their income soon made them independent from their masters, they united into special settlements encircled them by walls and ramparts to defend themselves against so often predatory attacks and began to be called citizens. Their wealth gradually increased and they became greatly influential.

Apart from these three hereditary classes which became an essential part of the population many personally titled people had appeared after someone filled a post which was later recognized as important and necessary. This happened first of all with mentors in the truths of the Christian religion who formed the clergy. When a standing army was formed, a military estate had emerged; in addition, the branches of the state management multiplied and a status of civil officers came into being.

All the government estates are divided according to the aim of the state into two classes, productive and unproductive. The first includes farmers, artisans, manufacturers and merchants [as mentioned above]. The second consists of civil officers, military men, clergy and scientists [see however below].The former ought to procure all which is necessary for the life of a state and increase public wealth, it largely assists in obtaining material comfort which is the foundation of the highest development of the aesthetic, mental and moral. The latter should provide peace of mind, security and [teach] all the methods of producing the necessary, useful and pleasurable for life. The totality of such things is indeed the public wealth.

The balance of all the estates and classes of the state is an important condition for achieving its aim and statistics ought to include a section on *estates* and the ratios of their numerical

strength. Statistics can also include the number of inhabitants of towns and rural areas which assists in finding out what kind of industries is prevalent in the state.

5. Now we can easily convince ourselves in that the density of population of different states very much differs. In England without Wales there are more than 5400 people per square mile, in Germany, more than 3300, in Spain not more than 1650, in European Turkey, 950 and in Sweden and Norway only 290.

It is easy to understand that that difference depends in some cases on the quality of the climate and soil, in other states with good climate and soil, on the extent of the enlightenment of the population, and measures of the government. The more secure are the rights of citizen, the more sources for industry there are, the more thorough is the upbringing of the population and the better are the moral relations in the families, the more properly does the population increase.

A gathering of large numbers of people in a small region increases its needs and improves the means for better and easier satisfying it. Information about the income had been compiled when the income tax was introduced in England, in France on the occasion of adjusting taxes and similar materials were collected in other countries. They sufficiently convince us in that the *density of population* is an important statistical subject.

6. When describing a population of a state statistics includes many other data very fruitful for finding out to what extent the aim of the state was achieved. Thus, the number of families and therefore the mean number of their members. When that number is large, we may certainly say that people live moderately and frugally and that the moral is not corrupted[4].

The relative number of criminals shows the extent of the morality of the population. In a similar way the relative number of births and deaths is calculated as well as other indications (the attitude of the population towards marriage, the ages, the number of men able to carry arms etc.) which are collected in *tables of population*[5].

Notes

1. During long periods of time Russian authorities had been attempting to overcome its internal enemies: the terrorists (which appeared after 1839) and progressively minded citizens, students in the first place. O. S.

2. This reasoning is superficial. First, not only Russians but Slavs (Ukrainians and White Russians as well). Second, Tatars and Bashkirs lived (and live) in the middle of the country. Third, religious faith, the

recognition of the Russian Orthodox Church, was more important than nationality. O. S.

3. In Russia, the relative number of Muslims has been gradually increasing and nowadays they have to be most seriously reckoned with. O. S.

4. In 1823, in Paris, there were 659,172 [659.2 thousand] inhabitants and 224,922 [224.9 thousand] families, less than three persons per family. The worst indication! A. O.

5. He could have added: attitude […] towards inoculation (the not quite safe preventive measure against smallpox, practised until the introduction of the Jenner vaccination).

Ivanovsky (1890, pp. 124 – 132) properly remarked that both sanitary and criminal statistics are extremely important although the former barely existed. On p. 132 he maintained that in Russia the registration of criminality was better than in France (the cradle of criminal statistics!). O. S.

41. Internal conditions (continued).
The structure of the state

The natural means for attaining the general aim of humanity[1] should be mutually adjusted and properly directed to the aim of the states. Otherwise none of the two aims will ever be attained. Therefore, the authority of a single person in a state is recognized. He sets in motion the main forces and abilities for achieving the aim of the state, removes all obstacles to the lawful development of those forces and abilities, and when needed, turns to compulsion.

A state cannot exist without a government since only it connects all parts of the state into a single whole. These parts therefore interrelate as aim and means, as cause and effect. Only then an inner unity is occurring and the state becomes different from all other states and is an independent whole. Its structure is adjusted and, in a word, the state becomes an organic society.

The established order of the state. In various states the supreme authority is arranged in different ways. It ensures the means and conditions for attaining the general aim of the state in a civil society. The totality of all those means and conditions for attaining that aim, for the state to become a harmonious whole, is called the established order of the state.

The supreme power is vested in a single person or a collective person and thus the *form of governing* is determined. The former is called monarchy, the latter, polyarchy[2]. The supreme person has three branches of authority: legislative, judicial and executive. Legislation belongs to the monarch who can share it among some class of citizens, the representatives of the people. In polyarchies, or the so-called republics,

legislation is in the hands of the most excellent people. This is the basis for separating the monarchy and polyarchy.

The management of the state. The single or collective person has the right to act for the achievement of the aim of the state. He reigns or governs. This means granting the laws for the subjects and arranging properly all the institutions applied by the supreme authority for carrying out its will and adjusting the laws for their applicability to all special cases. This indeed is the management of the state.

