

lectual, for all those guilty innocents, abroad in the stream of industrialization, Marxism provided a welcome relief. And it also appeared most convenient to those who were primarily interested in civilizing the country through the processes of industrialization as well as to those who desired industrialization for nationalistic reasons.

I have referred to the fact that, as economic backwardness was being diminished in Russia by the process of industrialization, the temporary reductions in the standard of living gave way to its improvement, and the use of government finance in industrialization tended to be replaced by the use of investment banking. In the period preceding the outbreak of World War I, the results of the great upswing of the nineties began to tell and Russia was clearly moving to a new stage in its economic development. It is perhaps not too hazardous to suggest that these gradations of backwardness in the economic and institutional spheres were, to some extent, paralleled by similar processes in the sphere of ideology.

The appearance of the *Vekhi* symposium (1909) with its broad attack upon the intelligentsia's traditional creeds is usually attributed to the general climate of reaction which followed in the wake of the defeat of the 1905 Revolution. It is true that the strictures of the symposium were not directed against Marxism alone; nor could it be said that revision of attitudes toward industrialization was the *primary* concern of the seven contributors. Still it seems reasonable to suggest that *Vekhi* reflected a fundamental fact: the sway of Marxism over the minds of the intelligentsia had been weakened as a result of the progressing industrialization of the country. Radkey suggests that Stolypin's reform imparted a severe blow to Russian agrarian socialism. If the course of the reform had not been interrupted, the blow might well have been a final one. The prospects of Marxian socialism were much less dim because the continued growth of the industrial labor force was bound to strengthen the Social Democratic Party and the trade unions. But this process was perfectly compatible with a decline in the appeal of orthodox Marxian ideas to the intelligentsia, even though the rate of that decline was not hastened by the unyielding policies of the autocracy. Thus, from two sides the foundations were being laid for the development of a nonsocialist, bourgeois ideology in Russia. For the understanding of the significance of the intellectual movements that have been discussed here, these processes deserve to be mentioned even though they were, of course, halted and reversed by the outbreak of war and revolution.

Thus, for a number of reasons, the victory of Marxism in prerevolutionary Russia was neither as complete nor as final as is often believed. But what about the reversal just mentioned? Did not the Bolshevik revolution constitute the second and this time both the complete and final victory of Marxism in Russia? This is claimed by the *communis opinio* and corroborated by the appearances. It seems to me that Alexander

Erlich's paper performs a valuable service in showing, at least indirectly, that the extent of that victory may be easily exaggerated. To say this is not to deny, of course, the obvious fact that Marxism has been elevated — or lowered — to the position of absolute truth. Even in this respect a somewhat more penetrating view would easily disclose that much of what goes in Soviet Russia under the name of the established doctrine has in reality little, or nothing, to do with Marxism, however generously we may conceive the term. That the Soviet government can derive considerable political advantages from evoking the image of an unchanged system of basic beliefs is clear. It should be equally clear that to accept that deliberately misleading image would be to bar ourselves from perceiving important processes of change in Soviet ideology and from understanding the relation of that ideology to political and economic decisions which in the course of nearly four decades have hewed and shaped the economy of the country.

Few would disagree that among those decisions the decision taken in the second half of the twenties to embark upon the road of rapid industrialization and collectivization of agriculture occupies the central place. In a general sense, that decision seemed to be broadly consonant with the general tenor of accepted Marxian doctrines. But as soon as we are tempted to attribute the great change that concluded the NEP period to the influence of Marxism, we are inevitably baffled by a number of facts that do not fit well into such an interpretation. The debates of the twenties in Soviet Russia with regard to the basic policies to be pursued were obviously not debates between Marxians and non-Marxians. They were conducted by people who from early youth had been bred and steeped in the tenets of Marxism. To suggest that Stalin was a better Marxian than, say, Bukharin or Preobrazhenski makes good sense within the context of a Soviet purge trial, but is meaningless without it. What Erlich has described so well in his paper is the great break in Stalin's thinking on the subject of industrialization and his attitude toward the peasants.

After having asserted the need to preserve the *smychka*, after having maintained that the rate of growth in agriculture would exceed that of industry, after having dragged out of the historical cupboard the populist skeleton of internal market, and after having accused his opponents of nursing plans to exploit the peasantry, Stalin embarked upon a policy which was contradictorily opposed to his previous views. What had caused him to change his mind? Surely not a belated remembrance of the Marxian preference for large-scale units in agriculture. Erlich rightly mentions the significance of the disastrously declining volume of grain deliveries to the cities. It is not unlikely that toward the end of the NEP period, as the prewar capacity of Russian industry was being attained and considerable inflationary pressures developed, the Russian economy was headed toward an impasse and that the traditional measures of higher prices or higher

taxes were politically intolerable and could not be used to break the deadlock. The bold idea of a large investment effort compressed within the period of a few years in order to break the deadlock from the commodity side — because it could not be broken from the money side — seems to have been the original purpose of the First Five Year Plan. Collectivization was to remain within moderate limits and its purpose — not unlike that of Stolypin — was to buttress the industrial program by creating for the regime some *points d'appui* in the villages. When the bitter resistance of the peasantry to collectivization threatened to develop into a full-fledged civil war, the nature of the collectivization policy was changed. From an infiltrating operation it evolved into a frontal attack upon the peasantry. And once the great gamble was won, once Russia's great opportunity to rid herself of the dictatorship was lost and the peasantry was well encased in the strait jacket of the kolkhoz — once the produce of the land could be appropriated by the government, however small the *quid pro quo* in terms of industrial products — the need for a limited industrialization program designed to re-establish the monetary equilibrium in the country was removed. Industrialization could and did become an end in itself or, rather, a means for further strengthening of the internal and external power of the Soviet government.

There is a certain tendency nowadays to view Soviet intellectual history from a static point of view. Such a view, probably inadequate at all times, is particularly unsatisfactory when applied to a period of very rapid social change. That an ideology is likely to undergo considerable changes as the social movement with which it is associated passes from a purely intellectual to an organizational and then to a "power" stage has been impressively shown by R. Mayreder. In this particular case, the changes have been momentous indeed. Basic tenets of Marxian ideology suffered a radical revision. One may refer alone to such pillars of the Marxian edifice as the view on the role of great men in history, the principle of internationalism, the marcescence of the state, and the idea of egalitarianism, and consider in that light the shameless idolization of Stalin, the excesses of Soviet Russian chauvinism, the hypertrophy of the Soviet state, and the deliberate policy of a far-reaching income differentiation. To be sure, all these have been incorporated by the Soviets into a body of ideology that still goes under the name of Marxism. A totalitarian dictatorship which monopolizes the instruments of communication need not fear the charge of inconsistency when it tries to create the false impression of ideological constancy. Stalin's clumsy but persistent attempts in his *Economic Problems of Socialism* to preserve the Marxian concept of economic law in conditions which are patently unsuitable for the concept provide a vivid illustration of the importance which the regime attributes to ideological stability. But all this should not prevent scholarly opinion from recognizing that the name of Soviet ideology has long become Schall

und Rauch, even though — to continue Goethe's line — what is thus shrouded in fog has nothing to do with heavenly fire. No, the October Revolution did not carry with it a complete victory of Marxism. Quite the contrary, it is tempting to suggest that in a very real sense the advent of the Bolsheviks to power spelled the end of Marxian ideology in Russia.

Thus one cannot help observing the subsidiary character of the generally recognized and much advertised ideologies in their relation to economic development in Russia. The problem, of course, is not one of metaphysical choice between "idealistic" or "materialistic" factors. Also Stalin's *libido dominandi* had an ideology and a value system of its own. Without it, his reaction to the situation as it developed in the second half of the 1920s may well have been very different. What is so surprising, rather, is how little the different ideas which have dominated the visible flow of Russian intellectual history for the last hundred and fifty years can be said to have exercised a determining influence upon the sequence of economic events and the course of economic change in the country. Those who disagree with this view might wish to point to the persistent clamor — from Radishchev to 1861 — for the liberation of the peasantry. In some measure, the point would be well taken. But its validity does not extend beyond the significance which, among a large variety of competing factors, can be imputed to the attitudes of the intelligentsia as one of the forces that prompted the act of emancipation. And one must beware of overrating that significance.

Perhaps a few words on the general significance of the Russian intellectual experience may be added in conclusion. In the last section of my paper I stressed the connection between anti-industrial ideologies (anti-industrial socialism in particular) and the general conditions of economic backwardness and expressed the view that, though in Russia the retarding effect of such ideologies upon industrial development remained moderate on the whole, it is likely to be much stronger in the underdeveloped countries of our day. We can now go one step beyond what was said in the paper. If the argument in the present review is at all correct and the intelligentsia's approval of industrialization assumed the form of Marxism because of the preceding intellectual history and the specific economic backwardness of the country, then it is perhaps plausible to expect also that industrialization of backward countries of our day may similarly proceed under the auspices of a rather radical ideology. In a broad sense, this would be only a repetition of what occurred in European countries of the nineteenth century.

And yet the situation is a rather different one in important respects. As intimated before, the connection between such a radical ideology and industrialization tended to characterize just the first phase of the rapid spurt of modern economic development. Saint-Simonism was a powerful force in France of the fifties; it was dead and buried in France a quarter

of a century later. The influence of Marxism was on the decline in Russia after the 1905 Revolution and in addition Marxian ideology itself was in a state of transformation through infusion of revisionist elements. There is little doubt that those changes were the effect of the very success of industrialization. Can we assume that in backward countries, too, the specific connection between industrialization and Marxian ideology will remain a temporary one? Can we take it for granted that previous patterns will faithfully reproduce themselves in contemporary conditions in backward countries? Again we must point to the differences between the twentieth and the nineteenth centuries. On the one hand, it is often claimed that the pressure for rapid increases in the levels of consumption is particularly strong in underdeveloped countries and some observers (Ragnar Nurkse, for instance) speak of the "international demonstration effect," that is, of the keen desire of underdeveloped countries to adopt quickly the full consumption pattern of the advanced countries. Considering that any sustained industrialization effort will presumably require a temporary *decline* in consumption levels, the discrepancy between wish and reality is likely to become as large as it will be painful. This consequence must be particularly strong in those underdeveloped countries where the pressure of overpopulation is very considerable. As an incidental by-product of this discrepancy, a good deal of credence will be lent to the theory of increasing misery, and the temporary decline in consumers' welfare will be taken as flowing irresistibly from an inevitable law of capitalist industrialization, thus reinforcing the belief in the validity of Marxian theories.

On the other hand, as has been indicated before, the intelligentsia in those countries is in a position of doing things rather than philosophizing about them. Whereas in Russia the influence of Marxism may at length have caused young men to study engineering rather than philosophy or philology, in a modern underdeveloped country ideologies of the type discussed in these papers may at least for some time become main determinants of action and, specifically, the influence of Marxism may be directly translated into practical governmental policies. Moreover, it is likely to be an altogether different brand of Marxism, strongly influenced and distorted by ideological importations from Soviet Russia. Russian Marxism began to evolve very early in a revisionist direction. What happened in Russia under the impact of the First World War may be regarded as a tragic accident brought about by extraneous circumstances. But developments in present-day backward countries may follow the Russian path as a result of a much more continuous play of internal forces.

The situation no doubt is complex and shot through with irrational elements. Increase in the levels of consumption of the people seems to be the primary concern. Slow industrialization or its absence is decried because standards of living are not raised quickly enough. But also very rapid industrialization leading to a passing reduction in standards of living

is likely to arouse formidable opposition and to result in considerable radicalization of both the intelligentsia and the population. And, illogically, the establishment of a dictatorship upon the Soviet pattern, which would keep down the levels of consumption permanently, may begin to loom as a natural solution to those who fail to realize that both their genuine compassion for popular misery and the ideology of Marxism would be among the first victims of such a dictatorship.

Thus, no easy inferences can be drawn from the Russian experience for the present conditions in underdeveloped countries. Lessons from history are precarious at all times, and perhaps never more so than in this case. But to say this does not mean that the Russian experience is not suggestive of possibilities that may be worth considering.

If it is true that both rapid industrialization and its absence are pregnant with grave perils, the question should at least be raised whether or not a period of rapid industrialization, sufficiently long to turn upward the curve of per-capita consumption, may be expected to break the fatal link between industrialization and radical ideology. If it is likely at all to "normalize" the situation in terms of the historical experience of West European industrialization and to eliminate the danger of totalitarian dictatorships, then the essential problem would be to minimize the burdens which a high rate of investment must impose upon the shoulders of the populations concerned by generous injections of capital from advanced countries. To follow such a course no doubt involves great and real risks, and a historian should not be surprised if hardened statesmen refuse to act on the basis of uncertain historical analogies. It is not suggested that they should. But perhaps they may be reminded of a much broader and much more valid lesson of human history. In a situation where both action and inaction appear to threaten disaster, the statesman's choice should lie among different forms of action.

*Some Aspects of Industrialization
in Bulgaria, 1878—1939*

Un paese dove si verificano sempre
le cause e non gli effetti. — Italo
Calvino, *Il barone rampante*

THE following discussion of some problems that have emerged from Bulgarian industrial development before World War II may not prove directly pertinent to other countries of the Balkan Peninsula. It would seem, however, that the Bulgarian case may cast some additional light on the general patterns of European industrialization in varying conditions of economic backwardness. It is conceivable, therefore, that by a detour, as it were, consideration of the economic evolution in Bulgaria may yield some questions which may be useful in studying the economic history of the whole peninsula.

The narrow scope of this essay naturally precludes any systematic treatment. It must suffice to show the results of some statistical computations and then try to place them within a plausible interpretative framework. The essay is divided into two sections. The first presents the statistics of industrial change and the second a historical interpretation of that change.

I

The view is often expressed that Bulgarian economic life between the country's liberation from the Turks and its liberation from the Germans was essentially characterized by inertia of men and stagna-

tion of things. At the same time, it is the last quarter of the nineteenth century that is said to encompass the birth of Bulgarian "capitalism." Since the early days of Blagoev—the Bulgarian Plekhanov—Marxian writers in Bulgaria stressed what they kept describing as a momentous transformation of the country's economy. They welcomed the change as the necessary prerequisite for the establishment of socialism in Bulgaria. The concept of capitalism may be too big for any reasonable manipulation, and there will be some opportunity later on to gauge the predictive or explanatory value of Marxian concepts in an analysis of Bulgarian industrialization; in addition, something more will have to be said about Marxism as a specific industrialization ideology in conditions of economic backwardness. What matters at this point, however, is to remain undisturbed by easy generalization or conceptual grandiloquence and to establish a few appropriate empirical magnitudes through which to approach the nature of such economic evolution as may have taken place. The area of the so-called state-encouraged industry has readily suggested itself for this purpose.

Through a number of legislative measures beginning in 1894 and continuing in 1897, 1905, 1909, and 1928, Bulgaria gave an especially favored status to the leading segment of her industry (manufacturing and mining). The benefits conferred were manifold and comprised *inter alia* long-term tax exemptions and reductions, rights of duty-free imports of machinery, raw materials, and fuel, reduction of freight rates by the railroads, gratis allocation of land for factory construction, and assured preference with regard to government contracts. The quantitative importance of these measures will be touched upon later. The important point is that in this fashion the government developed a general interest in a number of industrial enterprises and placed them under obligation to supply an unusually extensive body of statistical information, including data on such magnitudes as output, cost of raw materials, fuel and power, employment and capital. The scope of the enterprises which were included in the governmental scheme of encouragement varied from amendment to amendment. Yet there seems to have been no major change of policy with regard to the relative significance of the individual branches of industry. At any rate, by excluding from consideration one or two

branches of industrial endeavor (such as mines, sea-salt production, and railroad-repair shops), one can obtain series which, if not absolutely uniform over time,¹ are sufficiently homogeneous for the purposes of this essay.²

On the basis of the data described in the following pages, it has seemed possible to construct an index of growth of industrial output. A more detailed description of the way in which the index has been prepared will be found in Appendix II, together with tabulations of basic data and citations of the sources used. A very brief summary may be in order here:

1. It was felt that the data for the years before 1909 were too inchoate and unreliable to warrant their inclusion in the index period, which was confined to the years 1909-1937. The computation was made for the initial and terminal years of the period and also for 1929, all three years being ones of fairly high levels of employment.

2. Net value of output (at current prices) was computed by deducting from the value of product the cost of raw materials and fuel and (for 1929 and 1937) also the cost of power used. Obviously, the result represents but an approximation to value added by manufacturing (Appendix II, Tables 6, 7, 8).

