

WORKERS OF ALL COUNTRIES, UNITE!

LENIN

COLLECTED WORKS

4



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В. И. Л Е Н И Н

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ПОЛИТИЧЕСКОЙ ЛИТЕРАТУРЫ
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V. I. L E N I N

COLLECTED WORKS

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PREFACE

Volume Four of the *Collected Works* contains Lenin's writings for the period February 1898-February 1901. These writings are devoted to the struggle for the victory of revolutionary Marxism in the working-class movement and to the exposure of the anti-revolutionary views of the Narodniks, "legal Marxists," and "economists."

"A Note on the Question of the Market Theory (Apropos of the Polemic of Messrs. Tugan-Baranovsky and Bulgakov)," "Once More on the Theory of Realisation," and "Capitalism in Agriculture (Kautsky's Book and Mr. Bulgakov's Article)" were directed against the "legal Marxists," who sought to subordinate and adapt the working-class movement to the interests of the bourgeoisie.

This volume contains Lenin's first writings against "economism": "A Protest by Russian Social-Democrats," articles for the third issue of *Rabochaya Gazeta*, "A Retrograde Trend in Russian Social-Democracy," and "Apropos of the *Profession de foi*," in which he laid bare the opportunism of the "economists" and showed "economism" to be a variety of international opportunism ("Bernsteinism on Russian soil"). Against the anti-Marxist positions adopted by the "economists," Lenin contraposed the plan of the unity of socialism with the working-class movement.

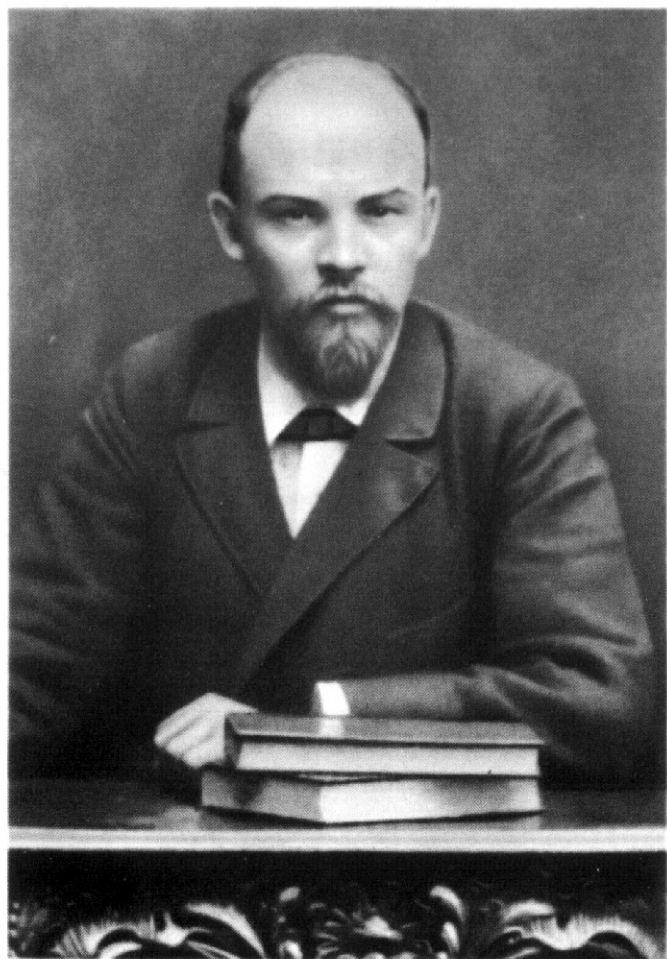
Several of the articles in this volume are models of the journalism of social and political exposure to which Lenin attached great significance in the struggle against the lawlessness of the tsarist officials, the struggle to awaken the consciousness of the broad masses of the people. These articles are: "Beat—but Not to Death!," "Why Accelerate the Vicissitude of the Times?" and "Objective Statistics," published under the general heading of "Casual Notes": "The Drafting of 183 Students into the Army," the preface to

the pamphlet on the famous Kharkov May Day celebration, 1900, *May Days in Kharkov*, and the article, "Factory Courts," written in connection with the granting of police functions to the Factory Inspectorate.

The volume also contains writings relating to the organisation of the all-Russian illegal Marxist newspaper *Iskra*: "Draft of a Declaration of the Editorial Board of *Iskra* and *Zarya*," "How the 'Spark' Was Nearly Extinguished," and "Declaration of the Editorial Board of *Iskra*."

These documents, as well as the articles, "Our Programme," "A Draft Programme of Our Party," "The Urgent Tasks of Our Movement," and "The Workers' Party and the Peasantry," define the tasks confronting the Marxist organisations and the working-class movement of Russia at the moment when Lenin set about the actual formation of a party to fight under the unitary banner of revolutionary Marxism against opportunism, amateurishness in work, ideological disunity, and vacillation.

The present volume also contains the "Draft Agreement" with the Plekhanovist Emancipation of Labour group on the publication of the newspaper *Iskra* and the magazine *Zarya*, which appears for the first time in a collected edition of Lenin's writings. *Iskra* was launched on the basis of the "Draft Agreement."



V. I. LENIN
1897

ON THE QUESTION OF OUR FACTORY STATISTICS

(PROFESSOR KARYSHEV'S NEW STATISTICAL EXPLOITS)¹

The Russian reading public displays a lively interest in the question of our factory statistics and in the chief conclusions to be drawn from them. This interest is quite understandable, for the question is connected with the more extensive one of the "destiny of capitalism in Russia." Unfortunately, however, the state of our factory statistics does not correspond to the general interest in their data. This branch of economic statistics in Russia is in a truly sad state, and still sadder, perhaps, is the fact that the people who write about statistics often display an astounding lack of understanding of the nature of the figures they are analysing, their authenticity and their suitability for drawing certain conclusions. Such precisely is the estimate that must be made of Mr. Karyshev's latest work, first published in *Izvestia Moskovskovo Selskokhozyaistvennovo Instituta* (4th year, Book 1) and then as a separate booklet with the high-sounding title *Material on the Russian National Economy. I. Our Factory Industry in the Middle Nineties* (Moscow, 1898). Mr. Karyshev tries, in this essay, to draw conclusions from the latest publication of the Department of Commerce and Manufactures on our factory industry.* We shall make a detailed analysis of Mr. Karyshev's conclusions and, especially, of his methods. We think that an analysis of this sort will have significance, not only in determining the way in which the material is treated by Pro-

* Ministry of Finance. Department of Commerce and Manufactures. The Factory Industry of Russia. *List of Factories and Works*, St. Petersburg, 1897, pp. 63 + vi + 1047.

fessor So-and-So (for this a review of a few lines would suffice), but also in determining the degree of reliability of our factory statistics, for which deductions they are suitable and for which they are unsuitable, what the most important requirements of our factory statistics are and the tasks of those who study them.

As its name implies, the source used by Mr. Karyshev contains a list of factories in the Empire for the year 1894-95. The publication of a full list of all factories (i.e., of *relatively* large industrial establishments, with varying conceptions of what is to be considered large) is not new to our literature. Since 1881 Messrs. Orlov and Budagov have compiled a *Directory of Factories and Works* the last (third) edition of which was issued in 1894. Much earlier, in 1869, a list of factories was printed in the notes accompanying the statistical tables on industry in the first issue of the *Ministry of Finance Yearbook*. The reports which factory owners are by law obliged to submit annually to the Ministry provided the material for all these publications. The new publication of the Department of Commerce and Manufactures differs from former publications of this type in its somewhat more extensive information, but at the same time it has tremendous shortcomings from which the earlier ones did not suffer and which greatly complicate its utilisation as material on factory statistics. In the introduction to the *List* there is a reference to the unsatisfactory condition of these statistics in the past which thereby defines the purpose of the publication to serve precisely as material for statistics and not merely as a reference book. But the *List*, as a statistical publication, amazes one by the complete absence of any sort of summarised totals. It is to be hoped that a publication of this sort, the first of its kind, will also be the last statistical publication without summaries. The huge mass of raw material in the form of piles of figures is useless ballast in a reference book. The introduction to the *List* sharply criticises the reports previously submitted to the Ministry by factory owners on the grounds that they "consisted of confusing information, always one and the same, which was repeated from year to year and did not allow even the quantity of goods produced to be accurately determined, whereas production figures as complete and reliable as possible are an urgent