And so, the essence of this management is the setting in motion all the laws of the state. It therefore should extend over all the branches of legislation[3], *to internal administration of justice* (*the police, public economy, finance and military forces* [cf. end of § 37]). Statistics ought to consider *the management of the state* in all the mentioned directions.

Notes

1. In the social and political sense a single humanity never existed. O. S.

2. Aristotle and many later politicians distinguished three forms of governing: monarchy, aristocracy and democracy. But the last-mentioned form cannot exist since a society which constitutes a state cannot at the same time be governing and governed. Even in polyarchy the number of governing people ought to be restricted as much as possible since the difficulty of unity or agreement must increase with that number. If some change of the polyarchy is called democracy, the latter is really the governing of a few. A. O.

In 1619, Kepler quoted an author of a contribution of 1586 who had followed Aristotle and connected those forms with the harmonic, geometric and arithmetic proportions. Kepler, as it seems, was in favour of democracy, see Sheynin (1973, pp. 119 – 120). O. S.

3. They are mostly measures of security since, being safe, the people will attain welfare all by themselves. A. O.

Nonsense, suffice it to mention the system of taxation. O. S.

42. Internal conditions (continued). Culture

And so, the land and the people constitute the abilities and the forces granted by nature, whereas the structure of the state expresses the active condition of those abilities and forces, i.e., the drive to the aim of the state. Now, we have to consider how these forces and abilities have been developing and forming so that a reasonable will can easier direct them.

This problem leads us to the study of culture which we understand as the measure of the development and creation of all the physical and spiritual abilities and forces as well as the peculiarities of that development and creation. A culture is called *physical, technical, aesthetic, mental and moral-religious* depending on its belonging to the preservation of

physical life with its comfort or to the action of the ability to feel and to find out and to the [boosting of] morality.

43. The influence of the culture on the natural abilities and on the established order of the state

Since culture influences natural abilities, they completely change. It also provides new, previously unknown abilities and forces. Schlözer justly says that [Obodovsky enthusiastically quotes Schlözer's description of the transformation (actually, of destruction) of nature. Schlözer (1804) apparently does not contain that passage.]

Enlightenment changes nature and it shows us phenomena which nature would have never revealed all by itself. So also a state is the product of mankind ripened for absorbing the culture of mankind and it, the state, can only blossom when taking into account the necessities of culture.

Thus, enlightenment influences the natural abilities and forces of the state and the legislation itself takes into account these necessities. The land and the people represent forces, the established order of the state, its will whereas culture is the connection between force and will, it shows the direction to the aim of the state. Culture, therefore, is one of the most important subject of statistics.

44. The external conditions. The political position

The wider is the culture extending and, together with that, the more the population is growing, the tighter become the states one to another. At present, all the European states are interconnected and mutually act and counteract. No state can keep away from the chain that binds them or separate itself from the influence of other states, or, following its own arbitrary choice, independently adopt its system of national arrangement.

In this general connection of states each is more or less active or passive, more or less essential, and occupies a certain *political position* in the sequel of the other states. Statistics aspires to determine that position by the internal and external relations of the state taken in totality.

45. The interest of the state and independence

Any state has a common purpose with many others but it also aspires to attain a special aim of its existence which is destined by its natural or acquired abilities, location, occupation of its citizens, natural fruitfulness of soil, by the

number of its inhabitants, degree of their enlightenment, etc. That special aim is its *interest*. Since various states have different interests it is quite natural that, while striving for their attainment, they ought frequently to clash hostilely.

We should justify the aspiration of any state to achieve its aim if only it keeps within the boundaries of the laws of rights, i. e., does not interfere with similar aspirations of other states. However, a state has no external motive for stopping at the boundaries of that law and nothing prevents it from continuing its policy without oppressing other states[1]. Each state should be therefore arranged in such a manner which impedes any other state to insult it or to violate some of its special rights. A state ought to be in such a position that other states will be unable to oppress it without expecting serious disadvantages.

Thus *independence* is achieved which ensures the possibility of striving for its aim without any hindrances. The extent of this independence is seen in its political extent [extent of political power] and weak states defend themselves by a system of political equilibrium, by agreements.

Note
1. The boundaries of the law of rights are still recognized! O. S.

46. Agreements between states
The political superiority of a stronger state can be harmful for a weaker body. To compensate this situation each weaker state should endeavour to connect with other states which will prevent the stronger state from depriving it of its independence and restrain any attempts to prevail over it. Thus occurs *a system of political equilibrium*.

To initiate such a system and at the same time to establish, continue and strengthen friendly relations and mutual connections between states *agreements* are needed. They stipulate that both sides cede each other some of their rights and unite for attaining a definite aim, whether an improvement of their relations or defence against violation of their rights (or against threats to violate them) or against both. Representatives of the nations or *envoys* are then needed for supporting such connections and testifying about friendly relations.

47. A survey of the main articles
of a statistical representation of states
A natural and unconstrained order of a statistical representation of the parts and subjects of an entire science follow from §§ 39 – 46.