3. The data were computed for ten separate branches of industry, as will be seen from some of the tables included in the text. The rather scanty Bulgarian price information was scrutinized for what might be termed the one or two strategic prices or price relatives of finished commodities or crucially important inputs for each of the ten groups. As a rule, no prices were available for 1909, and price averages for 1908-1912 had to be taken instead. If more than one price was

¹ The case of the flour mills in 1929 is one exception.

² For information on the legislative measures and particularly on the changing scope of state-encouraged industrial output, see: *Dnevnik (Stenografichski) na osmoto obiknovenno Narodno Sùbranie, Pùrva Redovna Sessiya, XXVI Zasedanie* (Stenographic Records of the Eighth Ordinary People's Assembly, First Regular Session, 26th Meeting), November 25, 1894 (Sofia, 1895), text of the bill introduced by I. E. Geshov, p. 636; Christo T. Russeff, *Die Fortschritte der staatlich unterstützten Fabriksindustrie in Bulgarien* (Halle a.d.S., 1914), pp. 71-76; *Prilozheniya kùim Stenografskite Dnevnik na XXII obiknoveni Narodno Sùbranie, Pùrva Redovna Sessiya, Zakoni i resheniya, "Zakon na nasùrdchenie na mestnata industriya"* (Annex to Stenographic Records of the 22nd Ordinary People's Assembly, First Regular Session, Laws and Resolutions, "Law Concerning Encouragement of Domestic Industry"), II (Sofia, 1928), 144-149.

chosen to represent the group, some simple form of averaging was applied. Because of the nature of price data available, two price indices were computed for each of the ten groups: one for the period 1909-1929 and one for the period 1929-1937. The indices for the two groups were then spliced at their juncture in 1929 (Appendix II, Tables 10, 11, 12).

4. The resulting indices were used for deflating the net values of output at current prices for the respective groups. The deflating operation was threefold, resulting in net values of output at constant prices of the years 1909, 1929, and 1937. Summation of outputs at constant prices yielded values of total industrial output, with a price index for total output implicit in the comparisons of values at constant prices with those at current prices (Appendix II, Tables 13, 14, 15).

5. The manifold shortcomings of the procedure should be obvious. Variations in scope apart, the quality of the reporting of the basic data must have varied considerably from branch to branch of industry, depending *inter alia* on the prevailing scale of enterprise and especially on the degree of general "modernity" of the respective firms. In particular, the mode chosen for deflating output figures at current prices is far removed from the ideal of price indices in which prices of all the products within a group appear properly weighted (a) with their given-year outputs so as to yield an output index erected upon base-year weights and (b) with their base-year outputs so as to yield an output index erected upon given-year weights. All that can be said in defense of the procedure used is that in several cases the prices chosen seemed to be fairly representative of the general price movement within the group; there is some advantage to a simple and fairly transparent method as compared with an index based on a considerable number of unspecified commodities combined by an inconsistent or inappropriate system of weights. On the other hand, it must be noted that for 1929 (though not for 1937), in default of suitable price information, values of output in four branches had to be deflated by dint of the general price index. All in all, the index as computed here cannot lay claim to great precision; yet it should depict the main features of the country's industrial evolution with sufficient clarity.

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Table 1. Net industrial output, state-encouraged industries (at constant prices)
(1909 = 100)

Base-weight year	1909	1929	1937
At prices of 1909	100	335	460
At prices of 1929	100	324	444
At prices of 1937	100	388	455

Note: see also Appendix II, Tables 14, 15, 16.

Table 1 shows the change in the volume of industrial output between 1909 and 1937. A glance at that table should suffice to dispel the idea of any stagnation in Bulgarian industrial output, if stagnation is to be interpreted as a rate of growth close to zero or at least not above the rate of growth of population (which was close to 1.4 percent a year for the period under review).⁸ As can be seen from Table 2, the rates of growth of output implied in Table 1 were considerably above the rate at which the population grew.

Table 2. Average annual rates of industrial growth, 1909, 1929, 1937

Base-weight year	1929/1909		1937/1929	1937/1909	
	a	b		a	b
At prices of 1909	6.23	7.85	4.05	5.60	6.56
At prices of 1929	6.05	7.63	4.01	5.47	6.41
At prices of 1937	7.02	8.84	2.01	5.56	6.32

Note: the rates have been computed on a compound basis, using the first and the last years of the respective periods. In the two estimates marked "b," the Balkan wars of 1912-13 and World War I were arbitrarily taken into account by reducing the length of the period concerned by four years. It may be noted that in 1912-13 almost 90 percent of the Bulgarian males between the ages of twenty and sixty were called to the colors. See Walter Weiss-Barthelemy, *Bulgariens volkswirtschaftliche Verhältnisse* (Berlin, 1917), p. 261.

Those rates are fairly high if judged by comparison with rates in other countries, particularly if some account is taken of the disorders and retardations caused by World War I and its aftermath (to say

⁸ See Glavna Direktsiya na Statistkata, *Statisticheski Godishnik na Tsarstvo Bulgariya* (Central Statistical Office, Statistical Yearbook for the Tsardom of Bulgaria), XXXI (Sofia, 1939). (Hereafter this publication will be cited as *Godishnik*, volume and year.) The rate of growth of population has been computed from data given in *Godishnik*, XXXI (1939), 21.

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nothing of the Balkan wars) and of the debilitating Great Depression. On the other hand, however, it must be concluded that the "state-encouraged sector" of Bulgarian industry, which alone is considered here, represents if not the very top still a very selective group among Bulgaria's industrial enterprises of the period. The rate of progress of leading enterprises is bound to be a good deal higher than the corresponding rate of industry as a whole, which must comprise a large number of lagging or stagnant enterprises. Furthermore, there is a certain presumption that the speed of industrialization in a country in its early stages is directly related to the degree of its economic backwardness. This at least seems to be the case with regard to the "initial" great spurt of industrialization. There is little doubt that Bulgaria at the beginning of the century was one of the most backward countries on the European continent. If Bulgaria had been passing, between 1909 and 1937, through the great upsurge of its industrial development, one could have reasonably expected such a period to be characterized by rates of growth considerably above those shown in Table 2; this should have been true for industry as a whole and particularly for the spearhead of industrial advance.

Like most historical concepts, the concept of the initial great spurt of industrial development cannot be forced into an overly precise definitional shell. Some of the features of such spurts as observed from nineteenth-century European industrial history are clearly quantitative — such as the sudden kink in the curve of industrial output denoting a considerable acceleration in the rate of growth. If the high rate of growth is maintained undiminished or virtually undiminished throughout a period of international depression, the presumption that the phenomenon is a great spurt is further enhanced. Yet it would be inadequate to define a great spurt merely in quantitative terms. From all we know from the economic history of other countries, we must expect very considerable changes in industrial structure to take place in the course of rapid industrial development and, in fact, as an integral part thereof. It is the various complementarities and indivisibilities in industrial processes that often preclude early industrial developments from following any but a discontinuous path. But it is the great advantage of sizable technological borrowings from other countries that makes such a spurt

possible. This is done by concentrating upon those branches of the industrial economy where recent technical progress in the world at large had been particularly vehement and where a reservoir of innovations (of the type which do not require an excessively skillful labor force) is available for quick adoption by the backward country. The result must be a considerable change in the prevailing scarcity relations. Commodities previously produced in small quantities and sold at high prices are now produced in increasing quantities at prices which are falling as a result of the application of cost-reducing innovations. On the other hand, commodities which before the great spurt had been the mainstay of industrial output develop at much lower rates while their prices tend to rise (rise and fall of prices in both cases is to be taken in relative rather than absolute terms).

With the foregoing in mind, let us turn again to the data in Tables 1 and 2. In both tables each of the three rows refers to the price system of a different year. In other words, the measurements of output in the first row are based, for all three years, upon the prices — and that should mean scarcity relations — prevailing in 1909; the two other rows refer to the price systems of 1929 and 1937, respectively. Implied in what has been said in the preceding paragraph is the expectation that the price system stemming from the postspurt period should yield an index connoting much lower rates of growth than would an index based on prices pertaining to a period preceding the beginning of the great spurt or to its early phases. Those discrepancies in measurements are known as the index-number problem and are gall and wormwood to the statistician or theoretical economist. By contrast, their existence, magnitude, and change over time are a subject of very positive interest to the economic historian who regards them as an integral part of the processes of economic change. It is unfortunate, as said before, that the value of such comparisons has been limited here by some recourse for purposes of deflation to the general price index. This is more than just a beauty blemish. Still it does not suffice at all to explain the near absence of discrepancies among index numbers yielded by the three price systems. If great technological progress involving considerable cost reductions had taken place in Bulgaria between 1909 and 1937, the rates of growth of output at 1937 prices would have been far below those

based on 1909 prices. A more detailed look at the structure of Bulgarian industry during the period under review fully confirms this point.⁴

Table 3 shows changes in the productivity of labor within the

⁴ Still from the height of an aggregative bird's eye view of the industrial process in Bulgaria, yet another illustration of the same point may be offered in passing. A computation by a Bulgarian economist yielded data on gross investment in fixed industrial capital for each year between 1880 and 1939: L. Berov, "Kŭm vŭprosa za tempovite na kapitalisticheskata industrializatsiya na Bŭlgariya" (On the Question of the Rates of Capitalist Industrialization in Bulgaria), Bŭlgarska Akademiya na Naukite, *Izvestiya na Ikonomicheskiya Institut* (Bulgarian Academy of Sciences, Bulletin of the Economic Institute), VIII, nos. 3-4 (Sofia, 1954). These data were also presented in terms of constant prices of the year 1939. By applying to these annual investment data a depreciation rate of 25 percent per quinquennium, it was possible to obtain an estimate for the capital stock in Bulgarian industry first for 1909 and then, continuing the procedure, for 1937. It seemed tempting to relate these figures to the data for total industrial production and labor in 1937 and to an estimate of total industrial production and labor in 1909 through the use of production functions of the Cobb-Douglas type: output equals productivity factor times labor, to the power of k , times capital stock, to the power of $1-k$. Choosing a wide range of alternative magnitudes for k and solving for what with some obvious arbitrariness has been called the productivity factor, a rather striking result is obtained which can be summarized in the following tabulation (see also Appendix II, Tables 18, 19, 20, and the concluding computations).

Change in the productivity factor (F) between 1909 and 1937

$$\frac{F_{1937}}{F_{1909}} = \frac{\text{output}_{1937}}{\text{labor}_{1937}^k \text{capital}_{1937}^{1-k}} : \frac{\text{output}_{1909}}{\text{labor}_{1909}^k \text{capital}_{1909}^{1-k}}$$

	$1-k = .25$	$1-k = .35$	$1-k = .50$	$1-k = .75$
Percentage	6.85	8.47	10.90	15.12

These percentage changes of the period as a whole imply the following average annual change in percent:

	$1-k = .25$	$1-k = .35$	$1-k = .50$	$1-k = .75$
Percentage	.24	.29	.37	.50

It is easy to see that the change in the productivity factor was quite trivial. In other words, the increase in output of about four and a half times over the period was not significantly caused by factors other than increase in the quantity of labor and capital employed. Broadly speaking, this conclusion, despite the manifold shortcomings and unreliabilities of the procedure, may be taken as a confirmation of the previously formed opinion: the negligible change in the productivity factor in a production function of the Bulgarian industry corresponds well to the virtual absence of discrepancies among index numbers based on weights which pertain to the initial and terminal years of a fairly long index period.

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state-encouraged segment of industry by groups of industrial enterprises. It is clear that productivity per worker within the sector of

Table 3. Net industrial output per worker, 1909 and 1937
(at constant prices of 1909)

Industry	1909 (a)	1937 (b)	(b/a) 100
Metals	1,378	1,069	77.6
Pottery	1,130	3,392	300.0
Chemicals	1,954	2,432	124.5
Flour mills	7,172	5,805	80.9
Other foodstuffs	4,334	2,408	55.6
Textiles	1,275	1,366	107.1
Woodworking	963	867	90.0
Leather	2,798	4,005	143.1
Paper	1,490	2,131	143.0
Energy	47,372	277,290	585.3
Total	2,057	2,139	104.0
Total minus energy	1,974	1,867	94.6

Note: computed from Tables 2 and 13 of Appendix II.

the *leading* industry in Bulgaria remained virtually constant over a period of almost three decades. It is true that a computation of productivity per man-hour rather than per worker would have given a somewhat more favorable result, inasmuch as the number of working hours per day was reduced from between ten to twelve in the early years of the century to about eight in the interwar period.⁸ This should have implied for the majority of the labor force a decrease in the length of the working day of at least 20 percent. but since decrease in working hours itself often and very plausibly has been presented as a factor leading to increased productivity in the long run,

⁸ In 1909, about 63 percent of workers in state-encouraged industries worked between ten and twelve hours a day; about 29 percent worked longer than twelve hours and about 8 percent worked less than ten hours a day. See N. Mikhailov, "Nasúrchavanata ot dúrzhavata industriya prez 1909" (Industry Encouraged by the State in 1909), *Spisanie na Búlgarskoto Ikonómicheskó Druzhestvo*, XVIII, nos. 9-10 (Sofia, 1914), 586. After World War I, the eight-hour working day was introduced (June 24, 1919). See Angelo Fozarile, *Bulgaria d'oggi nei suoi aspetti sociali, economici, commerciali e finanziari* (Milan, 1929), p. 263; also Akademiyá Nauk SSSR, *Istoriya Bolgarii* (Academy of Sciences of the USSR, History of Bulgaria), II (Moscow, 1955), 583.

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it is not clear how much allowance, if any, should be made for the reduction in working hours.

For the rest, the data in Table 3 must be interpreted in conjunction with data on the participation of the individual industries in the output of the whole group of state-encouraged industries. Such data both at the prices of the year 1909 and at the prices of the year 1937 are given in Tables 4 and 5. First, a brief comparison of these

Table 4. The structure of state-encouraged industry, 1909 and 1937, percentage share of net output of industrial branches
(based on prices of 1909)

Industry	1909	1937
Metals	5.99	5.22
Pottery	6.38	13.56
Chemicals	4.12	6.75
Flour mills	23.08	8.87
Other foodstuffs	19.16	9.38
Textiles	25.27	35.20
Woodworking	5.31	1.05
Leather	5.43	3.66
Paper	1.10	2.20
Energy	4.15	14.11
Total	100.00	100.00

Note: computed from Appendix II, Table 13.

two tables is useful to corroborate previously received impressions. One way of expressing the economic significance of the index-number problem is to say that the application of a later price system (as against an earlier one) should result in relatively smaller percentage shares of output of those industries that might be described as "specifically new" industries. In terms of an industrial transformation in a backward country in the first half of this century, one would assume production and processing of metals as well as production of chemicals to play the role of "new" industries par excellence. It is therefore quite significant that neither metals nor chemicals constitutes a higher percentage of output in the total when expressed in 1909 prices rather than when expressed in 1937 prices.

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Table 5. The structure of state-encouraged industry, 1909 and 1937, percentage share of net output of industrial branches (based on prices of 1937)

Industry	1909	1937
Metals	10.00	8.81
Pottery	4.87	10.47
Chemicals	5.09	8.44
Flour mills	15.85	6.16
Other foodstuffs	23.40	11.56
Textiles	25.01	35.22
Woodworking	6.23	1.25
Leather	4.51	3.08
Paper	1.60	3.21
Energy	3.44	11.80
Total	100.00	100.00

Note: computed from Appendix II, Table 15.