necessity" (p. 1). We shall certainly not say a word in defence of the absolutely outmoded system of our former factory statistics that were purely pre-Reform,* both as to organisation and as to quality. But, unfortunately, there is *scarcely any noticeable* improvement in their present condition. The gigantic *List* just published still does not give us the right to speak of any serious changes in the old system admitted by all to be useless. The reports "did not allow even the quantity of goods produced to be accurately determined."... Indeed, in the latest *List* there is no information whatsoever on the quantity of goods, although Mr. Orlov's *Directory*, for example, gave this information for a very large number of factories, and in some branches of industry for almost all factories, so that in the summarised table there is information on the quantity of the product (for the leather, distilling, brick, cereals, flour milling, wax, lard, flax-scutching, and brewery industries). And it was from the old reports that the *Directory* material was compiled. The *List* does not give any information on machinery employed, although the *Directory* gave this information for some branches of industry. The introduction describes the changes that have occurred in our factory statistics in this way: formerly, factory owners supplied information through the police according to "a brief and insufficiently clear programme" and no one checked the information. "Material was obtained from which no more or less precise conclusions could be drawn" (p. 1). Now a new and much more detailed programme has been compiled and the gathering and checking of factory statistical information have been entrusted to the factory inspectors. At first glance one might think that we now have the right to expect really acceptable data, since a correct programme and provision for checking the data are two very important conditions for successful statistics. In actual fact, however, these two features are still in their former primitively chaotic state. The detailed programme with an explanation is not published in the introduction to the *List* although statistical methodology requires the publication of the programme according to which the data were gathered. We

* The Reform of 1861 which abolished serfdom in Russia.—*Ed.*

shall see from the following analysis of the *List* material that the basic questions of programme for factory statistics still remain entirely unclarified. With regard to checking the data, here is a statement by a person engaged in the practical side of this process—Mr. Mikulin, Senior Factory Inspector of Kherson Gubernia,* who has published a book containing an analysis of statistical data gathered according to the new system in Kherson Gubernia.

“It proved impossible to make a factual check of all the figures in the reports submitted by owners of industrial establishments and they were, therefore, returned for correction only in those cases when comparison with the data of similar establishments or with information obtained during an inspection of the establishments showed obvious inconsistencies in the answers. *In any case, responsibility for the correctness of the figures for each establishment contained in the lists rests with those who submitted them*” (*Factory and Artisan Industry in Kherson Gubernia*, Odessa, 1897, preface. Our italics). And so, responsibility for the accuracy of the figures, as before, still rests with the factory owners. Representatives of the Factory Inspectorate were not only unable to check all the figures, but, as we shall see below, were even unable to ensure that they were uniform and could be compared.

Later, we shall give full details of the shortcomings of the *List* and the material it uses. Its chief shortcoming, as we have noted, is the complete absence of summaries (private persons who compiled the *Directory* drew up summaries and expanded them with each edition). Mr. Karyshev, availing himself of the collaboration of two other people, conceived the happy idea of filling this gap, at least in part, and of compiling summaries on our factory industry according to the *List*. This was a very useful undertaking, and every one would have been grateful for its achievement, if ... if Mr. Karyshev, firstly, had published even a few of

* *Gubernia, uyezd, volost*—Russian administrative-territorial units. The largest of these was the gubernia, which had its subdivisions in uyezds, which in turn were subdivided into volosts. This system of districting continued under the Soviet power until the introduction of the new system of administrative-territorial division of the country 1929-30.—*Ed.*

the obtained results in their entirety and if, secondly, he had not displayed, in his treatment of the material, a lack of criticism bordering on high-handedness. Mr. Karyshev was in a hurry to draw conclusions before he had studied the material attentively and before his statistical processing was anything like "thorough,"* so that naturally he made a whole series of the most curious errors.

Let us begin with the first, basic question in industrial statistics: what establishments should come under the heading of "factories"? Mr. Karyshev does not even pose this question; he seems to assume that a "factory" is something quite definite. As far as the *List* is concerned, he asserts, with a boldness worthy of better employment, that in contrast to former publications this one registers not only *large* establishments but *all* factories. This assertion, which the author repeats twice (pp. 23 and 34), is *altogether untrue*. Actually the reverse is the case; the *List* merely registers *larger* establishments as compared with former publications on factory statistics. We shall now explain how it is that Mr. Karyshev could "fail to notice" such a "trifle"; but first let us resort to historical reference. Prior to the middle eighties our factory statistics did not include *any* definitions or rules that limited the concept of factory to the larger industrial establishments. Every type of industrial (and artisan) establishment found its way into "factory" statistics; this, it goes without saying, led to terrific chaos in the data, since the full registration of all such establishments, by the employment of existing forces and means (i.e., without a correct industrial census), is absolutely out of the question. In some gubernias or in some branches of industry hundreds and thousands of the tiniest establishments were included, while in others only the larger "factories" were listed. It was, therefore, natural that the people who first tried to make a scientific analysis of the data contained in our factory statistics (in the sixties) turned all their attention to this question and directed all their efforts to separating the

* Contrary to the opinion of the reviewer in *Russkiye Vedomosti*² (1898, No. 144), who, apparently, was as little capable of a critical attitude to Mr. Karyshev's conclusions as was Mr. Karyshev of a critical attitude to the *List*'s figures.

branches for which there were more or less reliable data from those for which the data were absolutely unreliable, to separating establishments large enough to enable the obtainment of satisfactory data from those too small to yield satisfactory data. Bushen,* Bok,** and Timiryazev*** provided such valuable criteria on all these questions that, had they been carefully observed and developed by the compilers of our factory statistics, we should now have, in all probability, some very acceptable data. But in actual fact all these criteria remained, as usual, a voice crying in the wilderness, and our factory statistics have remained in their former chaotic state. From 1889 the Department of Commerce and Manufactures began its publication of the *Collection of Data on Factory Industry in Russia* (for 1885 and the following years). A slight step forward was made in this publication: the small establishments, i.e., those with an output valued at less than 1,000 rubles, were excluded. It goes without saying that this standard was too low and too indefinite; it is ridiculous even to think of the *full* registration of *all* industrial establishments with an output valued at more than that amount as long as the information is collected by the police. As before, some gubernias and some branches of industry included a mass of small establishments with outputs ranging in value from 2,000 to 5,000 rubles, while other gubernias and other branches of industry omitted them. We shall see instances of this further on. Finally, our latest factory statistical system has introduced a completely different formula for defining the concept "factory." It has been recognised that "all industrial establishments" (of those "*under the jurisdiction*" of the *Factory Inspectorate*) are subject to registration "if they employ no fewer than 15 workers, as are also those employing fewer than 15 workers, if they have a steam-boiler, a steam-engine, or other mechanical motive power and

* *Ministry of Finance Yearbook*. First issue. St. Petersburg, 1869.

** *Statistical Chronicle of the Russian Empire*. Series II, Issue 6, St. Petersburg, 1872. Material for the factory statistics of European Russia, elaborated under the editorship of I. Bok.