<div style="text-align: center">

I. Internal conditions

A. Main forces

</div>

1. The land or the region of the state

α) The territory

a) location, form, boundaries

b) size

c) kind of surface (mountains, plains)

β) natural conditions for the development of the main forces

d) waters

e) climate

f) soil

γ) natural produce

g) mineral kingdom

h) plant kingdom

i) animal kingdom

2. The people

a) total number and its subdivision

1) by origin and language

2) by faith and religion

3) by estate (noblemen, clergy, citizens, peasants.
Productive and unproductive classes. Inhabitants of towns and rural areas)

> *Note.* The rights of those estates are shown in the civil order of the state.

b) relative number of inhabitants (their density)

c) tables of population (relative numbers of marriages, families, ages, births, deaths etc.)

<div style="text-align: center">

B. The structure of the state

</div>

1) Established order

a) main laws of the state (general, civil, church)

b) form of governing α) for unrestricted monarchy

αα) monarch and his house, succession to the throne, symbolic indication of the might of the monarch (title, national emblem, courtiers). For β) restricted monarchy, additionally

ββ) the representation of the people or the estates who participate in the legislation. For γ) polyarchy, whether

αα) aristocracy, or

ββ) democracy

2. Management

a) general notion of the executive authorities

αα) are the regions of the state managed separately or is the management centralised

ββ) how many ministries? Their interrelations

γγ) is there a state council and its duties; is there a controlling establishment

b) ministries separately and highest, middle and lower offices

C. Culture

1. Physical

a) agriculture in all of its branches (cattle breeding, silkworm breeding, bee-keeping, etc., hunting and fishing)

b) mining and salt-mining

2. Technical

a) factories and manufactures

b) commerce

3. Aesthetical. The condition of fine arts and their establishments

4. Mental. The condition of educational institutions of higher and lower, general and special education, scientific societies. The condition of literature

5. Moral-religious. The representation of the moral qualities of the population, the condition of the enlightenment, religious conditions of the population, tolerance, fanaticism etc.

II. External conditions

1. Political extent [extent of political power], **relations with other states**

2. Special interest of the state

3. Agreements

Part IV. The Methods of Statistics

The previous part shows the content of statistics. Now we ought to show how a statistician can assist the success of his science, i. e., to show the method of collecting statistical data and explaining them.

48. The method of collecting statistical data or the sources of statistics

The sources of statistics can be

1) state documents, law codes, peace treatises, trade agreements, conventions, reports of the ministries, journals and registers published by the government, censuses of population, charters, privileges

2) privately published journals, travels [travelogues], topographies

3) oral information from knowledgeable and impartial people

4) one's own observations and studies

Statistical criticism estimates all these sources according to their external and internal worth. The latter is determined by the quality of the authors and circumstances, and the former, by the quality of the sources themselves. Private information should be especially criticized, but some official documents are not exempt from criticism either if based on doubtful indications.

Finally, much depends on the quality and properties of the object itself. Thus, agricultural tables are more trustworthy than tables of manufactures which in turn deserve more trust than commercial tables. Best of all for approaching truth is to base oneself on official documents and compare all the other sources with them.

A statistician who applies various sources encounters many difficulties:

1. Many statistical sources are not printed and can only be obtained with difficulties. Some other sources, although

printed, are not included in the general book sale business, or are too voluminous, expensive and often even incomplete.

2. When collecting statistical materials for a general statistics you have to master many foreign languages and furthermore perfectly understand the language of business. Schlözer [1804, § 24] remarked:

A man can read Voltaire [in French] *but still in many places of a* [French] *instruction in finance or manufacture he will be helpless even with best dictionaries.*

3. Suppose that a statistician has all the possible materials, but it is impossible to imagine that one man without help from others can duly order them without large expenses, without victimizing himself and all his time. Statistical criticism ought to be lenient to statistical contributions and especially to numerical details contained there[1].

Note
1. The atmosphere in the history of mathematics is nowadays charged with universal leniency (Sheynin 2018). O. S.

49. The method of providing information about statistical knowledge

That method can be either descriptive or analytic. The former, a detailed and clear portrayal of the really existing state, can be *ethnographic, comparative, tabular or linear*; alternatively, *factual or pragmatic*.

50. The ethnographic method

Here, each state is described separately according to an adopted system. This was the method of Achenwall, Remer, Meusel, Sprengler, Mannert, Millibiller, Krome, Hassel (Gassel) and many others, and this is also the method mostly applied in German universities. Schlözer [§ 23 bis, Item 4] called the statistical description of states by the ethnographic method *German university statistics*[1].

This method has unquestionable advantage in providing a complete and clear notion of each state: the attention is only turned to one object. However, it, that method, assumes that all the data necessary for completeness are thoroughly collected and, moreover, that there is enough time for supplying detailed information [to the listeners] which is needed for that method to be appropriately useful.

However, the extensiveness inherent in that method is mostly very disadvantageous and scientists had therefore attempted to remedy the situation by various means. Some of

them decreased the number of the described states and represented the selected states [even] more completely, but their choice was unfortunate: they paid most attention to states which were at the time politically prevalent. They did not take into consideration that in smaller states the moral and civil life was often developing more purely and stronger just because the forces in those states were concentrated[2]. Such states certainly deserve preferential attention for cognition of the elements of science.

Other authors avoided that mistake but had usually forgotten their own fatherlands and bordering countries in spite of the doubtless preference of national statistics.

If, however, statisticians described all the existing states they usually restricted their study by showing military and financial power, its influence on world trade and the political might of states without bothering about the relations of their internal life.

Notes
1. In English, university statistics is another and better known name for statecraft. O. S.