It is true, however, that the price bases which underlie our output indices are rather slender; it is, furthermore, at least imaginable that "normal" price structure can be so disturbed by uneven incidence of monopolistic compacts as to disguise the technical progress that did take place. But any misgivings on this score are effectively dispelled by a glance at the percentage shares of the industries concerned. Whether one compares the data for metals and chemicals within each of the two tables or whether the comparison is at current prices (comparing the first column in Table 4 with the second column in Table 5), the conclusion is inescapable that no significant advance in relation to total output had taken place in either industry. They were relatively small to start with and they remained relatively small throughout the period under review. The only two industries which registered very considerable advances in productivity of labor and certain increase in their relative importance within the total are potteries and production of energy. At 1937 prices, the two industries together amounted in 1937 to one quarter of total output; at 1909 prices their share in the total was even a little higher. Yet the significance of this development should not be overestimated. It would seem that it is entirely overshadowed by the evolution of the textile industry. That "specifically old" industry as a rule has played a diminishing role in all spurts of industrialization

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in backward countries. In fact, one is almost tempted to argue that the more backward a country, the more appropriate it is to define its spurt of industrial development as a process during which the textile industry was divested of its dominant position. If any industry lost out in the course of Bulgarian industrialization, it was the foodstuff-producing industry and particularly the flour mills which alone, in 1909, occupied nearly one quarter of total output.⁶

To complete the picture of Bulgarian industrialization some data on the average size of industrial enterprises may be adduced. Table 6 shows the percentage change in the number of workers per enterprise that occurred between 1909 and 1937. The number of

Table 6. Change in the number of workers per enterprise, 1909-1937 (1909 = 100)

Industry	Percentage change
Metals	80.2
Pottery	37.4
Woodworking	39.7
Textiles	185.3
Leather	103.9
Flour mills	86.8
Other foodstuffs	130.1
Chemicals	157.9
Paper	479.7
Energy	161.1
Total	126.0
Total without energy	130.1

Note: computed from *Godishnik*, II (1910), 253, 255; *Godishnik*, XXXI (1939), 384-389; see also Appendix II, Table 4.

⁶ The original importance of flour mills in Bulgarian industry reveals an interesting aspect of processes of early industrialization in backward countries. It is usually assumed that capital-output ratios will tend to rise in the early phases. To the extent that such an industrialization implies transition from a textile age, with its relatively low capital-output ratios, to a railroad age, with its relatively high capital-output ratios, such an expectation would seem quite reasonable. In cases, however, where the mill industry has been allowed to dominate the industrial scene until the very initiation of modern industrialization, the latter will reduce the weight of the mill industry and by the same token probably will tend to reduce the average capital-output for the industry as a whole. For the capital-output ratios in the mill industry in backward countries are inordinately high, first, because of the inefficiency of the equipment used and, second, because of the highly seasonal character of the industry (the mills being inactive for about eight months out of twelve).

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enterprises in the paper industry was very small indeed so that the great increase in the number of workers per enterprise of that industry hardly affected the total picture. For the rest, such increases as did take place were quite modest, and it is again significant that, the paper industry apart, it was the textile industry which showed the strongest movement with a near doubling of the average number of workers per enterprise.

A very similar result is obtained from a comparison of the volume of output per enterprise between 1909 and 1937, in Table 7.

Table 7. Change in the volume of net output per enterprise, 1937, at constant prices of 1909
(1909 = 100)

Industry	Percentage change
Metals	62.2
Pottery	112.4
Chemicals	196.3
Flour mills	69.8
Other foodstuffs	72.4
Textiles	198.4
Woodworking	35.7
Leather	148.6
Paper	685.6
Energy	65.1
Total	131.0
Total without energy	123.1

Note: computed from Appendix II, Tables 13 and 1.

Despite some differences between Table 7 and Table 6, what has been said about the former essentially applies to the latter: the change in the scale of enterprise was small on the whole, and it was the textile industry — a branch not particularly conspicuous for large size of plant and enterprise in the economic climate of the twentieth century — that was the chief beneficiary of such changes as did take place.

It may be useful, in conclusion, to compare the structure of Bulgarian industry toward the end of the period under review with that of German industry after World War I. In view of what has been said in the foregoing pages, the comparison may be profitably stated in terms of the relative position of the textile industry by workers

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employed and horsepowers installed. For the purposes of such a comparison, the specific criteria determining the scope of the state-encouraged sector in Bulgaria are less appropriate because of the lack of counterparts in Germany. Accordingly, for both countries industrial plants ("Betriebe" in Germany, "Zavedeniya" in Bulgaria) employing more than fifty workers are used. The relevant data are not reported year in and year out but are contained in special censuses. The census of 1934 was chosen for Bulgaria and that of 1925 for Germany. The comparison is embodied in Table 8.

Table 8. Position of textile manufacturing within industry in Germany and Bulgaria
(in plants with more than 50 workers)

Industry	Number of workers employed as percentage of workers in textile industry		Horsepowers installed as percentage of horsepower in textile industry	
	Bulgaria 1934	Germany 1925	Bulgaria 1934	Germany 1925
Metals	21.1	70.2	24.9	198.4
Machines and transportation equipment	39.9	109.0	31.1	113.2
Precision instruments	.6	45.5	.2	41.6
Pottery	8.1	—	54.7	—
Woodworking	5.9	23.3	3.6	25.3
Textiles	111.1	111.1	100.0	100.0
Leather	1.2	7.6	2.0	9.2
Rubber, etc.	5.1	6.6	13.2	7.7
Food, beverages, tobacco	53.5	44.2	62.2	49.1
Clothing, etc.	3.8	32.3	1.1	6.7
Chemicals	5.1	27.4	6.0	73.0
Paper	14.2	41.7	23.6	69.4
Construction	39.0	64.7	.7	27.3
Energy	1.1	11.0	133.2	25.2

Note: the data are from: *Godishnik*, XXXI (1939), 347 (the industry designated in Bulgaria as energy-producing also supplies water, ice, and gas for lighting); *Statistisches Jahrbuch fuer das Deutsche Reich*, XLIX (Berlin, 1930), 89.

It is true that 1934 is not a very appropriate year to use. That year marked the rock bottom of the depression in Bulgaria; national income, industrial output, and industrial investment — all reached

their lowest point. As always, producers' goods suffered more than consumers' goods from the slump. But data from more suitable years are not readily available; and, even though some allowance for the depressed state of trade must be made, it seems quite clear that in Bulgaria the textile industry enjoyed a position of far-reaching supremacy within the body industrial of the country.⁷ While in a developed country, such as Germany, metalmaking-machinery construction in the aggregate far outstripped production of textiles, and other "new" industries were substantial in relation to textiles, such an evolution was not even adumbrated in Bulgaria. This should corroborate once more the previously reached conclusion, and the material presented in the descriptive part of this essay may best be

⁷ A comparison between the appropriate German figures from Table 8 and Bulgarian figures relating to the state-encouraged sector in 1937 suffers from the absence of a common minimum scale of plant in the two cases, but it avoids the difficulties associated with the choice of a depression year. For the Bulgarian data in the tabulation below, see Appendix II, Table 2.

The position of textile manufacturing within industrial enterprises employing more than 50 workers in Germany and within the state-encouraged sector of Bulgarian industry

Industry	Numbers of workers employed as percentage of workers in textile industry		Horsepowers installed as percentage of horsepowers in textile industry	
	Bulgaria 1937	Germany 1925	Bulgaria 1937	Germany 1925
Metals and machinery	18.9	179.2	30.1	311.6
Pottery	15.5	—	47.2	—
Woodworking	4.7	29.3	10.6	23.3
Textiles	100.0	100.0	100.0	100.0
Leather	3.6	7.6	11.3	9.2
Foodstuffs	21.0	44.2	142.7	49.1
Chemicals	10.8	27.4	21.1	73.0
Paper	4.0	41.7	28.6	69.4
Energy	2.9	11.0	366.5	25.2

It seems obvious that the preceding table fully corroborates the inferences drawn from Table 8 in the text, as far as the numbers of workers employed are concerned. With regard to horsepowers installed, one must refer to the previously made argument that the large horsepower employed in the foodstuff industry should be regarded as a sign of backwardness rather than progress.

summarized as follows. Between the early years of the century and the end of the interwar period, there was a fair amount of growth of industrial output in Bulgaria, but that growth did not reveal the specific qualities that are usually associated with a great spurt of industrial development in conditions of considerable backwardness. Thus it is the absence of structural change rather than the absence of growth that primarily calls for explanation and interpretation.

II

One might begin by denying the existence of the problem. And, in fact, it would be too optimistic to assume that all the readers of this essay would be willing to share with its author in the expectation of specific structural changes as a concomitant factor in processes of industrial growth. Indeed, the image of a fairly small annual addition to industrial output, stemming from factories based essentially on local raw materials, largely supplied by domestic agriculture, has a considerable suggestive power. It is not only that very high rates of growth almost invariably impose inordinate sacrifices upon the population. There is *prima facie* something "artificial" about a backward country which attempts to imitate and even to outdo the industrial structure of a developed country. On the other hand, there is "naturalness" about an evolution during which industry remains rooted in agricultural produce, while a prosperous agriculture readily absorbs the wares produced by the new factories. Unfortunately, predilections and preconceptions are a poor guide in explaining the course of events. There are very good reasons why the happy picture of a quiet industrial evolution proceeding without undue stir and thrust has been so seldom reproduced in historical reality. As a rule, a high degree of backwardness in a country is clearly associated with a high measure of "artificiality" in its industrial development. The case under review here casts indirectly a curiously refracted light upon this proposition. The point is that the consumer-goods industries in Bulgaria which accounted for most of the growth of output that did take place relied to a surprisingly small extent upon domestic raw materials, and particularly upon raw materials produced by Bulgarian agriculture. This is shown with regard to a group of state-encouraged industries in Table 9.

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Table 9. Percentage share of imported raw materials and fuel in total consumption of selected state-encouraged industries, 1909, 1930, and 1937

Industry	1909		1930		1937	
	Raw materials	Fuel	Raw materials	Fuel	Raw materials	Fuel
Metals	93.1	66.6	86.9	55.2	82.5	35.8
Pottery	40.9	37.7	59.0	3.0	38.3	5.7
Chemicals	76.0	17.9	46.3	7.0	50.0	5.3
Flour mills	.1	57.2	2.6	47.4	.3	50.4
Other foodstuffs	31.5	46.4	9.1	24.5	7.9	5.1
Textiles	60.5	32.7	80.1	10.9	56.2	21.2
Woodworking	31.8	26.3	6.7	25.1	2.8	8.3
Leather	67.2	46.4	75.8	10.0	75.0	17.2
Paper	85.7	—	64.2	—	78.9	4.4

Note: data on 1909 from *Godishnik*, II (1910), 274-276; data on 1930 and 1937 from *Godishnik*, XXXI (1939), 384-385, 388-389. It would have been much better to offer figures for 1929 rather than 1930, but unfortunately the relevant data for the earlier year are not separated by origin of raw materials and fuel used.

This is an instructive table which must be read against the background of the statistical data supplied in the first section of this essay. The industries that could be expected to have relied on domestic farms for raw materials are primarily the foodstuff industry, the textile industry, and the leather industry. In addition, both the woodworking industry and the paper industry would be natural consumers for the products of domestic forestry. Flour mills indeed confined themselves exclusively to grinding home-produced grain (including some decortication of rice); for the rest of the foodstuff industry, the share of imported raw materials was not negligible in 1909, but fell to very small proportions in 1930 and 1937. Nevertheless, as shown in Tables 3, 4, and 5 above, it was precisely the foodstuff industry in which the productivity of labor declined drastically between 1909 and 1937, while the industry's share in the total output of the group was greatly reduced. The industry's average annual rate of growth over the whole period amounted to 2.0 percent for the flour mills and less than 3.0 percent for the rest of industry, as compared with the average rate of increase of 5.6 percent for the group as a whole. Even in the "spurtless" Bulgarian development the foodstuff industry clearly belonged to a premodern form of industrial endeavor. The

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industry which was peculiarly oriented to farm produce was on the whole a vehicle of economic retrogression rather than progress. The textile and leather industries, on the other hand, present a very different picture. The weight of imported raw materials in 1909 was high in both industries and it increased even further over the following twenty years. It is true that during the years of the Great Depression the government succeeded through extraordinary measures of balance-of-payments policy to reduce the share of imported raw materials in textile manufacturing, but even by 1937 that share still was a good deal more than 50 percent. And no less than three quarters of the leather industry's needs in raw materials was supplied from abroad. The reason for these conditions is not far to seek. It lies predominantly in the fact that agriculture in a backward country is much too backward to be able to produce materials suitable for industrial processing. The leather industry has little use for hides that have been damaged by dirt and perforated by warbles because of a lack of minimum standards of proper care in livestock raising. Similarly, the wool provided by the indigenous sheep in a backward country tends to be much too coarse for many industrial uses. It is therefore not surprising at all that in 1909 almost half of the wool used by the industry was imported from foreign countries.⁸ The corresponding figure for 1912 is even more impressive.⁹ And, finally, the Bulgarian woodlands (much of them in the hands of the state or communes) were uncared for and lacked adequate accesses to and through the forests. It is not surprising that they proved an inadequate basis for the paper industry. The latter, small but quite modern, preferred to rely mainly on imported materials. Only the woodworking industry, whose output grew at a very low rate of 1.58 until 1929 and then suffered a collapse which reduced it, by 1937, below the 1909 level, was able to reduce the share of imported raw materials and to confine itself almost exclusively to domestic materials.

It is not necessary to think in terms of universally valid principles. No doubt, a small country very favorably located with regard to the routes of foreign commerce leading to very absorbent markets and populated by a fairly educated, enterprising, and mod-

⁸ *Godishnik*, II (1910), 276.

⁹ *Godishnik*, IV (1912), 188.

erately prosperous peasantry could concentrate its economic development upon its agriculture, achieving a good deal of quality improvement in its agricultural exports and at the same time letting its industry develop gradually on the basis of materials supplied by domestic agriculture. But it seems altogether unreasonable to expect such a development in a country which is farther removed from large markets offering alternative selling opportunities; in which, to quote the Bulgarian figure, in 1910 only 28.5 percent of the rural population was able to read and write.¹⁰ One must remember that in 1913, that is, thirty-five years after Bulgaria's liberation, nearly 80 percent of all the plows used in Bulgarian farming were most primitive wooden implements.¹¹ (Twenty years later, in 1934, the wooden plows were still more numerous than the iron ones.¹²) The hope that industry in a very backward country can unfold from its agriculture is hardly realistic. With an appropriate lag through indirect stimulation, agriculture indeed might be expected to have modernized as a result of a sustained process of industrialization. But first of all this sequence presupposes a *stacco*, a disengagement of industry from the agricultural environment. This conclusion would seem to be valid for a number of backward countries on the European continent around the turn of the century. It is at least probable that the economic development of Balkan countries other than Bulgaria might be profitably approached in the light of this generalization.

What has been said in the preceding paragraphs on the basis of data given in Table 9 should do no more than lend further plausibility to the interpretative problem as formulated at the end of the first section. The conventional way of answering the question as to why a certain structural change failed to materialize is to say that the specific preconditions or prerequisites for the change were missing. There is little doubt that much of the discussion of "prerequisites" of industrial development is not notable for its methodological soundness and shrewdness. It is in general very doubtful that a true concept of

¹⁰ *Godishnik*, XXXII (1939), 35.

¹¹ *Spisanie na Bŭlgarskoto Ikonomichestvo*, XXVIII, April-May 1927 (Sofia), 7.

¹² Pawel Egoroff, "Eigentümlichkeiten der Organisation des landwirtschaftlichen Betriebes," Janaki St. Moloff, ed., *Die sozialökonomische Struktur der bulgarischen Landwirtschaft* (Berlin, 1936), p. 165.

prerequisite as a necessary and sufficient condition has much meaning in historical research. Much of what sails under the name of necessary preconditions of industrial development are not *pre*conditions at all, but the very thing itself: labor, capital, and entrepreneurs are not preconditions of industrialization; they are the stuff industrialization is made of. Tautology apart, what is historical necessity? And what operations could possibly be performed to establish the inevitability of a certain connection? How could we possibly isolate and gauge the sufficiency of a "precondition" which as a rule appears conjoined with a large number of other factors? What usually appears in the all too rigorous guise of a prerequisite is in reality something much less stringent: from the study of the economic development of a certain area, probably the most advanced country, models involving causal sequences are constructed and a certain degree of plausibility with regard to them is established. It is, of course, quite permissible to describe the causal factors involved in such models as "prerequisites" in a very specific sense of the word. Nor is it objectionable to approach the economic history of less advanced countries with a list of such prerequisites in mind, looking for the presence — or absence — of the factors that appear to have acted as causal forces in the advanced country. On the contrary, this is the normal way in which historical insights are gained. But the dangers are great. It is easy to transform a list of questions gleaned from previous study into a bold and confident expectation that the presence of identical prerequisites must be discoverable wherever industrialization occurs and that their absence necessarily precludes industrial development from taking place. This dogmatic belief in the absolute repetitiveness of history is unfortunate under any circumstances. It becomes particularly insufferable when it begins to blur the observer's eye and makes him falsify obvious differences into implausible similarities. Marxian analysis of Bulgarian industrial development supplies plentiful evidence for both the merits and the perils of the comparative approach.