*** *Statistical Atlas of Main Branches of Factory Industry of European Russia, with List of Factories and Works*. Three issues St. Petersburg, 1869, 1870, and 1873.

machines or factory installations.”* We must examine this definition in detail (the points we have stressed are particularly unclear), but let us first say that this concept of “factory” is something quite new in our factory statistics; until now no attempt has been made to limit the concept “factory” to establishments with a definite number of workers, with a steam-engine, etc. In general, the strict limitation of the concept “factory” is undoubtedly necessary, but the definition we have cited suffers, unfortunately, from its extreme lack of precision, from its unclarity and diffusion. It provides the following definitions of establishments subject to registration as “factories” in the statistics: 1) The establishment must come within the jurisdiction of the Factory Inspectorate. This, apparently, excludes establishments belonging to the state, etc., metallurgical plants and others. In the *List*, however, there are many state and government factories (see Alphabetical List, pp. 1-2), and we do not know whether they were registered in all gubernias or whether the data pertaining to them were subject to checking by the Factory Inspectorate, etc. It must be said, in general, that as long as our factory statistics are not freed from the web of various “departments” to which the different industrial establishments belong, they *cannot be* satisfactory; the areas of departmental jurisdiction frequently overlap and are subject to changes; even the implementation of similar programmes by different departments will never be identical. The rational organisation of statistics demands that complete information on all industrial establishments be concentrated in one purely statistical institution to ensure careful observation of identical methods of gathering and analysing data. So long as this is not done, the greatest caution must be exercised in dealing with factory statistics that now include and now exclude (at different times and in different gubernias) establishments belonging to “another department.” Metallurgical plants, for instance, have long been excluded from our factory statistics; but Orlov, nevertheless, included in

* Circular of June 7, 1895, in Kobelyatsky (*Handbook for Members of the Factory Inspectorate, etc.*, 4th edition. St. Petersburg, 1897, p. 35. Our italics). This circular is not reprinted in the introduction to the *List*, and Mr. Karyshev, in analysing the *List* material, did not go to the trouble of discovering what the *List* meant by “factories”!!

the last edition of his *Directory* quite a number of metallurgical plants (almost all rail production, the Izhevsk and Votkinsk factories in Vyatka Gubernia, and others) that are not included in the *List*, although the latter records metallurgical plants in other gubernias that were previously not included in "factory" statistics (e.g., the Siemens copper-smelting plant in Elisavetpol Gubernia, p. 330). In Section VIII of the introduction to the *List*, iron-working, iron-smelting, iron and copper-founding and other establishments are mentioned (p. iii), but no indication at all is given of the way in which metallurgical plants are separated from those "subordinated" to the Department of Commerce and Manufactures. 2) Only *industrial* establishments are subject to registration. This definition is not as clear as it seems to be at first glance; the separation of artisan and agricultural establishments requires detailed and clearly defined rules applicable to each branch of industry. Below we shall see confusion in abundance arising out of the absence of these rules. 3) The number of workers in an establishment must be no less than 15. It is not clear whether only workers actually employed in the establishment are counted or whether those working outside are included; it has not been explained how the former are to be distinguished from the latter (this is also a difficult question), whether auxiliary workers should be counted, etc. In the above-mentioned book Mr. Mikulin quotes instances of the confusion arising out of this unclarity. The *List* enumerates many establishments that employ *only* outside workers. It stands to reason that an attempt to list *all* establishments of this type (i.e., all shops giving out work, all people in the so-called handicraft industries who give out work, etc.) can only raise a smile under the present system, of gathering information, while fragmentary data for some gubernias and some branches of industry are of no significance and merely add to the confusion. 4) All establishments possessing a steam-boiler or a steam-engine are called "factories." This definition is the most accurate and most happily chosen, because the employment of steam is really typical for the development of large-scale machine industry. 5) Establishments possessing "other" (non-steam) "mechanical motive power" are regarded as factories. This definition is very inaccurate and exceedingly broad; by this definition, estab-

lishments employing water, horse, and wind power, even treadmills, may be called factories. Since the registration of all such establishments is not even feasible, there must be confusion, examples of which we shall soon see. 6) Under the heading "factories" are included establishments having "factory installations." This most indefinite and hazy definition negates the significance of all definitions given previously and makes the data chaotic and impossible to compare. This definition will inevitably be understood differently in different gubernias, and what sort of definition is it in reality? A factory is an establishment having factory installations.... Such is the last word of our newest system of factory statistics. No wonder these statistics are so unsatisfactory. We shall give examples from *all* sections of the *List* in order to show that in some gubernias and in some branches of industry the tiniest establishments are registered, which introduces confusion into factory statistics, since there can be no question of recording all such establishments. Let us take Section I: "cotton processing." On pp. 10-11 we come across five "factories" in the villages of Vladimir Gubernia which, for payment, dye yarn and linen belonging to others (*sic!*). In place of the value of the output the sum paid for dyeing is given as from 10 rubles (?) to 600 rubles, with the number of workers from zero (whether this means that there is no information on the number of workers or that there are no *hired* workers, is not known) to three. There is no mechanical motive power. These are peasant dye-houses, i.e., the most primitive artisan establishments that have been registered by chance in one gubernia and, it goes without saying, omitted in others. In Section II (wool processing), in the same Vladimir Gubernia, we find hand "factories" that card wool belonging to others for the payment of 12-48 rubles a year and employ 0 or 1 worker. There is a hand silk factory (Section III, No. 2517) in a village; it employs three workers and has an output valued at 660 rubles. Then more village dye-houses in the same Vladimir Gubernia, employing 0-3 workers for hand work and receiving 150-550 rubles for the treatment of linen (Section IV, treatment of flax, p. 141). There is a bast-mat "factory" in Perm Gubernia, on a hand-work level, employing six workers (Section V), with an output valued at 921 rubles (No. 3936). It goes without saying that there

are more than a few such establishments in other gubernias (Kostroma, for instance), but they were not counted as factories. There is a printing-works (Section VI) with one worker and an output value of 300 rubles (No. 4167): in other gubernias only the big printing-works were included, and in still others, none at all. There is a "sawmill" with three workers sawing barrel staves for the payment of 100 rubles (Section VII, No. 6274), and a metal-working hand establishment employing three workers with an output valued at 575 rubles (No. 8962). In Section IX (processing of mineral products) there are very many of the tiniest establishments, brickworks especially, with, for example, only one worker and an output valued at 48-50 rubles, and so on. In Section X (processing of livestock products) there are petty candle, sheepskin processing, leather and other establishments employing hand labour, 0-1-2 workers, with an output valued at a few hundred rubles (pp. 489, 507, et al.). More than anywhere else there are numerous establishments of a purely artisan type in Section XI (processing of foodstuffs), in the oil-pressing and, especially, the flour-milling branches. In the latter industry the strict division of "factories" from petty establishments is most essential; but so far this has not been done and utter chaos reigns in all our factory statistical publications. An attempt to introduce order into the statistics on the factory-type flour-milling establishments was made by the first congress of gubernia statistical committee secretaries (in May 1870),* but it was in vain, and up to the present day the compilers of our factory statistics do not seem to be concerned about the utter uselessness of the figures they print. The *List*, for example, included among the factories windmills employing one worker and realising from 0 to 52 rubles, etc. (pp. 587, 589, *et passim*); water-mills with one wheel, employing one worker and earning 34-80 rubles, etc. (p. 589, *et passim*); and so on. It goes without saying that such "statistics" are simply ridiculous, because another and even several other volumes could be filled with such mills without giving

* According to the draft rules drawn up by the congress on the gathering of industrial data, all mills equipped with less than 10 pairs of millstones, but not roller mills, were excluded from the list of factories. *Statistical Chronicle*, Series II, Issue 6, Introduction, p. xiii.

a complete list. Even in the section dealing with the chemical industry (XII) there are tiny establishments such as village pitch works employing from one to three workers, with an output valued at 15-300 rubles (p. 995, et al.). Such methods can go so far as to produce "statistics" similar to those published in the sixties in the well-known *Military Statistical Abstract* that for European Russia listed 3,086 pitch and tar "factories," of which 1,450 were in Archangel Gubernia (employing 4,202 workers, with a total output valued at 156,274 rubles, i.e., an average of fewer than three workers and a little more than 100 rubles per "factory"). Archangel Gubernia seems to have been deliberately left out of this section of the *List* altogether, as though the peasants there do not distil pitch and make tar! We must point out that all the instances cited concern registered establishments that do not come under the definitions given in the circular of June 7, 1895. Their registration, therefore, is *purely fortuitous*; they were included in some gubernias (perhaps, even, in some uyezds*), but in the majority they were omitted. Such establishments were omitted in former statistics (from 1885 onwards) as having an output valued at less than 1,000 rubles.