2. This explanation is certainly insufficient. O. S.

51. The comparative method

Those defects of the ethnographic method led a small number of authors to the *comparative* method which is also known under the name of its inventor, Büsching[1]. It shows the statistics of various states simultaneously, by ordered totalities of main data which describe objects one after another. The similarities of, and the differences between states are thus explained.

We ought to agree that it is impossible to imagine that a complete separate mental picture of each state thus emerges. Just as in history, the comparative method cannot explain the individuality of the states. However, the Büsching method has its own advantages. Statistics of all states can be surveyed most promptly since many useless repetitions can be avoided. In addition, the cognition itself of the states is more thorough when they are compared with each other. And our imagination then becomes unintentionally excited by thoughts about how is the aim of the state attained in this or that state under given means and conditions.

Again, this method allows us to select the most suitable and most preferable data. It indicates those data on which the better structure of the political organism is based [which determine

the better …]. Finally, this method allows us to discuss in detail those data which are recognized as especially interesting for the listeners. Schlözer [1804, § 23 bis, Item 8] properly praised this method and we can only regret that just a few authors had applied it. From more remote authors I name Büsching [certainly!], Beausobre, and de Lucka, and from recent authors, Malthus and Schnabel.

Note
1. Leibniz should be mentioned, see Note 4 to § 25. O. S.

52. The tabular method

Statistical tables result when applying the tabular method. Their purpose is to facilitate the collection and comparison of statistical data as well as the formulation of the inferences. A statistical table represents either one object with all its details and comparisons or many objects and orders them side by side. And it only deals with such data which can be briefly represented without long explanations. It is therefore mostly restricted to indicating the size of a state, the quality of its soil, measure of enlightenment of the population, number of inhabitants and its density (subdividing them by origin, language, and faith), number of towns etc. In a word, almost restricted to numerically expressible data.

We may already say that this method is not sufficient since only a small number of data describing the [approach to the] achievement of the aim of the state can be thus expressed. Statistical knowledge expressed in numbers is very precise[1] and definite. However, who wishes to restrict all the science of statistics to a table will only see the state from the material side and miss the moral forces which provide definiteness and character to social relations[2].

And so, statistical tables are only useful in that they provide an easy survey of statistical data, assist memory and can be applied for systematic repetition of the studied. They are also the foundation for comparing states which can never be done thoroughly without numbers. Tables will never lead to the uselessness of studying statistics or, in other words, to harming such studies, just as historical tables do not deprive political history of independence[3].

Notes
1. Numbers can be erroneous and, in addition, a usual mistake occurs when a number is not duly understood. Thus, the number of inhabitants of a town can only be known approximately. O. S.

2. This is an important statement: *moral* qualitative data are also important, but Obodovsky had not discussed them. O. S.

3. Tabular statistics which originated with Anchersen (1741) could have been the intermediate link between words and numbers, but Achenwall (1752, Intro.) stated that he had experienced *a public attack* against the first edition of his book by Anchersen. *Tabular* statisticians had been scorned, called *Tabellenfabrikanten* and *slaves of tables* (Knies 1850, p. 23). In 1734 S. K. Kirillov compiled a tabular description of Russia but his manuscript was only published in 1831 (Ploshko & Eliseeva 1990, pp. 65 – 66). I have found (but not seen) another source: Golitsin (1807). O. S.

53. The linear method

Linear statistics originated from the tabular method and can be understood as a changed version of tabular statistics. Its essence consists of representing everything numerically expressible by lines, circles, squares etc. Playfair, an English scientist [Royston 1956; FitzPatrick 1960], had invented it to facilitate the study of statistical data for those with bad numerical memory. However, the Germans applied that method much earlier.

The linear and the tabular methods are justified in the same way and the same advantages and disadvantages are therefore inherent in both. They ensure only a notion about numerically expressed objects in a state and cannot at all replace systematic statistics, However, is the linear method really useful and does it save time, as the linear statisticians claim? We ought to resolutely answer negatively.

First, any success in science depends on work in the proper direction and such trifles [as circles, squares etc.] can only seem important to laymen whereas a thorough scientist despises them. Second, when applying a certain method, we still cannot avoid numbers since only throwing a glance on, let us say, squares, which represent a state, we can determine the comparative sizes of states but not the size of each. And should not we return to numbers for understanding clearly the ratio of the territories of some states? These sizes cannot be determined by charts or maps without a scale, so also the linear statistical table cannot provide a clear notion about anything although only such notions are really valued in science[1].

Note

1. See the modern opinion about the linear method: Schmid (1978). O. S.

54. Factual and pragmatic methods

These methods differ in that only the latter shows the causes and effects of statistical data. Statistics completely concludes

its goal only by providing statistical data and in essence even excludes any other kind of description since (§ 22) data constitute the whole content of statistics. The notion of *datum* is independent from causes and effects; the entire purpose of statistics is to represent accurately all the means which are necessary to judge whether the aim of the state is being attained, and to what extent, or not.

Some authors, especially [active] at the time of Gatterer [1713], founded the so-called pragmatic or philosophical method of statistics by entangling considerations and historical indications in their statistical studies. The purpose of the pragmatic exposition of statistics consists in showing how a present situation had been generated by the previous period; or, what caused it. They thought thus to provide thoroughness to statistics which, as some authors believe, it does not possess when described purely historical[1].