Marxian literature first emerged in Bulgaria in the early 1890s under the strong influence of Russian Marxism. As such it was doubly imitative; it transposed to Bulgaria the Russian Marxians' insistence upon the inevitability of capitalist development and at the same time was willing to assume that the course of industrialization, as described

by Marx, would essentially repeat itself in Bulgaria. The problem was by no means a merely theoretical one or even one of economic policy. It encompassed the future of socialism in the country. The position was stated unambiguously: "Whether the spread of socialism in Bulgaria will be fast or slow depends on how fast or how slowly our capitalism will develop."¹³ But "the natural law which in our time governs all nations . . . is the modern capitalist production."¹⁴ Hence "the law of natural development of present-day mankind leads us to socialism."¹⁵ In their positive attitude toward industrialization, Bulgarian Marxians stood close to those relatively small groups of Bulgarian intelligentsia which, influenced by List, thought in terms of "national production" and "development of the nation's productive forces," and which published, in the late 1880s, the journal *Promishlenost* (Industry) and somewhat later accepted the leadership of I. E. Geshov and his policy of industrial promotion which has been referred to earlier.¹⁶ Yet the latter's interest in industrial development seems pale and puny compared with that of the leading representative of orthodox Marxism. While Blagoev was willing to praise Geshov highly for what he had done for industry during the three years of his participation in Stoikov's cabinet (1894-97), he also criticized him severely for not going to extremes in protectionism, for refusing to support large-scale industrial enterprises in Bulgaria, and for expressing concern for the economic conditions of the Bulgarian peasantry.¹⁷ In enthusiasm for capitalist development and in the readiness to use every tool of governmental policy to bring it about, Geshov, a mere capitalist businessman, trained in the textile mills of

¹³ Dimităr Blagoev, *Shto e sotsializm i ima li toy pochva u nas?* (What Is Socialism and Has It Possibilities in Our Country?) (Turnov, 1891); originally published under the pen name of D. Bratanov. Reprinted in *Súchineniya*, I (n.p., n.d.), 500.

¹⁴ *Ibid.*, p. 480.

¹⁵ *Ibid.*

¹⁶ See D. Blagoev, *Moi vospominaniya* (My Memoirs), (Moscow-Leningrad, 1928), p. 59; Joseph Rothschild, *The Communist Party of Bulgaria* (New York, 1959), p. 16; I. E. Geshov, *Spomeni i studii* (Memoirs and Essays), Búlgarska Akademiya na Naukite (Sofia, 1928), pp. 329-339.

¹⁷ See D. Blagoev, *Ikonomichnoto razvitiye na Búlgariya, industriya ili zemedeliye?* (The Economic Development of Bulgaria, Industry or Agriculture?) (Varna, 1902); reprinted in Blagoev, *Súchineniya*, VII, 425, 655-667, esp. 656-658.

Lancashire,¹⁸ could not hope to rival the socialist Blagoev, who was a product of the revolutionary movements among Russian university students and a disciple of Plekhanov. There was much about Russian Marxism of the 1890s that was well suited to make palatable an unpopular and burdensome industrialization in a very backward country. Few things are more apt to enhance men's willingness to promote a certain course of events than the firm belief in its inevitability.¹⁹ The natural result of that fundamental attitude was a rather unrestrained optimism in assessing the chances of, and discussing the prerequisites for, modern industrial development in Bulgaria.

The point of departure for that development was clearly stated by Blagoev: "After the Liberation [in 1878] Bulgaria became a country of exclusively small-scale production: in the towns the artisans became free of craft-guild regulations; in the villages began the destruction of the *zadruga* family and of feudal large estates [*chiflusi*] while the land was parceled out among a very large number of small rural producers. *In this fashion, immediately after the Liberation, Bulgaria found itself in possession of the necessary condition for the development of capitalist production.*"²⁰

In his polemics against the adversaries of industrialization policies in Bulgaria in the early years of the century (among those adversaries, the Chamber of Commerce of the port city of Varna was very vocal), Blagoev agreed that cheap and skilled labor, wide markets, and capital availabilities were also essential for industrialization, but he remained unperturbed. Was not Bulgarian agriculture an over-

¹⁸ See Búlgarska Akademiya na Naukite, *Ivan Evstratiev Geshov, Vzglady i deynost* (Sofia, 1926), p. 15.

¹⁹ As Croce once remarked, "the will never feels as free as when it is known to be one with the volitions of God or the necessity of things." Benedetto Croce, *Storia d'Italia dal 1871 al 1915* (Bari, 1953), p. 161.

²⁰ Blagoev, *Sotsializmut i rabotnicheskayat vopros v Búlgariya, Kúm oborvaniyata na sotsializma u nas* (Socialism and the Workers' Question in Bulgaria, On the Refutation of Socialism in Our Country) (Plovdiv, 1900); reprinted in Blagoev, *Súchineniya*, VI, 220 (italics added). In another study, published a few years later in 1906, Blagoev expressed this view even more strongly: "After her Liberation Bulgaria became a country of petty-bourgeois property and production, which is the point of departure and the necessary condition for the establishment of the capitalist form of production." *Prinos kúm istoriyata na sotsializma v Búlgariya* (Contribution to the History of Socialism in Bulgaria) (Sofia, 1906); reprinted in Blagoev, *Súchineniya* (1960?), XI, 73-74.

flowing reservoir of industrial laborers? Was not industry known to create its own market in the very process of its development? And were not Russia and Japan carrying out their industrialization by recourse to capital markets in the advanced countries?²¹

It is still a somewhat undecided question to what extent a virtually independent small peasantry had emerged under the Turkish rule (*inter alia* through a Swedish-like "reversion" of the *spakhiya* fiefs to the state at the end of the eighteenth century and the reforms of the 1850s²²) and to what extent the appropriation of Turkish-owned lands by the Bulgarian peasantry during and particularly immediately after the Russo-Turkish War was responsible for the final result.²³ But the fact that after the Liberation much of the Bulgarian land belonged to small Bulgarian peasantry is well established. In the early years of the century, 85.7 percent of all the land under cultivation in Bulgaria belonged to farms with less than seventy-five acres of land.²⁴

This obviously was a rather un-English situation and a believer in the uniformity of industrial development might have drawn pessimistic conclusions from the absence, on the Bulgarian scene, of anything resembling the enclosure movement in England. This, however, was not the case. Even now, half a century after Blagoev's writings appeared, a modern and quite knowledgeable Marxian historian in Bulgaria in discussing the economic history of his country in the second half of the last century likens the Liberation itself to "the disintegration of the feudal system in England during the 14th and 15th centuries" and finds the English enclosures reproduced in the form of usury credit which, he says, tended to transform the Bulgarian

²¹ Blagoev, *Ikonomichno razvitiie na Bŭlgariya, Sŭchineniia*, VIII, 452ff.

²² See Ivan Sakazov, *Bulgarische Wirtschaftsgeschichte* (Berlin-Leipzig, 1929), pp. 172-197; also "Zakon za zemite" (Law Concerning the Land), April 21, 1858, in Christo Gandev and Galab Salabov, eds., *Fontes Turcici Historiae Bulgariae* (Sofia, 1959), pp. 14-39.

²³ There is no doubt that the provision agreed to at the Congress of Berlin (Art. 12 of the treaty; see *Archives Diplomatiques*, deuxième série, 1882-1883, Paris, VI, 291) and designed to protect Turkish property rights was largely obstructed; an orderly state redemption procedure which was instituted later on (1880-1885) affected only a very small part of the land that once was in Turkish possession. Akademiya Nauk SSSR, *Istoriya Bolgarii*, I (Moscow, 1956), 378-379.

²⁴ Bŭlgarska Akademiya na Naukite, Kirill G. Popov, *Stopanska Bŭlgariya prez 1911, Statisticheski izsledvaniya* (The Economy of Bulgaria in 1911, Statistical Explorations) (Sofia, 1916).

peasants into merely fictional owners of their lands.²⁵ Usury then is regarded by Natan as the specific Bulgarian form of the original accumulation of capital as developed by Marx in Chapter 24 of Volume I of *Das Kapital*.²⁶ Indeed, Blagoev in his time did not fail to stress what seemed to him the crucial importance of this factor.²⁷ This is not the place to analyze the meaning and usefulness of the Marxian concept as a tool of historical research.²⁸ It is referred to here because it undoubtedly was an integral part of a view according to which after the year 1878 Bulgaria possessed all the important prerequisites for an impetuous industrial development. The only thing that was missing was such a development. Italo Calvino's whimsical phrase, which has been chosen as a motto for this essay, appears to be pertinent indeed: all causes were present, but the effects failed to materialize.

It is not surprising that excessive optimism was temptingly reflected in exaggerated assessments of the advance of the "capitalistic system" in Bulgaria. Even before World War I, Blagoev and Dimitrov spoke of 400,000 as the number of hired laborers of *all categories* (without their dependents).²⁹ This would have been impressive enough in a country with a population of 4.3 million in 1910.³⁰ But there is little doubt that the figure was considerably exaggerated and that, moreover, the vast majority of that large number was employed in activities that had little to do with modern industrial development and, least of all, with the strategically crucial industrial branches. Writing more than twenty years later, toward the very end of the interwar period, Oskar Anderson could not put the number of "real industrial workers in the West European sense of the word" in Bulgaria much above 40,000 to which "perhaps another 40,000 of

²⁵ See Zhak Natan, "Kŭm vŭprosa za pŭrvonachal'no natrupane na kapitala v Bŭlgariya" (On the Question of the Original Accumulation of Capital in Bulgaria), Bŭlgarska Akademiya na Naukite, *Izvestiya na Ikonomicheskiya Institut* (Bulletin of the Economic Institute), nos. 1-2 (Sofia, 1954), pp. 30-33.

²⁶ Zhak Natan, *Stopanska istoriya na Bŭlgariya* (The Economic History of Bulgaria) (Sofia, 1957), pp. 259-261.

²⁷ See, for example, Blagoev, *Sŭchineniia*, VII, 533ff.

²⁸ See Chapters 2 and 5 of this volume.

²⁹ Natan, *Stopanska istoriya na Bŭlgariya*, p. 362.

³⁰ *Godishnik*, XX (1928), 13.

seasonal labor engaged in tobacco processing could be added."³¹ The desire to see the predictions vindicated in reality made it difficult to discern the progress that actually was being made and in addition obscured the specific structural problem of Bulgarian industrial growth.

For the rest, much of the contemporaneous analysis just described proved to be ill founded or exaggerated. Usury in Bulgarian villages no doubt gave cause for grave concern even before the Liberation, but particularly in the early years of the century. Certain forms of loans proved especially pernicious. Harrowing stories were rife of interest payments which over a very short time vastly exceeded the amount of the principal and still left an irresistibly rising debt.³² Nevertheless, even before World War I, through a combined action of credit cooperatives and government aid, considerable alleviation was provided and orderly forms of mortgage credit were introduced. War and postwar inflation reduced the debt burden further. It is true that the catastrophe of the Great Depression left Bulgarian agriculture panting under the load of new indebtedness, and a long series of special legal measures proved necessary in order to stabilize the situation. But this was an altogether different historical situation, and it is interesting that in 1930 the Bulgarian peasants' debts to private persons amounted to less than 10 percent of the total burden.³³ The view that usury would lead to structural changes of ownership relations comparable to English enclosures was certainly proved wrong. The character of Bulgarian agriculture remained essentially unchanged. If anything, the share of small and medium farms in the total was even raised somewhat, partly as a result of the agrarian reform carried out by Stamboliyski and the settling of refugees from beyond the borders in the early twenties. In 1934 no more than 5.9 percent of the total area under cultivation belonged to farms owning more than 75 acres of land, as compared with 13 percent in 1897 and

³¹ Oskar N. Anderson, *Struktur und Konjunktur der bulgarischen Volkswirtschaft*, Andreas Predoehl, ed. (Jena, 1938), p. 12.

³² N. Konstantinov, "Likhvarstvoto" (Usury), *Spisanie na Bŭlgarskoto Ikonomicheskoto Druzhestvo*, XIV, nos. 3-4 (1910), 161-182.

³³ Assen Tschakaloff, "Die Verschuldung der bulgarischen Landwirtschaft," St. Moloff, ed. (n. 12), p. 184.

12 percent in 1903.³⁴ The small Bulgarian farmer still remained in undisputed possession of his farm. The expected expropriation had failed to occur.

Similarly, all the talk about the ruin of Bulgarian artisans — another much vaunted piece of evidence for original accumulation of capital in Bulgaria — did not prevent Bulgaria from having, still as late as 1936, no less than 134,932 persons engaged in 69,232 handicraft enterprises.³⁵ There is little doubt that the position of the Bulgarian artisans in the decades following the Liberation was a rather difficult one. But it is not at all clear that such decline of handicraft as took place in those years presaged successful industrial growth or was in any way connected with it. To a very large extent, the origin of the difficulties experienced by the Bulgarian artisans must be sought in the very act of the country's secession from the Ottoman Empire. It was one of the generally accepted notions of the nineteenth century that national self-determination and economic progress must go hand in hand. It took the economic catastrophe of the dismemberment of the Austro-Hungarian statehood to reveal the fallacious nature of a belief in which processes of unification and disintegration were unthinkingly commingled. The economic and social backwardness of the Ottoman Empire could not be doubted. Still, the importance of Constantinople and of the adjacent area as a market for the products of Bulgarian handicraft was great indeed, particularly because of deliveries to Turkish civil and military authorities. It was the loss of the latter that affected the economic conditions of Bulgarian artisans in the post-Liberation period. On the other hand, to regard that alleged "ruination" of Bulgarian handicraft as a precondition for industrial advance denotes a failure to understand the peculiar structural patterns of industrialization in backward areas.

³⁴ Slawtscho Zagoroff, "Die Grundesitzverhaeltnisse in Bulgarien," St. Moloff, ed., p. 90. Professor Dolinski, an eminent expert on problems of Bulgarian agriculture, gives an even lower figure of 3.6 per cent for land owned by farms with landholdings over and above seventy-five acres. N. V. Dolinski, "Strukturni promeni v bŭlgarskoto zemedelie" (Structural Changes in Bulgarian Agriculture), *Spisanie na Bŭlgarskoto Ikonomicheskoto Druzhestvo*, XXXVII, December 1938 (Sofia, 1939), 619.

³⁵ Anderson, p. 13; *Godishnik*, XXXI (1939), 73.

In an advanced country like England, where industrial transformation came largely as a modernization of the textile industry, the new factory had to break the competition of both the handicraft and the merchant-employer systems. But in more backward countries, entrepreneurs, banks, or governments preferred areas which as a rule had remained untouched by either handicraft or domestic industry. In this sense, the weakening of Bulgarian handicraft that did take place could only deflect the Bulgarian industry from the optimal path of its development. Uncritical application of English lessons is an enterprise involving much risk and uncertainty and yielding little profit. On the other hand, viewing the story of Bulgarian handicraft within a framework that is appropriate to the degree of backwardness of the country does make some — though probably minor — contribution toward explaining our problem of growth without structural change in Bulgaria.

From that parenthetical conclusion, one must return to Bulgarian agriculture in search of further illumination. The fact that the small farm retained its dominant position in Bulgarian agriculture cannot be readily taken as an indication that the supply of labor to industry was small or intermittent. However strong may be an otherwise very legitimate reticence to use the concept of "disguised unemployment," it seems to fit the Bulgarian conditions to a nicety. According to the excellent study of Pawel Egoroff, the total number of man-days actually worked in Bulgarian agriculture (in the narrow sense of the word), livestock raising, rose cultivation, fruit orchards, and vegetable gardens, amounted in 1930-34 to 355 million; but the number of *available* man-days on the basis of the gainfully employed population in Bulgarian agriculture in 1926 was about 564 million. Accordingly, about 37 percent of the country's agricultural population was redundant. In Egoroff's words: "Without disturbing the present course of the process of agricultural production and without any efforts to achieve a more rational utilization of labor on farms, at least 720,000 men whose labor now lies fallow on Bulgarian farms could be profitably employed in other occupations."⁸⁶ Egoroff assumes in his com-

⁸⁶ Pawel P. Egoroff, "Die Arbeit in der Landwirtschaft," St. Moloff, ed., pp. 151-153. The author adds that using 1934 (rather than 1926) population data would raise the number of redundant persons in agriculture above one million. On

putations a ten-hour working day and it is not quite clear what allowance, if any, he has made for the peaks of demand for labor during the harvesting season. Nor can one blandly assume that every "superfluous" laborer would have actually preferred casting aside the "disguise" and moving openly and lastingly into industrial employment. The small family farm in Bulgaria, as in other European countries, was much less efficient than a large estate in generating the *Landflucht* of its labor force. Still, when everything is said and done, the discrepancy between a figure of some 700,000 potential *Landfluechtlinge* and that of the 40,000 or so actually employed in Bulgarian modern industry is such that it is very difficult to accept the idea that labor shortage may have worked as a factor retarding the industrial development of the country.