Mr. Karyshev did not properly understand this basic problem of factory statistics; yet he did not hesitate to make "deductions" from the figures he obtained by his calculations. The first of these deductions is that the number of factories in Russia is decreasing (p. 4, et al.). Mr. Karyshev arrived at this conclusion in a very simple way: he took the number of factories for 1885 from the data of the Department of Commerce and Manufactures (17,014) and deducted from it the number of factories in European Russia given in the *List* (14,578). This gives a reduction of 14.3%—the professor even calculates the percentage and is not bothered by the fact that the 1885 data did not include the excise-paying factories; he confines himself to the remark that the addition of excise-paying establishments would give a greater "reduction" in the number of factories. And the author undertakes to discover in which part of Russia this "process of diminution in the number of establishments" (p. 5) is evolving "most rapidly." In actual fact *there is no process of diminution, the number of*

* See footnote on p. 15.—*Ed.*

factories in Russia is increasing and not decreasing, and the figment of Mr. Karyshev's imagination came from the learned professor's having compared data that are not at all comparable.* The incomparability is by no means due to the absence of data on excise-paying factories for 1885. Mr. Karyshev could have taken figures that included such factories (from Orlov's cited *Directory* that was compiled from the same Department of Commerce and Manufactures lists), and in this way could have fixed the number of "factories" in European Russia at 27,986 for 1879, 27,235 for 1884, 21,124 for 1890, and the "reduction" by 1894-95 (14,578) would have been incomparably greater. The only trouble is that all these figures are quite unsuitable for comparison, because, first, there is no uniform conception of "factory" in old and present-day factory statistical publications, and, secondly, very small establishments are included in the number of "factories" fortuitously and indiscriminately (for certain gubernias, for certain years), and, with the means at the disposal of our statistics, it would be ridiculous even to assume that they could be registered in full. Had Mr. Karyshev taken the trouble to study the definition of "factory" in the *List*, he would have seen that in order to compare the number of factories in that publication with the number of factories in others it would be *necessary to take only establishments employing 15 or more workers, because it is only this type* of establishment that the *List* registered *in toto* and without any limitations for all gubernias and all branches of industry. Since such establishments are among the relatively large ones, their registration in previous publications was also more satisfactory. Having thus assured the uniformity of data to be compared, let us compute the number of factories in European Russia employing sixteen** or

* In 1889 Mr. Karyshev took data for 1885 (*Yuridichesky Vestnik*,³ No. 9) drawn from the most loyal reports of the governors, data that included the very smallest flour-mills, oil-presses, brickyards, potteries, leather, sheepskin, and other handicraft establishments, and fixed the number of "factories" in European Russia at 62,801! We are amazed that he did not calculate the percentage of "reduction" in the number of factories today in relation to this figure.

** We are taking 16 and not 15 workers, partly because the computation of factories with 16 and more workers has already been made

more workers, taking them from the *Directory* for 1879 and from the *List* for 1894-95. We get the following instructive figures:

Source	Year	Number of Factories in European Russia		
		Total	Employing 16 or more workers	Employing fewer than 16 workers
<i>Directory</i> , 1st edition	1879	27,986*	4,551	23,435
<i>Directory</i> , 3rd edition	1890	21,124	6,013	15,111
<i>List</i>	1894-95	14,578	6,659 (without print- shops 6,372)	7,919

Therefore, the comparison of those figures which alone can be considered relatively uniform, comparable, and complete shows that *the number of factories in Russia is increasing*, and at a fairly rapid rate: in fifteen or sixteen years (from 1879 to 1894-95) it has increased from 4,500 to 6,400, i.e., by 40 per cent (in 1879 and 1890 print-shops were not included in the number of factories). As far as the number of establishments employing fewer than 16 workers is concerned, it would be *absurd* to compare them for these years, since different definitions of "factory" and different methods of excluding small establishments were employed in all these publications. In 1879 *no* small establishments were excluded; *on account of this*, the very smallest establishments in branches closely connected with agriculture and peasant industries (flour milling, oil pressing, brickmaking, leather, potteries, and others) were included, but they were omitted in later publications. By 1890 some small establishments (those with an output valued at less than 1,000 rubles) were omitted; this left fewer small "factories." And lastly, in 1894-95, the mass of establishments employing fewer than 15 workers was omitted, which resulted in the immediate reduction in the number of small "factories" to about a half of the 1890 figure. The number of factories for 1879 and 1890 can be made comparable in another way—by selecting the establishments

in the *Directory* for 1890 (3rd edition, p. x), and partly because the explanations of the Ministry of Finance sometimes adopt this standard (see Kobelyatsky, *loc. cit.*, p. 14).

* Some gaps in the information have been filled in approximately: see *Directory*, p. 695.

with an output valued at no less than 2,000 rubles. This is possible because the totals from the *Directory*, as quoted above, refer to all registered establishments, whereas the *Directory* entered in its *name index* of factories only those with an output valued at no less than 2,000 rubles. The number of establishments of this type may be considered approximately comparable (although there can never be a complete list of these establishments as long as our statistics are in their present state), with the exception, however, of the flour-milling industry. Registration in this branch is of a completely fortuitous character in different gubernias and for different years both in the *Directory* and in the *Collection* of the Department of Commerce and Manufactures. In some gubernias only steam-mills are counted as "factories," in others big water-mills are added, in the third case hundreds of wind-mills, and in the fourth even horse-mills and treadmills are included, etc. Limitation on the basis of the value of output does not clear up the chaos in statistics on factory-type mills, because, instead of that value the quantity of flour milled is taken, and this, even in very small mills, frequently amounts to more than 2,000 poods a year. The number of mills included in factory statistics, therefore, makes unbelievable leaps from year to year on account of the lack of uniformity in registration methods. The *Collection*, for example, listed 5,073, 5,605 and 5,201 mills in European Russia for the years 1889, 1890, and 1891 respectively. In Voronezh Gubernia the number of mills, 87 in 1889, suddenly increased to 285 in 1890 and 483 in 1892 as a result of the accidental inclusion of windmills. In the Don region the number of mills increased from 59 in 1887 to 545 in 1888 and 976 in 1890, then dropping to 685 in 1892 (at times windmills were included, while at others they were not), etc., etc. The employment of such data is clearly impermissible. We, therefore, take only steam-mills and add to them establishments in other branches of industry with an output value of no less than 2,000 rubles, and the number of factories we get for European Russia in 1879 is about 11,500 and in 1890 about 15,500.* From this, again, it follows that there is an increase

* It is impossible to obtain the required figure from the data in the *List*, first, because it omits a mass of establishments with an output valued at 2,000 rubles and more owing to their employing fewer than

in the number of factories and not the decrease invented by Mr. Karyshev. Mr. Karyshev's theory of the "process of diminution in the number of establishments" in the factory industry of Russia is a pure fable, based on a worse than insufficient acquaintance with the material he undertook to analyse. Mr. Karyshev, as long ago as 1889 (*Yuridichesky Vestnik*, No. 9), spoke of the number of factories in Russia, comparing absolutely unsuitable figures taken from the loyal reports of the governors and published in the *Returns for Russia for 1884-85* (St. Petersburg, 1887, Table XXXIX) with the strange figures of the *Military Statistical Abstract* (Issue IV. St. Petersburg, 1871), which included among the "factories" thousands of tiny artisan and handicraft establishments, thousands of tobacco plantations (*sic!* see pp. 345 and 414 of the *Military Statistical Abstract* on tobacco "factories" in Bessarabia Gubernia), thousands of rural flour-mills and oil-presses, etc., etc. Small wonder that in this way the *Military Statistical Abstract* recorded over 70,000 "factories" in European Russia in 1866. The wonder is that a man was found who was so inattentive and uncritical with regard to every printed figure as to take it as a basis for his calculations.*

Here a slight diversion is necessary. From his theory of the diminution of the number of factories Mr. Karyshev deduces the existence of a process of the concentration of industry. It goes without saying that, in rejecting his theory, we do not by any means reject the conclusion, since it is only Mr. Karyshev's way of arriving at it that is wrong. To demonstrate this process, we must isolate the biggest establishments. Let us take, for example, establishments employing 100 or more workers. Comparing the number of such establishments, the number of workers they employ, and the total value of their output with data on all establishments, we get this table:

15 workers. Secondly, because the *List* counted the total value of the output without excise (in which it differed from former statistics). Thirdly, because the *List*, in some cases, registered, not the total value of the output, but payment for the processing of raw material.