However, after discovering that there still does not exist any complete history of any state, and that it was therefore impossible to explain duly, in all aspects, the entire totality of statistical data belonging to it, we will convince ourselves how difficult it is to compile a pragmatic statistics[2].

Happily, however, statistics by its essence can do without pragmatism. Indeed, however entertaining it is to know the real causes of some object, we can have a completely clear notion about it without such knowledge. Anyone can clearly imagine, for example, the inhabitants of a state, the power and the structure of its armies, without knowing how it all came about.

We cannot deny that statistics, just like any other science, becomes clearer by history, but it is not obscure without it since it, once more just like any other science, includes in itself its own light. Here, it seems appropriate to ask, should not a historical survey of the increase or a decrease of a state, and especially of its size and population, from the beginning to the studied moment, precede its statistical description?

The authors of statistical contributions disagree, but all historical doubtless belongs to history rather statistics whereas the subject of statistics is only the present[3]. However, those who begin to study statistics as an independent science should, but not always have a thorough knowledge of history and a historical survey can be doubtless useful for them. Some authors had indeed included such surveys, we name Hassel (Gassel), Pölitz, Demian, Wichmann (Вихман), and especially Schubert who masterly accommodated historical survey to almost all statistical data.

Notes

1. See Note 1 to § 22. O. S.

2. Why the unrealistic *all or nothing*? And the purpose of the pragmatic method is not at all restricted to showing a historical process, again see the same Note. O. S.

3. Obodovsky (end of § 18) quite properly maintained that previous moments understood as the present may also be studied. O. S.

55. The analytic method

There was a period when the main purpose of the authors of statistical contributions was the collection and hoarding as much as possible statistical data[1]. But how can we find out whether these data are statistical, do they connect themselves to form a single whole, and how this whole [if it exists] differs from other branches of knowledge? These questions were not then considered very important and only an introductory few pages were devoted to answering them.

Such authors usually stuck to the indications of experience and therefore considered the material part of statistics as their main subject. However, this empirical method [approach] was unable to conceal that the mass of the statistical data had increased unmeasurably[2] and that no efforts were able to unite them into a system. Accordingly, statistics, in spite of every endeavour and zeal of its authors, could have only been useful for a short time, and even the best contributions were forgotten yearly and almost monthly, just like calendars. Not surprisingly statistics became a target of mockery[3] and the number of its defenders incessantly decreased. But still, the need for statistical data had not lessened and the empirical method emerged victorious. It did not require large efforts when corrections of dated statistical information became necessary. Tables were replaced by tables, numbers piled on numbers and statistics almost became a soulless compilation.

Then came Schlözer. He studied the defects of the statistical method of his time and revealed its complete falsity for the world to see. All previous statisticians except Conring exposited statistics in a scant introduction and hurried to describe statistics of the states. Schlözer, however, acted otherwise, he represented the theory as the essential and main part of statistics and showed a specimen of its application. Excellent scientists followed him and it is now doubtless that only the Schlözer analytic method is the true approach which directly leads to the goal. Nowadays no one doubts that statistics is a science and that anyone who learned how duly to

discern, estimate, collect and arrange statistical data can describe statistics when basing himself on its theory. It is not anymore possible to reproach statistics for the variability of its data since each datum is considered from its constant and invariable side.

The boundless mass of material statistics became accessible to the human mind. The merit of a scientific statistician is not anymore based on the knowledge of all the numbers characterising the statistics of some state but, additionally, on the thorough cognition of the theory of statistics and material cognition [cognition of material statistics] which should be entirely based on the theory, and, finally, on the ability of being able to create statistics if only materials and circumstances require it.

Notes

1. Biot (1855, pp. 1179 – 1180) opposed the publication of a great number of meteorological data useless for the general reader of scientific periodicals. O. S.

2. Cf. Lüder (1812, p. 9): the beginning of the century witnessed *legions* of new data. I adduce, however, the remark of Descartes (1637/1982, p. 63): *experiences* become the more necessary the more we advance in knowledge. O. S.

3. Lüder [1817, p. v] had railed against such authors, i. e., against empiricists, but he did not consider the theory of statistics. A. O.

He aimed at destroying statistics and (p. ix) likened it to astrology. Did he really have only empiricists in mind? Either bearing in mind this criticism or not, in Russia, *about fifteen years ago statistics had been almost a target for mockery* (Anuchin 1872, p. 3). O. S.

History of Statistics
56. Survey of the history of science in general

Beginning from the most ancient times we can discern three main periods in the history of science: hierarchical, philosophical and the separation of labour. The last mentioned period can be called the period of systematisation in the full meaning of that word.

The first period covers the time during which sciences remained confined to the temples. Only the priests had been occupied with it. Concealing knowledge from the people, they represented sciences in the guise of emblems.

The second period originated when the sciences, a long time after being transferred from Egypt[1], began to develop in Greece. All at once they had started developing in a completely different direction. They separated themselves from religion and were studied not only by priests but by philosophers as well. These latter informed their contemporaries about the fruits of their investigations, concealed nothing and did not hinder the ensuing delight.

In those times each philosopher covered all the fields of human knowledge. He was at the same time a metaphysicist, a moral admonisher, geometer, naturalist and physicist [and astrologer-astronomer].