This conclusion, however, should not be taken to mean that the specific character of the country's agriculture did not obstruct, let alone favor, industrialization. At least two connected considerations are relevant in this respect. The general backwardness of Bulgarian agriculture has been discussed in the foregoing pages. It should be added that the availability of land per capita of the population engaged in agriculture declined steadily from about 2.6 hectares in 1900 to less than 1.5 hectares in 1934; that the average size of farm by 1934 was below five hectares; that the holdings were not consolidated but lay (often widely dispersed) in strips of about .37 hectare on an average; that the yields per hectare of the major cereal crops remained almost unchanged between the beginning of the century and the 1930s; that when in the thirties it came at length to some expansion of industrial crops, that expansion was obtained primarily not at the expense of bread cereals (as would have been rational), but at the expense of fodder crops, thus reducing the basis for the output of converted products; that, finally, the income per unit of land began falling even before the outbreak of the Great Depression — in 1926 income per acre was almost 25 percent below what it had been in 1911-1915, and the decline continued thereafter. It is clear that

the other hand, that number should be reduced by taking into account the labor spent by the farm population outside agriculture. The original estimate of more than 700,000 persons whose contribution to the volume of agricultural output is nil may therefore remain unaltered.

an agriculture of that description not only (as shown before) was unable to serve as an efficient raw-material basis, but also could not exercise much demand pull upon the country's industrialization either with respect to consumers' goods or with respect to agricultural machinery, fertilizers, and conveyances.

Even more important is the second consideration. The economic disabilities of Bulgarian agriculture were conjoined with its political ability, exercised directly and indirectly, overtly and covertly, to deflect the government from the policy of supporting industrialization. This was the case during the three years after World War I (between March 1920 and June 1923) when the government was in the hands of radical populism in the person of Stamboliyski, the chief of the Agricultural Union. But it is no less true that no government in the country either before or after Stamboliyski could afford to pursue an economic policy that involved placing, for the sake of industrialization, major burdens upon the peasant population of the country. It was not merely the immediate economic interests of the peasantry, but their whole system of social values — the ethos of equality — that opposed itself to large-scale enterprise. One need only recall the violent attacks upon the first bill concerning encouragement of industry to get a measure of the intensity of the aversion from industry, and particularly from foreign capital. Geshov in his defense of the bill had to tread extremely carefully, pointing out that enterprises of associated artisans could also participate in the benefits of the law and, most of all, that the demand of the growing factories for agricultural raw materials was bound to raise prices of the products concerned.⁸⁷

Given this situation, it was also natural for the government to try to encourage those industries which, at least in principle, could be defended as extensions of agricultural production. It is another matter that in practice the connection between those industries and agriculture was much more tenuous than was claimed in official pronouncements. The fact remains that the government was not a really free agent in determining the pattern of state-encouraged industry. Any overt discrimination in favor of strategically important industries was out of the question, and whatever there was by way of covert discrimination through various administrative actions had to

⁸⁷ *Dnevnik (Stenograficheski) na osmoto Narodno Sŭbranie*, pp. 637-643 (See n. 2 for translation).

favor industries that were said to be rooted in the soil of the country's peasant land. There is little doubt that those specific conditions and government policy go a long way to explain the phenomenon of growth without structural change which has emerged as such a intriguing problem from a quantitative review of the period.

In the specific Bulgarian conditions, capital availabilities were the crucially scarce supply factor. The industries which would have brought about great structural changes within the body industrial were specifically those that were characterized by both high capital-output ratios and a relatively high threshold of initial capital requirements. Given the backwardness of the country's agriculture and the poverty of its population, voluntary savings could not be expected to provide the needed capital dispositions. It is true that some mercantile wealth had been accumulated even prior to the Liberation and continued growing after it. But the holders of that wealth were on the whole opposed to industrialization, as was shown by the strong reaction of some chambers of commerce against Geshov's policy.⁸⁸ All talk about processes of primitive or original accumulation of capital in Bulgaria could not alter the fact that such limited wealth as was available did not pass into the hands of industrial entrepreneurs. The task of a modern industrialization in Bulgaria could not be solved by methods peculiar to very advanced countries. If the story of industrial development in other backward countries can serve as "lessons" or at least as guiding beacons in understanding the industrial history of Bulgaria, the problem may be formulated as follows: the lack in a backward country of many things that could be reasonably regarded as "prerequisites" of industrial development in more advanced countries is an obvious fact. But it is just as obvious that in many important cases the lack of those prerequisites did not prevent the industrial development from taking place. For the prerequisites were not prerequisites in an absolute sense of the word. In other words, it proved possible to find substitutions for the missing factors, appropriately varying them with the degree of backwardness and a number of special conditions. As a result, as the observer moves from country to country, whole patterns of substitutions become discernible across the graduated scale of economic backwardness. The problem of Bulgarian industrialization, therefore, may be essentially stated as the

⁸⁸ Blagoev, *Ikonomichnoto razvitiie na Bulgariya*, pp. 430f.

ECONOMIC BACKWARDNESS IN HISTORICAL PERSPECTIVE

country's inability to discover patterns of substitutions suitable to its particular situation.

When previously accumulated wealth could not be passed on to industrial entrepreneurs for conversion into claims upon current national income so that factors of production could be lured away from consumer-goods industries into producer-goods industries, it was recourse to foreign loans, to credit-creating activities of specially organized banks, or to the budgetary mechanism of the state (or a combination in varying degrees of all three factors) that was used as a substitute. It is probably correct to say that the more backward a country was, the more likely it would have been to emphasize the role of the state as against that of investment banks. In the light of these generalizations, what the Bulgarian government did and what it failed to do for the industrialization of the country may be assumed to have been of fundamental importance.

Table 10. State aid to industry in 1912 in relation to capital stock
(1,000 leva)

Industry	Capital (a)	State aid			(d/a) 100
		Through tariff duty and freight reductions (b)	Through tax reductions (c)	Total (d)	
Mines	2,600	27	42	68	2.6
Metals	3,260	119	82	201	6.2
Pottery	7,600	25	166	191	2.5
Chemicals	4,000	345	88	433	10.8
Sugar	5,900	206	111	317	5.4
Beer	9,000	63	70	133	1.5
Textile	16,000	986	323	1,309	8.1
Woodworking	4,200	32	43	75	1.8
Leather	2,750	311	70	381	13.9
Flour mills	16,500	49	430	479	2.9
Other					
foodstuffs	5,200	10	30	40	0.8
Energy	6,500	—	28	28	.4
Total	85,610	2,209	1,501	3,710	4.3

Source: D. Kh. Dimov, "Kakvo e poluchila mestnata industriya prez 1912 god ot dържавata i obshtestvennite uchrezhdeniya?" (How Much Did Domestic Industry Receive in 1912 from the State and other Institutions?), *Spisanie na Bългарското Ikonomichestko Druhestvo*, XVIII, nos. 9-10 (Sofia, 1914), 547.

SOME ASPECTS OF INDUSTRIALIZATION IN BULGARIA

The Bulgarian program of government encouragement to industry, as described in section one of this essay, taking its leaf from Rumanian and Hungarian statute books, was no doubt a very respectable attempt to deal with a very difficult problem. But the aid actually provided to industry was more notable for the multifariousness of the ways in which it was proffered than for its magnitude. A Bulgarian economist once computed the total value of state aid supplied under the pertinent act in 1912 and related it to the capital stock of the industries concerned. His results are shown in Table 10. The capital-stock data are admittedly uncertain; yet a very similar result obtains if the benefits received are related to the value of product of industrial enterprises. This is shown in Table 11. It is

Table 11. State aid to industry in relation to the value of product, 1912
(1,000 leva)

Industry	Value of product (a)	Total state aid (b)	(b/a) 100
Mines	1,667	68	4.1
Metals	3,399	201	5.9
Pottery	4,139	191	4.6
Chemicals	3,436	433	12.6
Sugar	3,149	317	10.0
Beer	5,429	133	2.4
Textile	22,767	1,390	5.7
Woodworking	1,292	75	5.8
Leather	6,235	381	6.1
Paper	772	56	7.2
Flour mills	49,226	479	1.0
Other foodstuffs	3,249	40	1.2
Energy	1,377	28	2.0
Total	106,137	3,711	3.5
Total without flour mills	56,911	3,232	5.7

Source: *Godishnik*, IV (1912), 187-188.

clear that the volume of state aid extended to Bulgarian industry was held within fairly modest limits. In particular, the benefits enjoyed by the industry producing and processing metals were small indeed.

It would exceed the scope of this essay to enter into a full discussion of the Bulgarian tariff policy. Suffice it to note that it took the country almost three decades before it could pass from the original restraints of Article 8 of the Berlin Treaty³⁹ via uniform *ad valorem* duties first of 8 and then of 14 percent to the right to produce specific import duties, which was finally obtained through the treaties of commerce concluded in 1905. Yet one would search the Bulgarian tariff in vain for any indication that its structure was influenced by the desire to achieve major changes within the sphere of protected industry. The contrary was true. Increased protection for the foodstuff, textile, and leather industries was paralleled by decreased protection for machinery production.⁴⁰ Thus the contribution of the Bulgarian state to the country's industrialization was modest, to say the least. The very considerable task of constructing, before the outbreak of the Balkan wars, a railroad network of almost 2,000 kilometers at the cost of more than a quarter of a billion leva,⁴¹ and of acquiring a rolling stock worth some 36 million leva,⁴² was accomplished by the government without utilizing the period of railroad construction for the specific promotion of industrial activities. The amount of foreign loans (in terms of net proceeds) received by the Bulgarian government over the same period exceeded the cost of railroad construction by about two and a half times.⁴³ The amounts actually used for industrial encouragement are quite trivial by comparison, as may be seen from another glance at Table 11. There is little doubt that concentration upon foreign and military policy effectively obstructed serious preoccupation with the industrial development of the country.

The sector of state-encouraged industry was not altogether unsuccessful in attracting foreign capital. Data which are available for the initial year of our index period show that, in 1909, fixed capital invested in those industrial branches amounted to 64.4 million leva.⁴⁴ If working capital is included, the total amount may be estimated at

³⁹ *Archives Diplomatiques*, p. 291.

⁴⁰ Walter Weiss-Bartenstein, *Bulgariens volkswirtschaftliche Verhältnisse* (Berlin, 1917), pp. 168-202; see esp. the table on p. 191.

⁴¹ Popov, p. 376.

⁴² *Ibid.*, p. 377.

⁴³ Leo Pazvolsky, *Bulgaria's Economic Position* (Washington, 1930), p. 36.

⁴⁴ *Godishnik*, II (1910).

about 72 million leva.⁴⁵ Of this amount, 14.6 million leva, or one fifth, was supplied from abroad. Belgian capital dominated the scene, amounting to 70 percent of foreign direct investment. Perhaps more important than the total magnitude of that investment is its distribution. In those years, Belgian capital and Belgian engineers were constructing public-utility plants over wide areas of eastern and southeastern Europe, and most of their investment in Bulgaria had been engaged in the production of electric energy. For the rest, it was the foodstuff industry and — at a much lower level — the textile industry which received most of the foreign capital.⁴⁶ Twelve years later, when the smoke of World War I began to clear away, it was the foodstuff-producing industries in which 73 percent of foreign direct investment (not including energy production) was placed.⁴⁷ Foreign capital's interest in the other branches of Bulgarian industry was either negligible or nonexistent. There is no indication that there was any significant change in this situation in the immediately following years. Foreign banks had appeared on the Bulgarian scene fairly early. In 1905-06 three important institutions were established by German, French, and Austrian banks, respectively. Among them, the Credit Bank, which stood under the leadership of the Disconto-Gesellschaft, may have seemed fairly promising for the country's industrial development. After World War I the establishment of the Sofia branch of the Deutsche Bank (1922) should be mentioned. Over the same period, there was undoubted growth in indigenous Bulgarian banking. Both foreign and domestic banks showed some interest in industrial enterprises, but the promise came to nought. Neither the one group nor the other betrayed any trace of the entrepreneurial vigor and financial broadmindedness which, for instance, the German banks had so conspicuously displayed in pre-1914 Italy. In particular, the traditional interest of the latter in new indus-

⁴⁵ According to N. Mikhailov, "Nasúrchavanata ot dúzhavata industriya prez 1909" (See n. 5 above), p. 589, working capital amounted to about 12.7 percent of fixed capital. It may be noted, however, that Mikhailov's absolute figures do not quite check with those given in the text above.

⁴⁶ *Godishnik*, II (1910), 261.

⁴⁷ Luiven Georgiev, "Pronikvaneto na chuzhdiya finansov kapital v Búlgariya" (Penetration of Foreign Finance Capital into Bulgaria), *Búlgarska Akademiya na Naukite, Ikonomicheska Misúl*, I, no. 2 (Sofia, 1956), 120.

tries offering a wide field for technological change did not manifest itself in Bulgaria.

By way of summary of what has been said in the preceding pages and partly by way of amplification, one may try to state a few tentative answers to the question posed at the end of section one of this essay.

1. The poverty and economic backwardness of the country effectively precluded its industrial development upon the pattern of more advanced countries.

2. For this reason, the discussion of factors such as the process of the so-called original accumulation of capital in Bulgaria was hardly realistic.

3. In the specific Bulgarian conditions, such decline of handicraft as took place in the last quarter of the nineteenth century, instead of freeing the road for the factory system, may well have tended to deflect industrial endeavor from entering into the most promising channels.

4. Despite all predictions to the contrary, over the period under review the small-family-farm character of Bulgarian agriculture became even more pronounced. Being poor, stagnant, and inefficient, agriculture could serve neither as an adequate raw-material basis for industry nor as a source of effective and growing demand for industrial products, although, given the very low degree of utilization of labor on the farms, industry could rely on agriculture to satisfy its needs in manpower.

5. In such conditions the problem of capital supply and the problem of a sustained and growing demand for industrial products became the crucial problems in launching a great spurt of industrial development.

6. Banks, organized as "investment banks" and connected with corresponding institutions abroad, may well have participated through attracting foreign loans and through processes of credit creation in the provision of capital to Bulgarian industry. It was unlikely, however, that in conditions of extreme backwardness such as prevailed in Bulgaria they would have been able to raise the needed capital and, above all, to find investment opportunities that would prove profitable within a reasonable period of time.

7. It was the state, therefore, which should have shouldered the

twin task of covering the balance of capital needs and providing, for a number of years, the demand for the products of the new industries. On the other hand, because of the specific all-or-nothing (or, at least, all-or-much-less) nature of industrial spurts in backward countries, absence of sufficient state aid made the banks very reticent to do their part in industrial engagements.

8. It is very likely that the turn of the century was a most propitious moment for launching a policy of rapid industrialization on a considerable scale. Railroad building was still far from completed and the needs of railroad construction would have provided a widely ramified network of persistent demand for the products of the new industries. The capital markets abroad were plentifully supplied and the risk premiums astonishingly low. At the very same time, the German banks found the area of their activities in Germany curtailed by the growing independence of German industry and were ready to export their accumulated experience in promoting industrial enterprises to other areas.