* Dealing with the question of the number of factory workers, Mr. Tugan-Baranovsky has shown the utter uselessness of the *Military Statistical Abstract* data (see his book, *The Factory, etc.*, St. Petersburg, 1898, p. 336, et seq., and *Mir Bozhy*,⁴ 1898, No. 4), and Messrs. N. —on and Karyshev have responded with silence to his direct challenge. They really cannot do anything else but remain silent.

	1879			1890			1894-95		
	Number of		Value of output (thous. rubles)	Number of		Value of output (thous. rubles)	Number of		Value of output (thous. rubles)
See footnote*	Factories	Workers		Factories	Workers		Factories	Workers	
All "factories"	27,986	763,152	1,148,134	21,124	875,764	1,500,871	14,578	885,555	1,345,346
Establishments with 100 or more workers	21,238	509,643	629,926	1,431	623,146	858,588	1,468	655,670	955,233
Percentage of total	—	66.8	54.8	—	71.1	57.2	—	74	70.8

* The same sources. Some data for 1879, as already mentioned, have been added approximately. The general data of the *Directory* and the *List* are incomparable with each other, but here we compare *only percentages* of the total number of workers and of the total value of output, and these data in their totals are much more reliable (as we shall show later) than the data on the total number of factories. The estimate of large establishments is taken from *Capitalism in Russia*, which the present writer is preparing for print.⁵

It can be seen from this table that the number of very large establishments is increasing, as well as the number of workers employed and the value of the output, which constitute an ever greater proportion of the total number of workers and the total value of the output of officially registered "factories." The objection may be raised that if a concentration of industry is taking place, it means that big establishments are squeezing out the smaller, whose number and, consequently, the total number of establishments, is decreasing. But, firstly, this last deduction is not made in respect of "factories" but refers to *all industrial establishments*, and of these we have no right to speak because we have no statistics on industrial establishments that are in the least reliable and complete. Secondly, and from a purely theoretical standpoint, it cannot be said *a priori* that the number of industrial establishments in a developing capitalist society must inevitably and always diminish, since, simultaneous with the process of the concentration of industry, there is the process of the population's withdrawal from farming, the process of growth in the number of small industrial establishments in the backward parts of the country as a result of the break-up of the semi-natural peasant economy, etc.*

Let us return to Mr. Karyshev. He pays almost the greatest attention of all to those data that are the least reliable (i.e., the data on the number of "factories"). He divides up the gubernias into groups according to the number of "factories," he designs a cartogram on which these groups are plotted, he compiles a special table of gubernias having the greatest number of "factories" in each branch of industry (pp. 16-17); he presents a mass of calculations in which the number of factories in each gubernia is shown as a percentage of the total (pp. 12-15). In doing this Mr. Karyshev overlooked a mere bagatelle: he forgot to ask himself *whether the numbers of factories in different gubernias are comparable*. This is a question that must be answered in the negative and, consequently, the greater part of Mr. Karyshev's calculations,

* The handicraft census for 1894-95 in Perm Gubernia showed, for example, that with every decade of the post-Reform period more and more small industrial establishments are being opened in the villages. See *Survey of Perm Territory. A Sketch of the State of Handicraft Industry in Perm Gubernia*. Perm, 1896.

comparisons, and arguments must be relegated to the sphere of innocent statistical exercises. If the professor had acquainted himself with the definition of "factory" given in the circular of June 7, 1895, he would easily have concluded that such a vague definition *cannot* be applied uniformly in different gubernias, and a more attentive study of the *List* itself could have led him to the same conclusion. Let us cite some examples. Mr. Karyshev selects Voronezh, Vyatka, and Vladimir gubernias (p. 12) for the number of establishments in Section XI (processing of food products; this group contains the greatest number of factories). But the abundance of "factories" in these gubernias is to be explained primarily by the *purely fortuitous* registration, specifically in these gubernias, of small establishments such as were not included in other gubernias. In Voronezh Gubernia, for instance, there are many "factories" simply because small flour-mills were included (of 124 mills only 27 are steam-mills; many of them are water-mills with 1-2-3 wheels; such mills were not included in other gubernias, and, indeed, they could not be listed in full), as well as small oil-presses (mostly horse-driven), which were not included in other gubernias. In Vyatka Gubernia only 3 out of 116 mills are steam-driven, in Vladimir Gubernia a dozen windmills and 168 oil-presses were included, of which the majority were wind- or horse-driven or were worked by hand. The fact that there were fewer establishments in other gubernias, does not, of course, mean that these gubernias were devoid of windmills, small water-mills, etc. They were simply not included. In a large number of gubernias steam-mills were included almost exclusively (Bessarabia, Ekaterinoslav, Taurida, Kherson, et al.), and the flour-milling industry accounted for 2,308 "factories" out of 1,233 in European Russia, according to Section XI. It was absurd to speak of the distribution of factories by gubernias without investigating the *dissimilarity* of the data. Let us take Section IX, the processing of minerals. In Vladimir Gubernia, for example, there are 96 brickworks and in the Don region, 31, i.e., less than a third of the number. The *Directory* (for 1890) showed the opposite: 16 in Vladimir and 61 in the Don region. It now turns out that, according to the *List*, out of the 96 brickworks in Vladimir Gubernia only 5 employ 16 or more workers, while the analogous figures for the Don region

are 26 out of 31. The obvious explanation of this is that in the Don region small brickworks were not so generously classified as "factories" as in Vladimir Gubernia, and that is all (the small brickworks in Vladimir Gubernia are all run on hand labour). Mr. Karyshev does not see any of this (p. 14). In respect of Section X (processing of livestock products) Mr. Karyshev says that the number of establishments is small in almost all gubernias but that "an outstanding exception is Nizhni-Novgorod Gubernia with its 252 factories" (p. 14). This is primarily due to the fact that very many small hand establishments (sometimes horse- or wind-driven) were included in this gubernia and not in the others. Thus, for Mogilev Gubernia the *List* includes only two factories in this section; each of them employs more than 15 workers. Dozens of small factories processing livestock products could have been listed in Mogilev Gubernia, in the same way as they were included in the *Directory* for 1890, which showed 99 factories processing livestock products. The question then arises: What sense is there in Mr. Karyshev's calculations of the distribution by percentages of "factories" so differently understood?

In order to show more clearly the different conceptions of the term "factory" in different gubernias, we shall take two neighbouring gubernias: Vladimir and Kostroma. According to the *List*, there are 993 "factories" in the former and 165 in the latter. In all branches of industry (sections) in the former there are tiny establishments that swamp the large ones by their great number (only 324 establishments employ 16 or more workers). In the latter there are very few small establishments (112 factories out of 165 employ 16 or more workers), although everybody realises that more than a few windmills, oil-presses, small starch, brick, and pitch works, etc., etc., could be counted in this gubernia.*

* We have here another instance of the arbitrary determination of the number of "factories" in our "newest" system of factory statistics. The *List* for 1894-95 records 471 factories for Kherson Gubernia (Mr. Karyshev, op. cit., p. 5), but for 1896 Mr. Mikulin suddenly lists as many as 1,249 "factory establishments" (op. cit., p. xiii), among them 773 with mechanical motive power and 109 without, employing more than 15 workers. With this unclarity in the definition of "factory" such leaps are inevitable.

Mr. Karyshev's light-minded attitude towards the authenticity of the figures he uses reaches its peak when he compares the number of "factories" per gubernia for 1894-95 (according to the *List*) with that for 1885 (according to the *Collection*). There is a serious dissertation on the increased number of factories in Vyatka Gubernia, on the "considerably decreased" number in Perm Gubernia, and on the substantially increased number in Vladimir Gubernia, and so on (pp. 6-7). "In this we may see," concludes our author profoundly, "that the above-mentioned process of diminution in the number of factories affects places with a more developed and older industry less than those where industry is younger" (p. 7). Such a deduction sounds very "scientific"; the greater the pity that it is merely nonsensical. The figures used by Mr. Karyshev are quite fortuitous. For example, according to the *Collection*, for 1885-90 the number of "factories" in Perm Gubernia was 1,001, 895, 951, 846, 917, and 1,002 respectively, following which, in 1891, the figure suddenly dropped to 585. One of the reasons for these leaps was the inclusion of 469 mills as "factories" in 1890 and 229 in 1891. If the *List* gives only 362 factories for that gubernia, it must be borne in mind that it now includes only 66 mills as "factories." If the number of "factories" has increased in Vladimir Gubernia, the *List*'s registration of small establishments in that gubernia must be remembered. In Vyatka Gubernia, the *Collection* recorded 1-2-2-30-28-25 mills from 1887 to 1892 and the *List*, 116. In short, the comparison undertaken by Mr. Karyshev demonstrates over and over again that he is quite incapable of analysing figures from different sources.