The third period was signified by the separation of different branches of science from each other. Each became a special science and the exclusive business of those who wished to devote to it all the power of their mind. Polyhistory ended. Owing to the sensible separation of labour sciences became perfect (?) which was previously impossible even to think about.

That period would have certainly begun earlier had it only depended on Aristotle since that great scholar had set precise and natural boundaries for each science[2]. Regrettably, however, he left no worthy followers[3], whereas in a few centuries the sect of peripatetics which he founded, became contemptible.

And thus the great change in science had not happened until the end of the Middle Ages, in the beginning of the 16th century. Well-considered works and measures directed towards the development of science only date back for three centuries. At the same time statistics, in a systematic form, began to separate itself as a science from political sciences but became independent not before the mid-18th century.

Notes

1. Many more is now known about science in antiquity. I name Neugebauer (1951), and most certainly J. Needham's great monography *Science and Civilization in China* (many volumes and many editions). Then, mathematics in China (Berezkina 1970); in India (Volodarsky 1970); in Babylonia (Berezkina and Youshkevich 1970). Statistics in antiquity had been also studied by many authors, see Sheynin (2017, Chapter 1). The general sources on the history of mathematics are Cantor (1894 – 1908), and, until the 19th century, Youshkevich (1970 – 1972) and Pearson (1978).

I (1982) discerned three periods in the history of the statistical method. Conclusions were **1)** based on general impression of unregistered observations; **2)** based on registered observations (Graunt, Tycho Brahe); **3)** same, but checked by quantitative criteria. The first period conforms to the qualitative nature of ancient science. Here is an example (Celsus 1935, p. 19):

Careful men noted what generally answered the better and then began to prescribe the same for their patients. Thus sprang up the Art of medicine. Almost all this also concerns the next sections. O. S.

2. Sciences have common fields with one another. Statistics, for example, cannot be separated from astronomy, meteorology etc. Cf. Note to § 3. O. S.

3. Aristotle had a follower of sorts, Thomas Aquinas who strove to adapt the pagan Philosopher to Christianity. And he attempted to explain the notion of chance and to connect his own theory of probability with the logical and frequentist approaches to it. See Sheynin (1974, pp. 103, 105 and 108) with references to the controversial Byrne (1968) and another reference to a student of Thomas. O. S.

57. Statistics in antiquity

Statistical materials existed from the time when states possessing some enlightenment had originated. For the patriarchal life statistics was certainly not needed at all. Indeed, the people living in a primitive condition constitute a society but not a state. After the people had left their former condition, moved higher and formed states, information about the inner situation of those states had been gradually accumulating. People had been acquainting themselves with the powers at their disposal and applied their observations to the national economy. Egyptians, Jews, Greeks and Romans possessed statistical data about the conditions of their states. Only a proper name was missing. Tables showing the condition of the armies and finance were the first elements of statistics. Then data on the structure and management of the state began to be added.

Greeks and Romans joined this information to politics. During the last periods of the republic and later, under the emperors, statistics for the Romans was the main educational

discipline for those young men who devoted themselves to state service and it was then named *notitia publica*.

Gaius Sallustius (*Duae epistolae ad Caesarem*) says [six lines of Latin follow]. Cicero (1928, *On the laws*, III. 8) requires such knowledge from each senator. August and Tiberius [– 42 – 37] wrote such contributions themselves for their own usage as is testified by Sueton (1913, 8.102) and Tacitus (1956, 1.11) respectively.

Everything indicates that Romans had many statistical contributions and teachers of politics as well since young men had been able to learn as seen in Sallustius. Many statistical objects which were called antiquities had been found in the works of ancient authors although only for explaining classical writers, unscrupulously in the political sense and often undated.

58. Statistics in the Middle Ages

During the Middle Ages statistics existed in Rome, Byzantyne, in the Arab world and China. We also find its imprints in the nations which formed states after the Great Migration: in Franks under Carolus (Karolus) Magnus [742? 747? 748? – 814], in the English, under William the Conqueror [1028 – 1087], in the Goths in Spain. However, when the spirit of knighthood spread over Western Europe, arbitrariness destroyed the laws and weakened the states, only then, as it seems, statistics was forgotten.

Nevertheless, by the end of the Middle Ages it originated anew in the Italian republics. Their trade extended over the world as it was then known [not to China!]. Inhabitants of Venice and Genoa took the produce of India, Arabia and the whole Levant and brought it to Europe. They had been in touch with many just consolidated nations. For the sake of the trade they had been compelled to know the economic situation of these nations and collected the pertinent information through their diplomatic agents. At first that information was considered secret and kept in archives, but much became generally known.

Then some had begun to write privately about isolated statistical objects, for example Balducci and Uzano, both from Florence. Silvius (1496) published a book in Germany. Celtes wrote about statistics in prose and verse. Remarkable information about those objects in the Eastern Roman Empire (in the Byzantine Empire) is contained in the works of Byzantine authors. Gibbon collected many appropriate places

[passages] and it would have been certainly possible to compile a systematic whole out of them[1].

Note

   1. I name two sources on mathematics in those times: Rosenfeld & Youshkevich (1970, pp. 245 – 283; 284 – 326). They are devoted to Europe in the Middle Ages and to the Renaissance respectively. O. S.