9. The Bulgarian government let that opportunity pass unused. The curious combination of economic backwardness with a rather advanced system of constitutional government; the peasants' aversion to industry and capital, most notably to foreign capital; the ideology of militant nationalism amplified by the clamors of a violent irredenta in Macedonia and Thrace; greed, anxieties, the rivalries of governments and populace, as well as the ambition of a shrewd but irresponsible ruler to imitate and to reproduce within the confines of the peninsula the game of grand diplomacy; the pressures of similar motivations on the part of other Balkan nations — all these, in varying degrees, may have conspired to determine the actual political choices of the Bulgarian government. In the light of the record, those choices do not seem to have been particularly felicitous. A historical accident happened to place them within a sharp personal focus. It was a tragic fate that caused Geshov, once a great advocate and effective engineer of the country's economic development, to lay during his premiership the groundwork for the military attack upon the Turks in 1912; he felt, in his own words, "responsible to History for the conclusion of the Balkan Alliance."⁴⁸ But all this is somewhat beside the point. It

⁴⁸ Geshov, or Gueshoff in the accepted transliteration of the period, resigned, however, in May 1913 so as to dissociate himself from the "criminal insanity" of

is important to understand the decisions that have been taken against the background of foregone choices. There is, however, no intention to explain what the Bulgarians should have done. It is useful indeed to think of industrial development in terms of graduated patterns of substitution for "missing prerequisites." It is useful to delineate the contours of such a substitution that might plausibly have taken place in Bulgaria. Yet it is one thing to expect that, had a great spurt of industrial development occurred in Bulgaria, it would have in all likelihood proceeded under the strong tutelage of the state. It is quite another to assume that the great spurt was "bound" to occur. The case of Bulgarian industrialization should not only cast some additional light upon the concept of the great spurt; it may also serve as a salutary reminder of the very conditional nature of our insights into the processes of economic change.

Its illuminating aspects apart, the story of Bulgarian industrialization is not a happy one. Instead of bending upon a relatively brief concerted effort, the little country on the Danube preferred, like the great Danubian Monarchy in the words of its poet,

auf halben Wegen und zu halber Tat,
mit halben Mitteln zauderhaft zu streben.⁴⁹

Thereby, Bulgarian statesmanship left the task of economic development to a much less favorable situation and to a regime which, unperturbed by such changes as may have taken place in technological determinants, was willing to do the job without counting the price or weighing the burden it imposed upon the people and without envisaging an end to the years of sacrifice and deprivation; as though desirous of illustrating Voltaire's melancholy conclusion that *tout vient trop tard*.⁵⁰

the impending Bulgarian aggression against Serbia. See I. E. Gueshoff, *The Balkan League* (London, 1951), pp. 91, 94; also, I. E. Geshov, *Prestupnoto bezumie* (Criminal Insanity) (Sofia, 1914), p. 143.

⁴⁹ Franz Grillparzer, *Ein Bruderzwist in Habsburg*, Act II, lines 922-923.

⁵⁰ Voltaire, *Histoire de l'Empire de Russie sous Pierre le Grand* (London, 1830), p. 378.

Soviet Heavy Industry: A Dollar Index of Output, 1927-1937

THE purpose of this essay is to communicate in summary form the results of an attempt to measure the growth of output in Soviet heavy industry.¹ The study has been conducted at Harvard in the years 1949-54 under the auspices of the RAND Corporation of Santa Monica, California. While the title chosen for this summary appeals to the author's ego, it is somewhat misleading. The underlying research did *not* cover the *whole* range of Soviet heavy industry. Most notably, production of heavy chemicals and of nonferrous metals has been entirely omitted. The investigation in its present form embraces the following five branches of industry: (1) machine building, (2) iron and steel, (3) petroleum, (4) coal, and (5) electric power.

Granted these limitations, it should be clear that the industries just mentioned, during the period under review, must have accounted for most of the heavy industrial output in Soviet Russia. It should be remembered in particular that the concept of machinery used here is comprehensive indeed. In addition to industrial machinery proper, it includes railroad rolling stock, automotive production, and agricultural and road-building machinery.

¹ I am indebted to Joseph A. Kershaw and Norman Kaplan for valuable comments and suggestions. I should like to thank Alexander Erlich, Nancy Nimitz, and Elizabeth Marbury for their participation in this project.

I

The initial motivation for the construction of a series of dollar indices of Soviet industrial output was provided by the grave shortcomings of the official Soviet index, which was weighted by the allegedly constant prices of the harvest year 1926/27. During the past decade, the deficiencies of that index have been widely discussed in Western literature.² The main trouble was with respect to commodities not produced in the base year 1926/27. In brief, the Soviet procedure was as follows: those commodities were introduced into the index at prices which prevailed during the first year of large-scale production. Since a considerable price inflation occurred during the period of the 1930s, this procedure of necessity imparted an upward bias to the index. As the share of "new" commodities in total industrial output grew, the bias of the index kept increasing. In this way, the index was affected both by past and current inflation and failed to satisfy the elementary requirement of any index of physical output, that is to say, imperviousness to changes in the value of money.

It might be added that Soviet writers themselves stressed the inadequacy of the index, although they took care not to state explicitly that the resulting bias was in an upward direction. As a rule, they argued that the direction of the bias was a moot question. In the mid-thirties, the Soviet government introduced some improvements, which, however, failed to alter the nature of the index in any radical way.³

The official Soviet yardstick of industrial growth was thus quite unreliable. At the same time, it was realized that the rapid development of Russian industry in the 1930s was of focal significance for the understanding of the Soviet economic history of the period and, furthermore, that any appraisal of present and future retardations — or accelerations, as the case may be — of Soviet industrial growth must be based almost inevitably on comparisons with the economic development in the 1930s. For these and other reasons, construction of inde-

² Among many others, the present writer commented on the problem in "The Soviet Indices of Industrial Production," *Review of Economics and Statistics*, XXIX (November 1947).

³ For an account of this, see Alexander Gerschenkron, assisted by Alexander Erlich, *A Dollar Index of Soviet Machinery Output* (Santa Monica, 1951), pp. 1-12.

pendent gauges of Russian industrial growth over the period concerned appeared most desirable.

Such attempts have been undertaken and carried out by Naum Jasny and Donald R. Hodgman. Jasny constructed Soviet price indices by which he deflated computed values of industrial output at current prices. Hodgman's contribution was an index of Soviet industrial output, weighted by payroll data in the individual branches and sub-branches of Soviet industry in 1934.⁴

The approach adopted in the present study follows a different method. The common feature of Jasny's and Hodgman's indices was the use of indigenous magnitudes for weights in the respective indices. In this study, on the other hand, U.S. dollar prices of the year 1939 were used. It is not necessary to examine in detail these two approaches. Suffice it to say that the advantage of a recomputation of Soviet industrial output in dollar prices is twofold. First, it makes it possible to cut the Gordian knot of the Soviet price system. The best that can be said for that price system is that it tends to reflect changes in average cost of production. For this reason, output indices weighted by Soviet prices seem to respond fairly well to certain pragmatic index-number tests involving changes in weighting base years.⁵ Beyond this, however, the meaning of the price system is far from clear. Accordingly, an index based on Soviet weights must remain an uncertain proposition, at least to some degree. It is not suggested that the American prices of 1939 in each individual case are a faithful reflection of opportunity cost. Of course they are not. But there is little doubt that there is an immense difference between the two price systems in this respect.

The second advantage of computing Soviet output in terms of dollars is that it makes possible direct comparisons of Soviet and American outputs. But to mention the advantages is not in the least to disguise the very real shortcomings of a dollar index of Soviet output. The use of dollar weights means choosing a very remote

⁴ N. Jasny, *The Soviet Economy During the Plan Era; The Soviet Price System; Soviet Prices of Producers' Goods* (Stanford, 1951 and 1952); Donald R. Hodgman, *Soviet Industrial Production, 1928-1951* (Cambridge, Mass., 1954).

⁵ See G. Grossman, "National Income," and "Comments" by Alexander Gerschenkron in *Soviet Economic Growth*, ed. A. Bergson (Evanston, 1953), pp. 6-9, 23-24.

vantage point from which to view Soviet industrial developments. Something more will be said on the subject in the concluding section of this essay. All that need be mentioned at this point is that the results of the present study are not directly comparable, let alone interchangeable, with those obtained by either Jasny or Hodgman.

At the same time, it may be noted that the remoteness of the vantage point is at least to some extent compensated for by the availability of statistics in the United States. Whatever extraneous weighting system is chosen, ideally it should be from a country as similar as possible to Russia in its stage of economic development and one with a comparable range of measurable output. The choice of the dollar system fully satisfies the second requirement, but it does so at the expense of the first.

It is very likely that experimentation with other price systems might lead to more meaningful results. For example, expressing Soviet output in Japanese prices would seem very promising. Furthermore, by shedding light on the significance of the index-number problem in different historical industrializations, such experiments would contribute to better understanding of the measurement problem in economic development and thereby to better understanding of economic development itself. Be that as it may, the highly relative character of the present investigation must be clearly understood.

II

In principle, the way in which the present index has been prepared is exceedingly simple. For each of the five industries concerned, the first task was to obtain as complete a breakdown as possible of data on physical quantities of output for the years 1927-37. In practice, this was not simple at all. Because of the fragmentary nature of Soviet information and its tendency to decline in volume after the mid-thirties, the tabulations showed many gaps. All these gaps had to be eliminated by a series of extrapolations and interpolations. The methods used in this respect varied from case to case. Sometimes the rate of growth in the preceding years was applied; sometimes the rate of growth of related and, if possible, complementary commodities was selected. Wherever feasible, general information on output of

the commodities concerned was utilized. In this fashion, complete quantitative tabulations for all the years of the decade were obtained.

The next task consisted in ascertaining the appropriate American price prevailing in 1939 for each item in these tabulations. Clearly, to obtain such a price it was necessary first to match the individual Soviet product with an identical or similar American product. This done, the U.S. 1939 price of the Soviet product was estimated, taking account of such differences as existed between the two products. Here lay the real core of the study. Neither the matching process nor the price determination could have been carried out without extensive recourse to those members of the American business community who had acquired an extensive knowledge of the relevant Soviet products either through their business activities or their personal experience (as experts, technical assistants, and so on). Wherever possible, the consultants were given the specifications or even photographic reproductions of the Soviet models. Even so, the matching process presented considerable difficulties, which were greatest in the field of machinery.

The foregoing, however, is a somewhat idealized picture of the process. In a number of cases, the consultants were unable to provide the price information, and the computed unit values of the 1939 *U.S. Census of Manufactures* had to be used instead, an obviously crude and unreliable procedure. Nevertheless, it is fair to say that the vast majority of prices was determined through the consultation process. It is only with regard to electric power that prices obtained from the *Census* prevailed. All prices arrived at by consultation were estimates of the 1939 dealer's cash price f.o.b. factory and thus conceptually comparable with unit values derived from the *Census*.

In the case of machinery, it proved impossible either through consultation or recourse to the *Census* to assign prices to all the items for which data on physical quantities were available. Out of a total of 315 commodities, for which data on quantity of output were on hand at least for some portions of the index period, only 128 items could be priced. For the remaining 187 items, available specifications were insufficient for price assignments. In many cases the matching process also involved considerable readjustments of the original physical data. Thus, where such data were given in terms of units of output but a meaningful price could not be stated except in terms of power

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capacity, some method for the conversion of the original data had to be devised. In many instances, the ratio of horsepower per unit was given for only a few years of the period, and the ratios for the remaining years had to be interpolated or extrapolated. If a justifiable conversion method could not be found, the commodity had to be omitted from the index.⁶

All this means that the index of machinery output does not comprise all the subgroups of this branch of Soviet heavy industry, and this raises a problem in aggregating the individual indices. Some adjustments for differential rates of growth in the omitted subgroups will be mentioned later. At present, it is important to point out that *no* similar problem of coverage existed for the remaining four industries. The output of *all* (or virtually all) the products of these was obtained and valued in dollars. This is not to say, of course, that no problems were encountered in the work on the four industries other than machinery. Many gaps of information had to be filled by estimates of various kinds. As was also true of many machinery items, there were numerous cases of conflicting information that had to be reconciled. Considerable difficulties were encountered in the matching process for coal, iron and steel, and petroleum products. In all such instances, the official Soviet standards were used for the basic identification of the individual products. Consultations with displaced persons who had served in one or another of the Soviet industries concerned were necessary in order to obtain some immediate impression of the degree of likely deviations between the standards and the actual products. As was true for machinery, expert advice on prices was of crucial importance. Thus, for petroleum products, the American prices selected were based on the *Oil Price Handbook*⁷ and referred to the major American export market, the Gulf Coast market; but without the aid of expert information it would have been impossible to adjust these prices to allow for the differences in quality between the American and the Soviet products. And least of all would it have been possible to establish a reasonable price for those

⁶For a more complete description, see Gerschenkron, *A Dollar Index of Soviet Machinery Output*.

⁷National Petroleum Publishing Company, *Oil Price Handbook for 1939* (Cleveland, 1940).

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Soviet products for which comparable American products could not be located.

It is not within the scope of this essay to do more than indicate the general nature of the problems that had to be faced. For remarks on certain specific aspects, such as the effects of the basing-point system on pricing Soviet steel products or the effect of regional variation in American coal prices on selecting the "correct" dollar price for Soviet coal, the interested reader must consult the individual studies. He will also find there full discussion of the innumerable minute problems of estimation and selection which so often had to be resolved by arbitrary decisions. It was felt that, in a field where the basic data are scarce and unreliable and so many adjustments are necessary for obtaining a set of consistent figures, the reader must be given full opportunity to check every step and to form his own opinion as to the worth and validity of the results. Accordingly, in each of the five studies, it is the detailed appendices that constitute the heart of the inquiry. In a sense, the text, containing the results and the general conclusions, is appended to the mass of detailed tabulation and comment in the appendices rather than the other way round.⁸

III

The dollar values of output yielded by the five studies are presented in Table 1. The corresponding indices are shown in Table 2.

The problem of aggregating the foregoing tabulations is not an easy one. The trouble with simply adding up the rows in Table 1 is twofold: first, as mentioned before, the dollar value of the machinery output refers only to a portion of total machinery output. Thus a simple addition gives too low a weight to that branch of Soviet heavy industry. An even more serious difficulty stems from the fact that the data in Table 1 are based on gross values of output, corres-

⁸In addition to the previously cited study on machinery output, the references are as follows: Alexander Gerschenkron and Nancy Nimitz, *A Dollar Index of Soviet Petroleum Output* (Santa Monica, 1952); Nancy Nimitz (under the supervision of Alexander Gerschenkron), *A Dollar Index of Soviet Coal Output* (Santa Monica, 1953); Alexander Gerschenkron and Nancy Nimitz, *A Dollar Index of Soviet Iron and Steel Output* (Santa Monica, 1953); Alexander Gerschenkron, assisted by Elizabeth Marbury, *A Dollar Index of Soviet Electrical Power Output* (Santa Monica, 1954).

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Table 1. Value of Soviet output, 1927/28-1937
(in millions of U.S. dollars at 1939 prices)

Year	Machinery	Iron and steel	Coal	Petroleum products	Electric power
1927/28	203	184	87	119	69
1928/29	288	218	100	145	85
1929/30	427	263	119	199	111
1931	532	268	141	247	137
1932	535	308	161	237	171
1933	603	353	188	251	207
1934	734	489	230	290	259
1935	926	632	264	301	316
1936	993	822	302	336	395
1937	1065	869	304	355	441

Table 2. Indices of value of Soviet output, 1927/28-1937
(weighted by U.S. dollars at 1939 prices; 1927/28 = 100)

Year	Machinery	Iron and steel	Coal	Petroleum products	Electric power
1927/28	100	100	100	100	100
1928/29	142	118	115	122	123
1929/30	211	143	137	167	160
1931	263	146	162	207	197
1932	264	167	185	200	246
1933	298	192	216	211	298
1934	361	266	264	244	374
1935	457	343	303	253	456
1936	490	447	347	282	569
1937	525	472	349	298	635

ponding in a general way to the "value of products" in American *Census* statistics. Each figure is the sum of the products of quantity and price. These values of output include, therefore, the value of raw materials, semifabricates, power, and fuel consumed as well as produced by the branch of industry for which the computations have been made. What is needed ideally is the reduction of the gross values to value added by manufacturing of the products concerned.

Some adjustments have been made to take account of the two difficulties just described, but they are so rough and incomplete that the reader may prefer the unadjusted results. They are given below.

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Let us first see how far it is possible to move in the direction of value added.

In an earlier study of Soviet machinery output, a set of value-added data at 1939 dollars was obtained by applying to the gross value figures for each individual item the ratio of value added to gross value as given for the commodity group to which the item belonged in the 1939 *U.S. Census of Manufactures*.⁹ It is clear that such a procedure involved rather drastic assumptions. This is not simply because of the implied acceptance of American ratios of value-added components to the other components of gross value. Such an acceptance is quite consistent with, and in fact derives from, the basic decision to use American prices as weights in an index of Soviet output. What renders application of American ratios so questionable are rather the great differences in the respective structures (such as differences in the degree of vertical integration) of the American and the Russian industries. What appears as value added in a given American industry need not appear as such in its Russian counterpart, and vice versa. Still it might have been useful to pursue this method throughout the five industries under review if practical difficulties had not stood in the way. Unfortunately, when it comes to branches of industry other than machinery, the *U.S. Census* provides either an inadequate number of subgroups or only *one* over-all ratio for the industry as a whole rather than for the individual products or subgroups of products. Obviously, application of such an over-all ratio, say for the petroleum industry, cannot change the index for that particular industry, although it would affect the aggregate index. In addition, differences in the *composition* of output in any given industry (as distinguished from subgroups) in the United States and Russia make the application of such an over-all ratio altogether too crude a device.