In giving the numbers of factories in different sections (groups of industrial branches) and in computing their ratio to the total number, Mr. Karyshev once again fails to notice that there is no uniformity in the number of small establishments included in the various sections (there are, for example, fewer in the textile and metallurgical industries than elsewhere, about one-third of the total number for European Russia, whereas in the industries processing livestock and food products they constitute about two-thirds of the total number). It stands to reason that in this way he is comparing non-comparable magnitudes, with the result that his percentages (p. 8) are devoid of all meaning. In short, on the entire

question of the number of "factories" and their distribution Mr. Karyshev has displayed a complete lack of understanding of the nature of the data he has employed and their degree of reliability.

As we go over from the number of factories to the number of workers, we must say, in the first place, that the figures for the total number of workers recorded in our factory statistics are much more reliable than those given for the factories. Of course, there is no little confusion here, too, and no lack of omissions and reductions of the actual number. But in this respect we do not find such great divergence in the type of data used, and the excessive variations in the number of small establishments, which are at times included in the number of factories and at others not, have very little effect on the total number of workers, for the simple reason that even a very large percentage of the smallest establishments gives a very small percentage of the total number of workers. We have seen above that for the year 1894-95, 74 per cent of the workers were concentrated in 1,468 factories (10 per cent of the total number). The number of small factories (employing fewer than 16 workers) was 7,919 out of 14,578, i.e., more than a half, and the number of workers in them was (even allowing an average of 8 workers per establishment) something like 7 per cent of the total. This gives rise to the following phenomenon: while there is a tremendous difference in the number of factories in 1890 (in the *Directory*) and in 1894-95, the difference in the number of workers is insignificant: in 1890 the figure was 875,764 workers for fifty gubernias of European Russia, and in 1894-95 it was 885,555 (counting only workers employed inside the establishments). If we deduct from the first figure the number of workers employed in the rail manufacturing (24,445) and salt-refining (3,704) industries, not included in the *List*, and from the second figure the number of workers in printshops (16,521), not included in the *Directory*, we get 847,615 workers for 1890 and 869,034 workers for 1894-95, i.e., 2.5 per cent more. It goes without saying that this percentage cannot express the actual increase, since many small establishments were not included in 1894-95, but, in general, the closeness of these figures shows the relative suitability of the over-all data on the total number of workers and their

relative reliability. Mr. Karyshev, from whom we have taken the total number of workers, does not make an accurate analysis of precisely which branches of industry were included in 1894-95 as compared with former publications, nor does he point out that the *List* omits many establishments that were formerly included in the number of factories. For his comparison with former statistics he takes the same absurd data of the *Military Statistical Abstract* and repeats the same nonsense about the alleged reduction in the number of workers relative to the population which has already been refuted by Mr. Tugan-Baranovsky (see above). Since the data on the number of workers are more authentic, they are deserving of a more thorough analysis than the data on the number of factories, but Mr. Karyshev has done just the opposite. He does not even group factories together according to the number of workers employed, which is what he should have done in the first place, in view of the fact that the *List* regards the number of workers as an important distinguishing feature of the factory. It can be seen from the data cited above that the concentration of workers is very great.

Instead of grouping factories according to the number of workers employed in them, Mr. Karyshev undertook a much simpler calculation, aimed at determining the average number of workers per factory. Since the data on the number of factories are, as we have seen, particularly unreliable, fortuitous, and dissimilar, the calculations are full of errors. Mr. Karyshev compares the average number of workers per factory in 1886 with the figure for 1894-95 and from this deduces that "the average type of factory is growing larger" (pp. 23 and 32-33), not realising that in 1894-95 only the larger establishments were listed, so that the comparison is incorrect. There is a very strange comparison of the number of workers per factory in the different gubernias (p. 26); Mr. Karyshev obtains the result, for instance, that "Kostroma Gubernia turns out to have a bigger average type of industry than all other gubernias"—242 workers per factory as compared with, for example, 125 in Vladimir Gubernia. It does not enter the learned professor's head that this is due merely to different methods of registration, as we have explained above. Having allowed the difference between the number of large and small establishments in different gubernias to pass

unnoticed, Mr. Karyshev invented a very simple way of *evading* the difficulties encountered in this question. Precisely put, he multiplied the average number of workers *per factory for the whole of European Russia* (and then for Poland and the Caucasus) by the number of factories in each gubernia and indicated the groups he thus obtained on a special cartogram (No. 3). This, indeed, is really so simple! Why group factories according to the number of workers they employ, why examine the relative number of large and small establishments in different gubernias, when we can so easily *artificially level out* the "average" size of the factories in various gubernias according to one standard? Why try to find out whether there are many or few small and petty establishments included in the number of factories in Vladimir or Kostroma Gubernia, when we can "simply" take the average number of workers per factory *throughout* European Russia and multiply it by the number of factories in *each* gubernia? What matters it if such a method equates hundreds of fortuitously registered windmills and oil-presses with big factories? The reader, of course, will not notice it, and who knows—he may even believe the "statistics" invented by Professor Karyshev!

In addition to workers employed in the establishment, the *List* has a special category of workers "outside the establishment." This includes not only those working at home to the orders of the factory (Karyshev, p. 20), but also auxiliary workers, and so on. The number of these workers given in the *List* (66,460 in the Empire) must not be regarded as "an indication of how far advanced in Russia is the development of the so-called outside department of the factory" (Karyshev, p. 20), since there can be no question of anything like a complete registration of such workers under the present system of factory statistics. Mr. Karyshev says very thoughtlessly: "66,500 for the whole of Russia with her millions of handicraftsmen and artisans is but a few" (*ibid.*). Before writing this he had to forget that, if not the greater part, at least a very large part of these "millions of handicraftsmen," as is confirmed by all sources, work for jobbers, i.e., are the selfsame "outside workers." One has only to glance at those pages of the *List* devoted to districts known for their handicraft industries to be convinced of the thoroughly fortuitous and fragmentary nature of the registration of

"outside workers." Section II (wool processing) of the *List*, for example, for Nizhni-Novgorod Gubernia counts only 28 outside workers in the town of Arzamas and in the suburban Viyezdnyaya Sloboda (p. 89), whereas we know from the *Transactions of the Commission of Inquiry into Handicraft Industry in Russia* (Issues V and VI) that many hundreds (up to a thousand) "handicraftsmen" work there for masters. The *List* does not record any outside workers at all in Semyonov Uyezd, whereas we know from the Zemstvo⁶ statistics that over 3,000 "handicraftsmen" work there for masters in the felt boot and insole branches. The *List* records only one "factory" employing 17 outside workers in the accordion industry of Tula Gubernia (p. 395), whereas the cited *Transactions of the Commission*, etc., as early as 1882, listed between 2,000 and 3,000 handicraftsmen working for accordion factory owners (Issue IX). It is, therefore, obvious that to regard the figure of 66,500 outside workers as being in any way authentic and to discuss their distribution by gubernias and branches of industry, as Mr. Karyshev does, and even to compile a cartogram, is simply ridiculous. The real significance of these figures lies not at all in the determination of the extent to which capitalist work is done in the home (which is determinable only from a complete industrial census that includes all shops and other establishments, as well as individuals giving out work to be done at home), but in the separation of the workers in the establishments, i.e., factory workers in the strict sense from outside workers. Hitherto these two types of workers have often been confounded; frequent instances of such confusion are to be found even in the *Directory* for 1890. The *List* is now making the first attempt to put an end to this state of affairs.