59. Statistics of the new time. From Sansovino to Conring

   Sansovino (1567) [I established the edition of 1578] was the first really statistical book which described 22 European states. However imperfect it was, it deserved the general approval. Imitations followed, and especially distinguished among them was Botero (1582; 1600). The second book was compiled by many collaborators. D'Avity (1613 or 1616) published a book which had then been considered classical, reprinted many times and translated in other languages. Ranchin in 1635 and Rocoles in 1600 [impossible] provided corrections.

   D'Avity was the first in the sequence of French statisticians and France was the first to take over statistics from Venice. Abelin (1616) and De Linda (1663) [I established the edition of 1665] borrowed material from D'Avity. All those contributions were very imperfect and lacked a thorough plan.

60. Statistics of the new time. From Conring to Achenwall

   Philology [source criticism] which had been governing in the 16th century was favourable for the mind and prepared the later governing of philosophy. Two new sciences had appeared: natural and civil law.

   German politicians, publicists and jurists of the 17th century were quick to note that it was impossible to judge the condition of a state only by reasoning and clearly felt that politics ought to be based on statistical data. Seckendorf (1756) was the first to notice the defects of the current descriptions of states. At the same time, in 1660, the great polyhistor Conring (who died in 1681) announced his lectures at Helmstedt *de rebus publicis nostri aevi celeberrimis* and had thus introduced statistics in the field of university studies.

   His contribution was published by Göbel (t. 3 [of Conring's works]). Now it became useless but two other brief considerations (1730a; 1730b) will remain immortal since they contain the embryo of the real theory of statistics. There, Conring was the first to explain how to reveal statistical data [in general descriptions of states] [about three lines in Latin follow]. In all justice, as recognized by Butte and Zizius,

Conring has the glory to be called the founder and father of the statistical system since he discovered a criterion of statistical data although was unable to apply it and had not named his science.

His student and follower Oldenburger published his lecture notes (Conring 1675). During this period [until Achenwall] the professors of the new science who lived during and after Conring's lifetime, had published their contributions: Bose, Sagittar, Shubert, Walk in Jena (Walk was Achenwall's contemporary), Kemmerich in Wittenberg [Saxony-Anhalt], Otto in Utrecht and Keler in Altdorf [near Nuremberg] and Göttingen (Бозе, Сагиттар, Вальк, Кеммерих, Келер).

Many books have been published beyond the universities and they show that the notion of statistics had not been established at all. No one was able to show clearly the benefits of all that they taught or wrote and in any case how to apply statistics to a state. Governments paid no attention whatever to these new compilations of historical and statistical information.

61. Continued

At the same time statistical materials speedily accumulated since the inner political life had developed wider and political coups d'état occurred in some states. Such a coup in England in the time of William III [1650 – 1702] in 1689 especially fostered the increase of statistical knowledge about that state. Parliamentary debates, reports of ministries on state revenue and expenses and pertinent studies have explained many government objects which had still been secret in other countries.

From that time onward there appeared many very instructive large and brief contributions. In England, the accumulated public wealth even led to the origin of a special science, political economy. In France, at the same time, the deranged condition of the finances during the second half of the reign of Louis XIV compelled to study deeper after his death the sources of the state revenue and led to the appearance of many contributions in which statistical information was called political (connaisances politiques). In Sweden the same necessity was brought about by the ruinous wars of Charles XII [1682 – 1718] which decreased the population.

The incessantly accumulating statistical materials should have prompted the thinkers to consider their organic unification into a single whole. However, before statistics became an independent science the quantitative political

objects gave rise to the origin of political arithmetic[1]. In England, Graunt, Petty and Davenant [1656 – 1714] had been occupied with it, later it occurred in Holland and France where famous politicians and most celebrated scientists began to study it. Among them were Le Prestre Vauban, De Saint-Pierre [1658 – 1743], Niewentit, Struyck, Kersseboom and 'sGravesande.

The German scientist Süssmilch became especially famous by collecting all their works and discoveries (1741)[2]. Political arithmetic perfected as much as possible [at the time] one of the most important objects of statistics: the cognition of the population. Economists applied political arithmetic to agriculture and English scientists, especially Young, Price and Priestley adapted it to all the branches of national industry.

Notes

1. Yes, Davenant deserved a mention, but much less than Halley whom Obodovsky forgot. Now we believe that Graunt was a statistician (and extremely meritorious he was!). Obodovsky confused statistics and political arithmetic. Confused, for us, was Achenwall (1749, p. 1): he defined the *so-called statistics* as the Staatswissenschaft of separate states, cf. my Introduction. O. S.

2. Obodovsky certainly knew nothing about Süssmilch; his statement was absolutely wrong. O. S.

62. Statistics from Achenwall to our time

In Germany, scientists had been philosophically oriented, in England political enlightenment became widespread. Common and civil law, political economy and political arithmetic became special sciences. And then Achenwall, professor at Göttingen, collected statistical data into a single whole. His contribution (1749) later, in 1752, appeared under another name and ran in three more editions (in 1756, 1762 and 1769) and was posthumously published in 1781 – 1785 and 1790 – 1798 through the efforts of Schlözer and Sprengel.

In all justice, Achenwall initiated a new period in the history of statistics both by that contribution and his university lectures. He was the first to name the new science, to determine better than all his forerunners the notion of statistics and he also partly separated it from geography, metapolitics and history. More than others he hinted at and turned attention to the development of that separation. Achenwall was the first who became able to insert respect to statistics and to extend its study. After him there appeared so many lovers of statistics that a real statistical literature was compiled. It constituted a special branch of studies and filled a few volumes[1].