It might be possible to estimate and to apply Soviet rates of value added to gross value in the individual industries concerned, but clearly the introduction of Soviet weights into a study the very purpose of which is to break away from Soviet valuations could not be considered.

For these reasons, a different method has been adopted here for aggregating the five indices. It consists essentially of an attempt to

⁹ See Gerschenkron, *A Dollar Index of Soviet Machinery Output*, table 38, pp. 80-84.

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eliminate some of the double counting which results from the fact that products of one industry (such as steel) are used as inputs in the production process of another industry (such as machinery).

The adjustments made can be summarized as follows:

1. The dollar value of coal consumed by the steel industry in the form of coke has been deducted from the gross dollar value of the iron and steel output.

2. The dollar value of steel products and foundry iron consumed by the machinery industry has been deducted from the gross dollar value of machinery output.

3. The gross dollar value of output of four industries (machinery, iron and steel, coal, and petroleum) has been diminished by the aggregate value of electric power consumed by these industries. It may be added that the amount deducted was somewhat excessive because the available data on power consumption referred to the metalworking industry as a whole rather than to the machinery industry proper. Since the latter is a huge segment of the former and undoubtedly consumes much more power per dollar of output, the error involved must be assumed to be small.

No similar adjustments could be made for the values of coal and petroleum consumed by the other industries, nor for the value of steel consumed by industries other than machinery. At the same time, it is believed that the amount of double counting within each industry is confined within rather narrow limits. The error stemming from that particular source cannot be very large within the machinery group. The 128 items of that group, for which the dollar value of output has been computed, are essentially in the nature of finished goods. Therefore, hardly any of these commodities enters the value of output of any other commodity within the group. Since what was valued in the other industries was likewise the final product, and since the values of crude oil, conversion iron, and raw steel were excluded from the computations, the error of double counting is unlikely to be very large in those industries.

It cannot, of course, be claimed that these adjustments have resulted in an unambiguous concept of net value. Only the most obvious cases of double counting have been eliminated. But *pro tanto* some approximation to net values has been attained. Nor have the

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deductions been quantitatively insignificant. In the case of machinery, the more than one quarter of gross value eliminated may amount to as much as 50 percent of what ideally should be deducted. It is true that some further adjustments may have been possible. But they would have introduced still greater uncertainties and might well have detracted from, rather than added to, the reliability and meaningfulness of the results.

As mentioned before, another problem to be faced in the aggregation process derived from the incompleteness of the coverage of machinery output. Giving too low a weight to machinery output in turn would have imparted a downward bias to the series as a whole, first, because the computed output of the machinery group developed at a relatively high rate and, second, because the output of machinery items not included in the computed output must be presumed to have developed at a faster rate than the output of the computed group. Taking into account *inter alia* the estimated value of electric-power equipment (which had been computed indirectly and was not included in the total of the computed machinery output¹⁰) as well as crude estimates of the aggregate dollar value of output of about one hundred of those machinery items also excluded from the computed series, it seemed reasonable to assume that in 1928/29 the computed machinery output comprised 75 percent of total machinery output and that by 1937 this ratio had fallen to 65 percent.¹¹

It will be noticed that the first of the years just mentioned is 1928/29 rather than 1927/28, the first year of the dollar-index period. This change is unfortunate, but it was unavoidable because the material needed for adjustment purposes, in particular the data on steel consumption by the machinery industry, was not available for the years preceding 1928/29.

The results of the aggregation process are given in Tables 3-8. They are in three stages: (1) summation of unadjusted output values, (2) summation of output values adjusted for the incomplete coverage of machinery output, and (3) summation of output values adjusted

¹⁰ Gerschenkron, *A Dollar Index of Machinery Output*, appendix 9.

¹¹ Accordingly, the unadjusted values of machinery output for 1928/29 were divided by 75 and multiplied by 100; the unadjusted values for 1937 were divided by 65 and multiplied by 100.

Table 3. Dollar value of output of Soviet heavy industry, 1928/29 and 1937
(unadjusted gross values, millions of 1939 dollars)

Year	Machinery	Iron and steel	Coal	Petroleum products	Electric power	Total
1928/29	288	218	100	145	85	836
1937	1065	869	304	355	441	3034

Table 4. Index of dollar value of output of Soviet heavy industry, 1928/29 and 1937
(based on unadjusted gross values, millions of 1939 dollars)

Year	Machinery	Iron and steel	Coal	Petroleum products	Electric power	Total
1928/29	100	100	100	100	100	100
1937	370	399	304	245	519	363

Table 5. Dollar value of output of Soviet heavy industry, 1928/29 and 1937
(gross values adjusted for incomplete coverage of machinery output, millions of 1939 dollars)

Year	Machinery	Iron and steel	Coal	Petroleum products	Electric power	Total
1928/29	384	218	100	145	85	932
1937	1638	869	304	355	441	3607

Table 6. Index of dollar value of output of Soviet heavy industry, 1928/29 and 1937
(based on gross values adjusted for incomplete coverage of machinery output, millions of 1939 dollars)

Year	Machinery	Iron and steel	Coal	Petroleum products	Electric power	Total
1928/29	100	100	100	100	100	100
1937	428	399	304	245	519	387

Table 7. Dollar value of output of Soviet heavy industry, 1928/29 and 1937
(gross values adjusted as in Table 5 and for double-counting, millions of 1939 dollars)

Year	Machinery	Iron and steel	Coal	Petroleum products	Electric power	Total
1928/29	286	197	95	142	85	803
1937	1138	768	283	345	441	2975

Note: for the computations on which this table is based, see *A Dollar Index of Soviet Iron and Steel Output*, appendix 11, and *A Dollar Index of Soviet Electric Power Output*.

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Table 8. Index of dollar value of output of Soviet heavy industry, 1928/29 and 1937
(based on gross values adjusted as in Table 5 and for double counting, millions of 1939 dollars)

Year	Machinery	Iron and steel	Coal	Petroleum products	Electric power	Total
1928/29	100	100	100	100	100	100
1937	398	389	298	243	519	370

Note: for the computations on which this table is based, see *A Dollar Index of Soviet Iron and Steel Output*, appendix 11, and *A Dollar Index of Soviet Electric Power Output*.

both for the incomplete coverage of machinery output and double counting as described in the preceding paragraphs.

The annual average rates of growth which are implied in Tables 7 and 8 are shown in Table 9.

Table 9. Average annual rates of growth in Soviet heavy industry, 1928/29 to 1937

Machinery	Iron and steel	Coal	Petroleum products	Electric power	Total
18.9	18.5	14.6	11.7	22.8	17.8

The rate of growth of total heavy industry output based on unadjusted figures (Tables 3 and 4) amounted to 17.5 percent; the rate of growth of total heavy industry output based on partially adjusted figures (Tables 5 and 6) amounted to 18.4 percent. Thus the adjustments do not radically affect the order of magnitude of the rate of growth. This is so partly because the two adjustments tend to offset each other. As far as it goes, this is a comforting result from the point of view of an index study based on gross values of output.

IV

The five industries discussed stood at the very center of the Soviet industrialization effort to the relative neglect of all or nearly all other branches of the Soviet economy. Consumer-goods industries, agriculture, railroads, housing — all were the stepchildren of Soviet economic policies. Their output at best was maintained and allowed to grow only to an extent compatible with, or required by, the inter-

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ests of the favorite children. Even so, few would deny that an annual average rate of growth of nearly 18 percent sustained over a period of nine years must be considered very high indeed. This seems to be the first conclusion that emerges from the aggregation of the five indices.

On the other hand, it would seem equally clear that the official Soviet index grossly exaggerated the course of actual attainments. It is true that comparisons are not easy. Values of output in rubles for the terminal year of the index period (1937) are scarce. Still, with a good deal of estimation, it has been possible to obtain roughly comparable figures for three of the five industries studied: machinery, iron and steel, and electric power. The results of the comparison are summarized in Tables 10, 11, and 12.

Table 10. Output of machinery, iron and steel, and electric power, 1928/29 and 1937
(in millions of 1926/27 rubles)

Year	Machinery	Iron and steel	Electric power	Total
1928/29	2,412	901	243	3,556
1937	25,473	3,750	1,800	31,023

Note: Machinery. Data on output in 1928/29 and 1937 at 1926/27 ruble prices are available for large-scale industry only. In order to obtain data for "all industry" the figure for the earlier year (2,193 million rubles) has been increased by 10 percent, and the figure for the later year (24,260 million rubles) has been increased by 5 percent.

Power. The 1928/29 figure for the value of output at 1926/27 rubles has been obtained by adding 25 percent of the figure for 1928 (181 million rubles) to 75 percent of the figure for 1929 (263 million rubles); the 1937 figure for the value of output at 1926/27 rubles has been interpolated between the values of output in 1936 (1,485.3 million rubles) and 1938 (2,262 million rubles).

Steel. The figure for the value of output in 1937 at 1926/27 rubles has been interpolated between the values of output in 1936 (3,482 million rubles) and 1938 (4,023 million rubles).

Table 11. Output of machinery, iron and steel, and electric power, 1928/29 and 1937
(in millions of 1939 dollars)

Year	Machinery	Iron and steel	Electric power	Total
1928/29	286	197	85	568
1937	1,138	768	441	2,347

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Table 12. Dollar and ruble indices of output of machinery, iron, steel, and electric power, 1928/29 and 1937
(weighted with 1926/27 rubles (R) and 1939 dollars (\$))

Year	Machinery		Iron and steel		Electric power		Total	
	R	\$	R	\$	R	\$	R	\$
1928/29	100	100	100	100	100	100	100	100
1937	1056	398	416	389	740	519	872	413

The corresponding dollar figures as extracted from Table 7 above are given in Table 11. Put in index form, the two preceding tables (10 and 11) are compared in Table 12. A comparison of the rates of growth implied in Table 12 follows in Table 13.

Table 13. Average annual rates of growth of output of machinery, iron and steel, and electric power, Soviet index and dollar index, 1928/29 to 1937

Index	Machinery	Iron and steel	Electric Power	Total
Soviet	34.0	19.5	28.5	31.0
Dollar	18.9	18.5	22.8	19.0

The differences are striking indeed. Over a period of just nine years, the Soviet index has reached a point more than twice as high as that shown by the dollar index (Table 12). The crux, of course, is the evaluation of machinery output. The share of machinery output in the total output of the three industries is altogether different in the two computations. In 1937, the value of machinery output in rubles constituted 82 percent of the three-industry total. The corresponding figure for the dollar values is 48 percent. The exorbitant weight of machinery in the Soviet index is primarily responsible for the rate of growth of 31 percent per year shown by that index. Since it was in the machinery industry that the "new" commodities were concentrated, this stupendous rate of growth must be regarded essentially as the result of price inflation, which was allowed to affect large portions of the index.

The comparison of the two indices, however, must not be pushed too far. With regard to such a comparison — and far beyond it — no useful purpose can be served in disregarding the index-number

problem implicit in the use of varying weights. Up to a point, the index-number problem is not dissimilar to problems encountered in descriptive geometry. In either case, the attempt is to define an object by its projection; in either case, the result varies with the direction of the projection or the position of the observer. What is seen as a square in one perspective appears as a triangle in another. Index numbers of output are essentially projections of changes in physical quantities against the screens of weights. Beyond this, however, the geometric analogy fails. Unlike the case in geometry, the individual projections cannot be meaningfully combined to reveal the "true" shape of the object of study. Nor can we walk around the pyramid of output and measure its base and sides directly. This is so because the *aggregation* of output has no independent existence except in terms of the *individual* projections. Moreover, we are not even free to erect our own screens wherever we please. We must take them as we find them, even though we may be able to choose among those we find.

Translated into more concrete terms and applied to the problem at hand, this means that in using American prices as weights a specific basic question is raised. Assuming constant cost in the sense that differences in the size of output of individual commodities as between Russia and the United States would not have affected the structure of relative prices in the United States, what would have been the aggregate value of output in five important branches of Soviet heavy industry if the commodities concerned had been produced not in Russia but in the United States in 1939? What has been called in the preceding pages "value of Soviet output in U.S. dollars of 1939 purchasing power" is an answer to that specific question and must be judged solely in its terms.

But what is the presumable effect of projecting the output of a relatively backward country across a continent and an ocean upon a screen erected in the economically most advanced country in the world? To repeat briefly what has been said at some length elsewhere,¹² the effect is likely to be a rate of growth *lower* than that resulting from the use of indigenous weights of the backward country. Industrialization may be defined as a process of changing scarcity relations. The quantity of highly fabricated goods is likely to increase

¹² Gerschenkron, *A Dollar Index of Soviet Machinery Output*.

more rapidly than that of goods of low fabrication, and the former tend continually to become cheaper in terms of the latter. This implies that, in using the weights of a less advanced country, a relatively high weight is imputed to the more rapidly expanding component of total output. Conversely, using the weights of a more advanced country means imputing a relatively low weight to the more rapidly expanding component of total output.

An attempt was made in the study on machinery output to test this hypothesis by gauging the effect of varying weights in U.S. machinery output over a considerable period of time. This was done on the assumption that the spatial aspect of the index-number problem was akin to its temporal aspect. The result of pricing selected portions of the American machinery output alternatively at prices of the years 1899 and 1939, 1899 and 1923, 1909 and 1939, and 1909 and 1923 revealed a very consistent pattern: at all times the *higher* rates of growth were associated with the use of weights pertaining to *earlier* periods of industrialization. In addition, the magnitude of the differentials was surprisingly high. Thus, the index of output in 1923 of American machinery (selected items) weighted by prices of 1909 was no less than 2.3 times higher than the index of output of the same items weighted by prices of 1923. The corresponding figure for the years 1899 and 1923 was 3.6. The comparison of 1909 and 1939 yielded a coefficient of 3.8. Finally, when American machinery output in 1899 and 1939—the forty-year period—was alternatively weighted by prices of the two years, the index weighted by prices of 1899 stood in 1939 at a point 7.8 times higher than the index over the same period weighted by prices of 1939.

The size of these differentials makes it quite impossible to shrug off the index-number problem as is so often done. It must be assumed that to some extent the differences between the official Soviet index and the dollar index are due in part to a choice of weights that reflect very different stages of economic development in the two countries and not simply to the upward bias inherent in the Soviet index. If we assume a continuous development, the size of the differentials due to varying weights is a function of both the length of the index period and the rate of growth achieved during its course. Although a period of nine years is relatively short, the high rates of growth during

those years must have led to a considerable discrepancy between the two indices.

On the other hand, however, it must be mentioned that the actual seat of such differentials in periods of modern industrialization tends to be confined to the machinery industry in the broad sense of the word. Scott's study showed that in the United States temporal changes in weighting systems did not at all affect indices of output of a wide range of industrial consumer goods (other than automobiles).¹³ Perhaps more important in the present connection is the fact that a similar study undertaken for the indices of petroleum products in the United States over the period 1899 to 1939 (and three sub-periods) revealed but trifling differentials resulting from the use of varying weights.¹⁴ The introduction of the cracking process radically changed the composition of the industry's output, and yet the use of different weights did not affect the index in any perceptible way. It is not likely that coal, iron and steel, or electric-power indices would react violently to changes in weights. The conclusion we may draw is that such index-number effect as is undoubtedly present in the dollar index of Soviet heavy industry is essentially confined to its machinery component and must appear rather diffused in the aggregation of the five indices.

This, however, is far from being an unambiguous answer. It is impossible to state clearly to what extent the differences between the Soviet and the dollar indices are due to the inadequacies of Russian statistical methods and to what extent they are due to disparate weights. It would seem more useful to consider the dollar index as something *sui generis*, as one special way of measuring Soviet output. Even when so regarded, the dollar index has obvious shortcomings. The number of arbitrary decisions and of estimates of widely varying degrees of reliability is undoubtedly considerable. The choice of prices has not always been a happy one. No one can realize these deficiencies better than the writer himself, and the reader of the underlying studies will find them unconcealed.