The *List's* figures relating to the annual output of the factories have been analysed by Mr. Karyshev most satisfactorily of all, mainly because that author at last introduced the grouping of factories by the magnitude of their output and not by the usual "averages." It is true that the author still cannot rid himself of these "averages" (the magnitude of output per factory) and even compares the averages for 1894-95 with those for 1885, a method that, as we have repeatedly said, is absolutely incorrect. We would note that the total figures for the annual output of factories are much more

authentic than the total figures for the number of factories, for the reason, already mentioned, of the minor role of the small establishments. According to the *List*, there are, for example, only 245 factories in European Russia with an output valued at more than one million rubles, i.e., only 1.9 per cent, but they account for 45.6 per cent of the total annual output of all factories in European Russia (Karyshev, p. 38), while factories with an output valued at less than 5,000 rubles constitute 30.8 per cent of the total number, but account for only 0.6 per cent of the total output, i.e., a most insignificant fraction. We must here note that in these calculations Mr. Karyshev ignores the difference between the value of the total output (=value of the product) and payment for the processing of raw material. This very important distinction is made for the first time in our factory statistics by the *List*.^{*} It goes without saying that these two magnitudes are absolutely incomparable with each other and that they should have been separated. Mr. Karyshev does not do this, and it is to be supposed that the low percentage of annual output of the small establishments is partly due to the inclusion of establishments that showed only the cost of processing the product and not its value. Below we shall give an example of the error into which Mr. Karyshev falls through ignoring this circumstance. The fact that the *List* differentiates between payment for processing and the value of the product and that it does not include the sum of the excise in the price of production makes it impossible to compare these figures with those of previous publications. According to the *List*, the output of all the factories of European Russia amounts to 1,345 million rubles, while according to the *Directory* for 1890 it amounted to 1,501 million. But if we subtract the sum of the excise from the second figure (250 million rubles in the distilling industry alone), then the first figure will be considerably greater.

^{*} The only thing is that, unfortunately, we have no guarantee that the *List* made this distinction strictly and consistently, i.e., that the value of the product is shown *only* for those factories that actually sell their product, and payment for processing raw material only for those that process material belonging to others. It is possible, for example, that in the flour-milling industry (where the above-mentioned distinction is most frequently met with) the mill owners should have shown either of the figures indiscriminately. This is a problem that requires special analysis.

In the *Directory* (2nd and 3rd editions) factories were distributed in groups according to the amount of annual output (without any indication of the share of each group in the total output), but this distribution cannot be compared with the data in the *List* because of the differences in registration methods mentioned above and in the determining of the magnitude of annual output.

We have yet another fallacious argument of Mr. Karyshev to examine. Here, too, in quoting data on the total annual output of factories in each gubernia, he could not refrain from making comparisons with the data for the years 1885 to 1891, i.e., with the data of the *Collection*. Those data contain no information on productions subject to excise, and for that reason Mr. Karyshev looks only for gubernias in which the total output for 1894-95 is *less* than in previous years. Such gubernias are to be found to the number of eight (pp. 39-40), and apropos of this Mr. Karyshev argues about "the retrograde movement in industry" in the "less industrial" gubernias and says that this "may serve as an indication of the difficult position of the small establishments in their competition with big establishments," and so on. All these arguments would probably be very profound if—if they were not all completely fallacious. And here, too, Mr. Karyshev did not notice that he was comparing absolutely non-comparable and dissimilar data. Let us demonstrate this incomparability by data on each of the gubernias indicated by Mr. Karyshev.* In Perm Gubernia the total output in 1890 was 20.3 million rubles (*Directory*), while in 1894-95 it was 13.1 million rubles; this includes the flour-milling industry, 12.7 million (at 469 mills!) in 1890, and 4.9 million (at 66 mills) in 1894-95. The seeming "reduction," therefore, is simply a matter of the fortuitous registration of different numbers of mills. The number of steam-mills, for example, increased from 4 in 1890 and 1891 to 6 in 1894-95. The "reduction" of

* In this case we do not take the data of the *Collection* but those of the *Directory* for 1890, *deducting industries subject to excise*. With the exception of these industries, the *Directory* data do not differ from those of the *Collection*, since they are based on the same reports of the Department of Commerce and Manufactures. In order to expose Mr. Karyshev's error we need detailed data for individual factories and not only for individual industries.

output in Simbirsk Gubernia is to be explained in the same way (1890: 230 mills with an output of 4.8 million rubles; 1894-95: 27 mills with an output of 1.7 million rubles. Steam-mills, 10 and 13 respectively). In Vyatka Gubernia the total output was 8.4 million rubles in 1890 and 6.7 million in 1894-95, a reduction of 1.7 million rubles. Here, in 1890, two metallurgical works, the Votkinsk and the Izhevsk, were included, with a combined output valued at precisely 1.7 million rubles; in 1894-95 they were not included because they were "subordinated" to the Department of Mines and Metallurgy. Astrakhan Gubernia: 2.5 million rubles in 1890 and 2.1 million in 1894-95. But in 1890 the salt-refining industry (346,000 rubles) was included, while in 1894-95 it was not, because it belongs to the "mining" industries. Pskov Gubernia: 2.7 million rubles in 1890 and 2.3 million in 1894-95; but 45 flax-scutching establishments with a total output of 1.2 million rubles were counted in 1890, and in 1894-95 only four *flax-spinning* establishments with an output valued at 248,000 rubles. It stands to reason that the flax-scutching establishments in Pskov Gubernia have not disappeared but were simply not included in the list (perhaps because the majority of them are hand-worked and employ less than 15 workers). In Bessarabia Gubernia the output of the flour-mills was registered in different ways, although a similar number of mills was recorded both in 1890 and in 1894-95 (97 in each case); in 1890 the quantity of flour milled was computed—4.3 million poods valued at 4.3 million rubles, while in 1894-95 the majority of the mills recorded *only payment for milling*, so that their total output (1.8 million rubles) cannot be compared with the figure for 1890. The following instances will illustrate the difference. Levenson's two mills recorded an output of 335,000 rubles in 1890 (*Directory*, p. 424), and in 1894-95 recorded only 69,000 rubles *payment for milling* (*List*, No. 14231-2). Schwartzberg's mill, on the contrary, showed the value of the product in 1890 as 125,000 rubles (*Directory*, p. 425), and in 1894-95 as 175,000 rubles (*List*, No. 14214); out of the total sum for the flour-milling industry in 1894-95, 1,400,000 rubles are accounted for by the value of the product and 0.4 million rubles as payment for milling. The same is true of Vitebsk Gubernia: in 1890—241 mills with a total output figure of 3.6 million rubles, and in 1894-95—82

mills with a total output figure of 120,000 rubles, the majority of the mills showing only payment for milling (the number of steam-mills in 1890 was 37, in 1891, 51, and in 1894-95, 64), so that *more than a half* of this sum of 120,000 rubles does not represent the value of the product but payment for milling. And, finally, in the last gubernia, Archangel, the "retrograde movement in industry" discovered by Mr. Karyshev is explained simply by a strange error in his calculations: in actual fact the total value of the output of the Archangel factories, according to the *List*, is not the 1.3 million rubles twice quoted by Mr. Karyshev (pp. 40 and 39, as compared with 3.2 million rubles in 1885-91), but 6.9 *million rubles*, of which 6.5 million rubles was accounted for by 18 sawmills (*List*, p. 247).

Summarising what has been said above, we come to the conclusion that Mr. Karyshev's approach to the material he was analysing was astonishingly inattentive and devoid of criticism, so that he committed a whole series of the crudest errors. With regard to the calculations based on the *List* figures that he made together with his colleagues, it must be said that they lose much in statistical value from the fact that Mr. Karyshev did not publish full totals, i.e., total numbers of factories, workers, value of output for all gubernias and all branches of industry (although he apparently made these calculations, which, had he published them in full, would, on the one hand, have made verification possible and, on the other, have proved of great benefit to those who use the *List*). The purely statistical analysis of the material, therefore, proved extremely fragmentary, incomplete, and unsystematic, and Mr. Karyshev's deductions, made in too great a hurry, serve, for the most part, as an example of how not to work with figures.