Note

1. Meusel (*Literatur der Statistik, 1806 und 1807*, Bde 1 – 2) collected all their titles; Niemann, at the end of his theory, showed those most important in a long register. See also Ersch (1813). A. F. Smirdin [1795 – 1857] named Russian statistical contributions in his catalogue of 1806 (with supplements). A. O.

63. Continued

For 90 years after Achenwall statistics has been threatened by various dangers and was not respected everywhere to the same extent. K. F. Hermann (Herrmann) says:

The insufficient political information except that which belonged to the civil law can explain why statistics had been threatened by the opinion that it is a kind of geography and ought to be annihilated. The cause of that opinion was the glorious Geography of Büsching which contained not only geographical, but historical and statistical objects as well.

No one considered that that historical information was a part of history, since it was agreed that geography should be taught together with history. That opinion is even now supported by some French textbooks. However, almost everyone was sure that statistics was only a new name for the previous science, geography. Even in 1804 there appeared in Paris a statistical geography.

Bielefeld and Schlözer had saved statistics. They returned its political direction. The former, in his political instructions, considered statistics as the main part and the foundation of political sciences. The latter had done even more for statistics by creating a special theory for it. He covered all the field of political sciences, duly subdivided it and showed the proper place of statistics. Finally, in his monthly issues (?), in correspondence and Political Notices (Staatsanzeigen)[1] he practically proved the benefit of statistical information for all political sciences. Thus it was mostly the works of Schlözer which ensured that statistics had avoided the danger of becoming a part of geography[2].

Another danger threatened statistics. German political calculators dealt thoughtlessly and contrary to the truth with the accumulated numerically expressed material (for example, Krome, Ockhard, Окгард) as well as French and English statisticians and had still more aroused indignation and sneers especially of the Göttingen school (Brandes, Reberg, Germ, Брандес, Реберг, Герм)[3].

That school began to maintain that statistics should not be represented as a soulless skeleton, that it should be supremely directed so that numbers, so important in tables, ought to be banished from it.

They intended to establish a difference between the supreme and the lower statistics and placed the political calculators and linear statisticians in the latter class. But just then political calculators had triumphed: the lower statistics was drawn into state rooms and everywhere in Europe statistical bureaus, offices and even chairs were established. Those calculators did not answer the criticisms of the supreme statisticians whereas the latter quit their attacks. Lüder (1812; 1817) intended to annihilate both the supreme and the lower statistics but only aroused indignation and sneers.

Abuse of numerically expressed statistical objects, statistical calendars and tables harmed statistics[4]. Mechanical minds were especially encouraged and philosophical minds brought to a stop. Statistics became one-sided. There was a time when Europe was flooded, so to say, by statistical tables and calendars so that statistics only consisted of numbers. This circumstance was favourable in that attention was turned on statistical objects and some notion of statistics extended everywhere.

Notes

1. I was unable to establish that source. O. S.

2. Schlözer (1804, § 33) severely criticized Bielefeld but concluded that it would be *an impertinent ingratitude to blame strongly the man who paved the way.*

In § 23bis, Item 8 Schlözer quite favourably commented on Büsching. In § 8 he quoted an author who had noted that many were confusing geography and statistics and stated that, unlike statistics, geography *runs rapidly through one country to another.* In the beginning of § 24bis Schlözer remarked that *we are still not unanimous* […] about the difference between those two sciences. Geography was then understood as an encyclopaedic collection of data on nature, population and economics of various regions. O. S.

3. The grammatical construction of the Russian phrase was wrong and the translation is only probable. O. S.

4. In § 24bis Schlözer justly stated that *general tables were extremely advantageous.* O. S.

64. Continued

Everything done for our science during the long period after Achenwall can be considered under three heads. **1)** Development of the statistical system. **2)** Real statistical

studies of states. **3)** Government assistance with the success of statistics.

Due to their extensiveness the first two items constitute a special subject for research (§ 62). Considering the third point it can only be regretted that statistics has belatedly turned the attention of governments to itself. Otherwise it would have reached a higher level of perfection.

At first secretiveness more or less governed in all European offices and most of all hindered success since scientists had been unable to obtain any materials. Statistical researchers were only tolerated but not encouraged. Scientists were allowed to collect all the materials from the published state acts and thus to compile a whole out of fragmentary information which had indeed been the university science, the statistics of scientists, necessarily incomplete and imperfect. More openness reigned only in England due to the conditions of constitutional management[1] and for this reason the political enlightenment had entered Europe from Göttingen (?).

However, from the beginning of this, the 19th century, and indeed from the time of the great Schlözer, governments are turning much more attention to statistics. In many states special statistical offices were established, detailed descriptions of provinces compiled by the order of the governments, land surveyed and censuses carried out, reports and tables issued.

In Russia, in 1805 statistics was included in the educational programmes of gymnasiums and universities. Now, a statistical department is established at the office of the Minister of Interior and statistical committees organized in each province. Yearly reports of the ministries and all the branches of government, periodicals published by the government, the readiness of the offices to provide statistical information, all that furnishes so much statistical materials that we may expect speedy successes and completeness of national statistics in all branches of statistical studies if only the researchers will guide themselves by the true theory.

Note
1. England had and still has no constitution. O. S.

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