Returning to the question raised above on the present state of our factory statistics, we must say, first of all, that if "complete and reliable production figures" are an "urgent necessity" (as the introduction to the *List* says, with which one cannot but agree), then, to obtain them, a correctly organised industrial census is essential, one that will register each and every industrial establishment, enterprise, and kind of work, and that will be taken regularly at definite intervals of time. If the data on occupations in the first

census⁷ of the population, taken on January 28, 1897, prove satisfactory and if they are analysed in detail, they will greatly facilitate the taking of an industrial census. As long as there are no such censuses it can only be a question of registering some of the big industrial establishments. It must be conceded that the present system of collecting and processing statistical information on such big establishments ("factories and workers" in the prevailing terminology) is unsatisfactory in the highest degree. Its first shortcoming is the division of factory statistics among various "departments" and the absence of a special, purely statistical institution that centralises the collecting, checking, and classifying of all information on all types of factories. When you analyse the data of our present-day factory statistics you find yourself on territory that is intersected in all directions by the boundaries of various "departments" (which employ special ways and means of registration, and so on). It sometimes happens that these boundaries pass through a certain factory, so that one section of a factory (the iron foundry, for example) comes under the Department of Mines and Metallurgy, while another section (the manufacture of ironware, for example) comes under the Department of Commerce and Manufactures. It can be understood how this makes the use of the data difficult and into what errors those investigators risk falling (and fall) who do not pay sufficient attention to this complicated question. With regard to the checking of the information, it must be said in particular that the Factory Inspectorate will, naturally, never be in a position to check the extent to which all information supplied by all factory owners corresponds to reality. Under a system of the present-day type (i.e., under which the information is not gathered by means of a census conducted by a special staff of agents but by means of questionnaires circulated among factory owners), the chief attention should be paid to ensuring that the central statistical institution have *direct* contact with all factory owners, systematically control the *uniformity* of the returns, and see to their completeness and to the dispatch of questionnaires to *all* industrial centres of any importance—that it thus prevent the fortuitous inclusion of dissimilar data, or different applications and interpretations of the programme. The second basic shortcoming of present-day statistics

lies in the fact that the programme for the gathering of information has not been elaborated. If this programme is prepared in offices and is not submitted to the criticism of specialists and (what is particularly important) to an all-round discussion in the press, the information *never can be* in any way complete and uniform. We have seen, for example, how unsatisfactorily even the basic programmatic question—what is a “factory”?—is being solved. Since there is no industrial census, and the system employed is that of gathering information from the industrialists themselves (through the police, the Factory Inspectorate, etc.), the concept “factory” should most certainly be defined with complete accuracy and limited to big establishments of such size as to warrant our expectation that they will be registered *everywhere and in their entirety without omissions*. It appears that the fundamental elements of the definition of a “factory establishment” as at present accepted have been quite well chosen: 1) the number of workers employed *in the establishment* to be no fewer than 15 (the question of separating auxiliary workers from factory workers in the true sense of the word, of determining the average number of workers for the year, etc., to be elaborated); and 2) the presence of a steam-engine (even when the number of workers is smaller). Although extreme caution should be exercised in extending this definition, it is an unfortunate fact that to these distinguishing characteristics have been added other, quite indeterminate ones. If, for instance, the bigger establishments employing water power must not be omitted, it should be shown with absolute accuracy what establishments of this type are subject to registration (using motive power of not less than so many units, or employing not less than a certain number of workers and so on). If it is considered essential to include smaller establishments in some branches, these branches must be listed very precisely and other definite features of the concept “factory establishments” must be given. Those branches in which “factory” establishments merge with “handicraft” or “agricultural” establishments (felt, brick, leather, flour milling, oil pressing, and many others) should be given special attention. We believe that the two characteristics we have given of the concept “factory” should in no case be extended, because even such relatively big

establishments can scarcely be registered without omissions under the existing system of gathering information. A reform of the system may be expressed either in partial and insignificant changes or in the introduction of full industrial censuses. As far as the extent of the information is concerned, i.e., the number of questions asked the industrialists, here, too, a radical distinction has to be made between an industrial census and statistics of the present-day type. It is only possible and necessary to strive for complete information in the first case (questions on the history of the establishment, its relations to neighbouring establishments and the neighbourhood population, the commercial side of affairs, raw and auxiliary materials, quantity and type of the product, wages, the length of the working day, shifts, night-work and overtime, and so on and so forth). In the second case great caution must be exercised: it is better to obtain relatively little reliable, complete, and uniform information than a lot of fragmentary, doubtful information that cannot be used for comparisons. The only addition undoubtedly necessary is that of questions on machinery in use and on the amount of output.

In saying that our factory statistics are unsatisfactory in the highest degree, we do not by any means wish to imply that their data are not deserving of attention and analysis. Quite the contrary. We have examined in detail the shortcomings of the existing system in order to stress the necessity for a particularly thorough analysis of the data. The chief and basic purpose of this analysis should be the separation of the wheat from the chaff, the separation of the relatively useful material from the useless. As we have seen, the chief mistake made by Mr. Karyshev (and many others) consists precisely in the failure to make such a separation. The figures on "factories" are the least reliable, and under no circumstances can they be used without a thorough preliminary analysis (the separate listing of the bigger establishments, etc.). The number of workers and the output values are much more reliable in the grand totals (it is, however, still necessary to make a strict analysis of which productions were included and in which way, how the output value was computed, etc.). If the more detailed totals are taken, it is possible that the data will prove unsuited for comparison and their use condu-

cive to error. The fables of the reduction of the number of factories in Russia and of the number of factory workers (relative to the population)—fables that have been so zealously disseminated by the Narodniks⁸—can only be explained as due to the ignoring of all these circumstances.

As far as the analysis of the material itself is concerned, it must undoubtedly be based on information on each separate factory, i.e., card-index information. The cards must, first and foremost, be grouped by territorial units. The gubernia is too big a unit. The question of the distribution of industry is so important that the classification must be for individual cities, suburbs, villages, and groups of villages that form industrial centres or districts. Further, grouping by branches of industry is essential. In this respect our latest factory statistical system has, in our opinion, introduced an undesirable change, causing a radical rupture with the old subdivision into branches of industry that has predominated right from the sixties (and earlier). The *List* made a new grouping of industries in twelve sections: if the data are taken by sections only, we get an excessively broad framework embracing branches of production of the most diverse character and throwing them together (felt cloth and rough felt, saw-mills and furniture manufacture, notepaper and printing, iron-founding and jewellery, bricks and porcelain, leather and wax, oil-pressing and sugar-refining, beer-brewing and tobacco, etc.). If these sections are subdivided in detail into separate branches we get groups that are far too detailed (see Mikulin, op. cit.), *over three hundred* of them! The old system that had ten sections and about a hundred branches of production (91 in the *Directory* for 1890) seems to us to have been much happier. Furthermore, it is essential to group the factories *according to the number of workers, the type of motive power*, as well as *according to the amount of output*. Such a grouping is particularly necessary from the purely theoretical standpoint for the study of the condition and development of industry and for the separation of relatively useful from useless data in the material at hand. The absence of such a grouping (necessary within the territorial groups and the groups of branches of production) is the most significant shortcoming of our present publications on factory statistics, which allow only “average figures” to be determined,

quite often absolutely false and leading to serious errors. Lastly, grouping under all these headings should not be limited to a determination of the number of establishments in each group (or sub-group) but must be accompanied by a calculation of the number of workers and aggregate output in each group, in establishments employing both machine and hand labour, etc. In other words, *combined* tables are necessary as well as *group* tables.

It would be a mistake to think that such an analysis involves an inordinate amount of labour. The Zemstvo statistical bureaus with their modest budgets and small staffs carry out much more complicated work for each uyezd; they analyse 20,000, 30,000 and 40,000 separate cards (and the number of relatively big, "factory" establishments throughout the whole of Russia would probably not be more than 15,000-16,000); moreover, the volume of information on each card is incomparably greater: there are several hundred columns in the Zemstvo statistical abstracts, whereas in the *List* there are less than twenty. Notwithstanding this, the best Zemstvo statistical abstracts not only provide group tables under various headings, but also combined tables, i.e., those showing a combination of various features.

Such an analysis of the data would, firstly, provide the requisite material for economic science. Secondly, it would fully decide the question of separating relatively useful from useless data. Such an analysis would immediately disclose the fortuitous character of data on some branches of industry, some gubernias, some points of the programme, etc. An opportunity would be provided to extract relatively full, reliable, and uniform material. Valuable indications would be obtained of the way in which these qualities can be assured in the future.

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