But, at the same time, the merits of the dollar index ought not to be overlooked. The distinguishing characteristic of the dollar index

¹³ Ira O. Scott, Jr., "The Gerschenkron Hypothesis of Index Number Bias," *Review of Economics and Statistics*, XXXIV (November 1952), 386-387.

¹⁴ See *A Dollar Index of Soviet Petroleum Output*.

is that a serious and sustained effort has been made to obtain appropriate dollar prices for a long list of machinery items and for all — or nearly all — the products of the four other industries and that painstaking adjustments have been made in order to match the Soviet product with its American counterpart. While there is nothing sensational about the methods used, the formidable amount of detailed work that went into the preparation of the index may justify some claim to novelty. And it may be added that the mass of specific information assembled may prove usable for purposes other than the one directly pursued. In particular, these materials are likely to be, and to some extent already have been, of some service in comparative studies of the productivity of Soviet labor. The comprehensive tabulations of output in physical terms are likely to stand on their own feet in any case.

Finally, the work on the dollar index may provide some stimulus to research transcending the narrow field of the Soviet economy, particularly for the much neglected empirical study of the index-number problem. What is needed is a better understanding of the behavior of output indices in different historical situations. It may throw light on some important problems of economic development: the changes in relative price structure, the type and role of the dominant industry at various stages of economic progress, and particularly the time-space relationship, that is, the relationship between the economic process over time in one area and the economic *situation* at a given moment in different areas. The bland assumption made about this problem in the foregoing pages and in the underlying studies can bear further investigation. The assumed affinity between the temporal and spatial aspects of the index-number problem implies that backward countries follow in their development the course charted by the more advanced countries. This is only a half truth at best. It is but halfheartedly asserted here because it is certainly at variance with this writer's general approach to modern industrial history where attention is focused upon diversity rather than similarities in the processes of economic development in individual countries. Thus, further study of the index-number problem may prove to be of considerable importance for a better grasp of the problem of industrialization under diverse conditions and at varying levels of economic backwardness.

Notes on the Rate of Industrial Growth in Soviet Russia

THE speed at which industrial output increases is an essential characteristic in the process of industrialization because it appears to be correlated — positively or negatively, as the case may be — with a number of other important economic elements of that process. It offers a natural avenue of approach to the understanding of Soviet economic history. It is obvious, furthermore, that the rate of industrial growth in Soviet Russia is, at the same time, a burning political problem. Within and without the country, it is presented not only as a measure of Soviet economic attainments, but also as a gauge of the Soviet power position in a bipolar world.¹ It should be in order therefore to review briefly the relevant statistical data and the main accelerating and decelerating factors whose play and interplay has determined the rate of industrial growth in the past and is likely to continue to do so in the future.

I

Table 1 shows the index of industrial output between 1928 and 1960 as given in recent Soviet statistics. The rates of growth implied

¹ It is another matter that after the Twenty-second Congress of the Communist Party in Moscow (1961) the transformation of a bipolar world into a "tripolar" world begins to look like a practical possibility. The reference, of course, is *not* to the so-called uncommitted nations.

THE RATE OF INDUSTRIAL GROWTH IN SOVIET RUSSIA

Table 1. An official index of Soviet industrial output, 1928-1960

Year	All industry	Producers' goods	Consumers' goods
1928	84	76	88
1929	100	100	100
1932	169	212	136
1937	353	507	272
1939	483	677	338
1940	539	777	363
1946	413	641	244
1947	503	783	296
1948	634	1,010	358
1949	761	1,265	388
1950	934	1,592	447
1951	1,087	1,857	519
1952	1,213	2,083	573
1953	1,356	2,323	644
1954	1,537	2,639	727
1955	1,727	3,027	787
1956	1,910	3,369	861
1957	2,101	3,739	931
1958	2,317	4,166	1,006
1959	2,582	4,675	1,105
1960	2,848	5,150	1,168

Source: *Narodnoye khozyaystvo SSSR v 1960 godu, Statisticheskii yezhegodnik* (The Economy of the USSR, A Statistical Yearbook) (Moscow, 1961), p. 219. Base year changed to 1929.

in Table 1 are shown in Table 2 for four significant subperiods of the time span 1928-1960.

Table 2. Average annual rates of growth of Soviet industrial output, 1928-1960

Period	All industry	Producers' goods	Consumers' goods
1928-1940	18.41	23.53	13.76
1946-1950	22.61	25.49	16.31
1950-1955	13.06	13.19	11.97
1955-1960	10.52	11.72	8.22

Note: the rates have been computed from data in Table 1 on the assumption of an even geometric growth between the initial and terminal years of the periods concerned.

The figures in Table 2 seem to tell a clear and simple story: the war years apart, 1950 appears to have been the great dividing line,

marking the beginning of a very considerable slowing down in the speed of Soviet industrialization. This conclusion may seem obvious, but it must not be drawn. For, as has often been explained,² the official Soviet index of industrial output before 1951 contained a strong upward bias, because a large and steadily growing part of that output was valued not at allegedly "constant 1926-27 prices," but at the inappropriately high current prices. It is true, of course, that any rapid economic change, involving aggregations, creates difficult problems of measurement. But in Russia those difficulties were compounded by the stubborn use—and shameless exploitation for propaganda purposes—of an altogether untrue yardstick. It was only in 1951, almost a quarter of a century after its initiation, that the index was finally abandoned. Even then its fatal shortcomings remained unadmitted in Soviet Russia, except for an uncommented-upon small downward adjustment of the index for the thirties. The index number for 1939 (with 1929 equal to 100) used to stand at 552;³ now, as can be seen from Table 1, it has been reduced to 483, which implies a diminution in the claimed average annual rate of growth for the period by about 1.5 percent.⁴

The new official index was uniformly based on prices which were in effect on January 1, 1952, and were wholesale prices, f.o.b. factory and net of turnover tax. The exclusion from the prices of the tax, imposed on consumers' goods, was natural because otherwise the weight of those goods in total output would have been greatly increased. This in turn would have caused a relative understatement of the rate of growth in the years to come. At the same time, quite reasonable provisions were made for valuation and subsequent readjustment of new commodities for which no 1952 prices were available, as well as for new shifts of the weighting year to be carried out at later

² See Chapter 9 of this volume.

³ See, for example, Malenkov's speech at the Nineteenth Congress: G. M. Malenkov, "Otchetny Doklad XIX s'ezdu Partii o rabote Tsentral'nogo Komiteta VKP (b)" (Report to the Nineteenth Party Congress Concerning the Work of the Central Committee of the All-Union Communist Party), *Bol'shevik* no. 19 (October 1952), p. 6.

⁴ The change was carried out sometime in the second half of the 1950s. See *Promyshlennost' SSSR, Statisticheskii sbornik* (The Industry of the USSR, Collected Statistics) (Moscow, 1957), p. 9.

dates.⁵ In fact, after the index was based on the 1952 prices during the years 1951-1955, it was again revised, the prices of July 1, 1955, being used as weights for the years 1956 to date.⁶

There is little doubt that the new index is a great improvement. It is free from the hybrid elements which had vitiated its predecessor. To be sure, many a problem still remains. There is the perennial question as to the meaningfulness of the Soviet price system and consequently of any measure that is built upon it.⁷ No fully satisfactory answer to that question is possible. But it may be said that it is the Soviet index itself and the broadly predictable way in which it reacts to changes in weights that offers some assurance: the index does seem to reflect the specific changes in scarcity relations which are engendered by industrialization.

On the other hand, it must be said that the new index does not respond much better than did the old one to certain tests of internal consistency. The Soviet statistics now provide data on the share of producers' goods and consumers' goods in total output. It is interesting to confront those data with the shares of the two groups as they can be calculated from the index data in Table 1 by constructing an equation with two unknowns.⁸ This is done in Table 3 for a number of selected years.

Except for 1940, the discrepancies are considerable and, if anything, they are larger for the new index than for the old one. While there is a large number of conceivable causes for the discrepancy,⁹ the most likely seems to be that the index series for consumers' goods has been tampered with in order to indicate a rise in output faster than what actually occurred. This is suggested by the constant direction of

⁵ For a description of the new index, see S. Genin, "Ob otsenke valovoy produktsii v sopostavimyykh optovykh tsenakh" (On Valuation of Gross Output at Comparable Wholesale Prices), *Vestnik statistiki*, no. 2 (1952), pp. 31f.

⁶ See *Narodnoye khozyaystvo*, 1960, p. 877.

⁷ This is one of the reasons for which construction of an index based on dollar prices was undertaken. See Chapter 9 of this volume.

⁸ To give an example, the index numbers for 1955 (1950 = 100) were as follows: all industry = 185; producers' goods (A) = 190; consumers' goods (B) = 176. Hence: $190A + 176B = 185(A + B)$ and $B(1950) = 5/9 A$.

⁹ It should be noted, however, that a change in the weighting system, such as occurred in 1956, in all likelihood has nothing to do with the discrepancy as is evidenced by the respective 1955/1952 and 1959/1956 comparisons.

ECONOMIC BACKWARDNESS IN HISTORICAL PERSPECTIVE

Table 3. Percentage share of producers' and consumers' goods in total industrial output

Year	Total industry	Producers' goods		Consumers' goods	
		as given	as computed	as given	as computed
1928 (computed vs. 1932)	100.0	39.5	32.0	60.5	68.0
1932 (computed vs. 1940)	100.0	53.4	52.0	46.6	48.0
1940 (computed vs. 1950)	100.0	61.2	61.7	38.8	38.2
1950 (computed vs. 1955)	100.0	68.8	64.3	31.2	35.7
1952 (computed vs. 1955)	100.0	69.2	63.7	30.8	36.3
1956 (computed vs. 1959)	100.0	70.8	65.7	29.2	34.2

Note: for data on percentage shares, see *Narodnoye khozyaystvo*, 1960, p. 224.

the discrepancy and is quite plausible in terms of Soviet propagandistic ambitions.

Moreover, the new index is still based on simple aggregations of values of product of the individual industrial enterprises. As a result, the index is affected by changes in the enterprise structure of the economy which are irrelevant for the task of measurement of output. In addition, the fact that outputs of earlier stages of production are counted several times over will influence the rate of growth, except in the historically quite unlikely case of even growth of output at all stages of production. If one assumes that in the advanced process of industrialization the value of output of finished goods grows faster than that of intermediate goods, then a gross index of the Soviet type will show a *lower* rate of growth as compared with an index based on value added of output — provided, however, that due care has been taken in constructing the latter index to make proper allowance for the increase over time in the share of value added in total output.¹⁰

¹⁰ If such an allowance was not made, as is unfortunately true of most of our indices of output in which quantity relatives are weighted with *constant* amounts of value added, then a gross index of the Soviet type in all likelihood will show a *higher* rate of growth as compared with a net value index.

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Finally, there is the problem of the effects upon the reliability of Soviet statistics of the decentralization of industrial organization.¹¹ It is most likely that after 1957 the ability of the central authorities to secure trustworthy data on industrial output and related matters has been diminished to some extent. It is a moot question whether as a result an upward or downward bias has been imparted to the data,¹² even though on balance an overstatement would seem more probable.

Thus, for a number of reasons, even the new index is far from being an ideal measure of industrial growth. Still, this writer feels that insofar as total output is concerned (as distinguished from the subgroups) the new index can be taken as a fair picture of the changes in the volume of output. This conclusion would seem reinforced by comparisons of the index of industrial output with the changes in output of a number of basic industrial commodities, taking into account the fact that in the present stage of Soviet economic development aggregate output may be expected to develop faster than its basic components.¹³

By contrast, it is clear that the old pre-1951 official index of industrial output cannot be accepted at all. Fortunately, there is no need to do so. Thanks to the work of American scholars over the past fifteen years or so, there is now available a number of independent constructions of Soviet industrial output in the 1930s. For the purposes at hand, it should be sufficient to select those of Jasny and Hodgman. Jasny comes to the conclusion that the average annual rate of change of Soviet industrial output between 1928 and 1937 amounted to about 12.5 percent. Hodgman's careful and significant computations result

¹¹ See Chapter 11 of this volume.

¹² See Alexander Gerschenkron, "Reliability of Soviet Industrial and National Income Statistics," *The American Statistician*, VII, no. 2.

¹³ Thus, for example, for 1950-1955 the average annual rates of growth (in percent) would compare as follows:

Total industrial output	13.1
Pig iron	12.0
Steel	10.1
Coal	7.4
Oil	12.9
Electric power	12.5

Computed from Table 1 above; Economic Commission for Europe, *Economic Survey of Europe in 1951*, pp. 52-53; *Narodnoye khozyaystvo*, 1960, p. 235.

in a figure that is one or two percentage points higher. On the other hand, the computations of Kaplan and Moorsteen yield for the same period a lower rate of growth of only 10.6 percent.¹⁴ It would seem on the whole that one cannot go far wrong in assuming that over a large part of the thirties the rate of increase of industrial output was somewhere in the vicinity of 12 to 13 percent per year. With the help of this conclusion, one can proceed now to a discussion of some of the problems inherent in a comparison of the rate of industrial growth in Russia in the 1930s and the 1950s.

II

On the basis of the old (and unadjusted) official index, the Soviet government claimed an average annual rate of growth of some 19 percent. Those claims did not stand up under investigation. There is no doubt, however, that an annual increase of some 12 to 13 percent, maintained for a considerable number of years, must be regarded as a very unusual achievement. Whether previous history of Russia herself is taken as a *tertium comparationis*, or whether one has recourse to the industrial history of other countries, similar speeds in the growth of industrial output for any significant period are not easily discovered.

The record-breaking result was achieved because a ruthless dictatorial government succeeded in placing the Russian peasants, then the great majority of the Russian people, into the strait jacket of collective farms. Once this was done, it became possible (1) to obtain agricultural produce for the growing population of the cities at a minimum of *quid pro quo* in terms of industrial consumers' goods while at the same time enforcing the transfer of large numbers of peasants to urban occupations; and (2) to dedicate all efforts to the goal of rapid growth of heavy industry, undeterred by the resulting formidable pressures upon the standard of living of the population.

Such no doubt was the quintessence of Soviet economic policies from the end of the 1920s until the German invasion of Russia in

¹⁴ N. Jasny, *The Soviet Economy during the Plan Era* (Stanford, 1954), p. 22; Donald Hodgman, *Soviet Industrial Production, 1928-1951* (Cambridge, Mass., 1954); N. M. Kaplan and R. Moorsteen, "An Index of Soviet Industrial Output," *American Economic Review*, no. 3 (1960), p. 301.

1941. As the Second World War was drawing to its close, there was a good deal of speculation in the United States and elsewhere in the world regarding the shape of Russia's postwar economic policies. It may be instructive to review some of the thoughts expressed in those days, to restate the conclusion reached, and to compare it with the actual course of the development.

The problem at issue was twofold: first, whether, after the war, Russia would resume its prewar policies and, second, whether comparably high rates of growth would be achieved.¹⁵ For some time there was hesitation to answer the first question in the affirmative. The possibility could not be excluded that, with the danger of German aggression gone, Russia might settle down to a policy of favoring rapid improvements in standards of living with concomitant substantial increases in the volume of its international trade.¹⁶ The minds of those who entertained such ideas were, however, soon disabused. When Stalin, in February 1946, introduced the Fourth Five Year Plan, it became clear that the commitment to the policy of rapid industrialization with the implied priorities to heavy industry was to continue unabated.

But the second question still remained. Granting the Russian government's willingness to return to the status quo — or rather to the *motio quo ante bellum* — it was still not clear that it would have the ability to do so. In other words, comparing the period of the thirties with the prospective postwar period, could one assume that the forces favoring the high rate of growth in the earlier period would still be at work, their vigor and effectiveness unreduced? As one considered one after the other some of the relevant factors, it seemed difficult to answer the question in the affirmative.

First of all, there was the *technological* factor. In those pre-Sputnik days there was a certain tendency to infer from the existence of a dictatorial system the impossibility of any independent technological inventiveness in Soviet Russia. Syllogistic exercises of this sort were no less absurd than is the post-Sputnik belief in the absolute

¹⁵ It may be noted that by the middle of the 1940s the deficiencies of the Soviet index of industrial output had become clear, but the extent of the upward bias was somewhat underrated.

¹⁶ See Alexander Gerschenkron, *Economic Relations with the U.S.S.R.* (New York, 1945).

superiority of Russian technology. But even those who fully accepted for Soviet Russia the historical lesson that in any industrializing country the imitative technology gradually merges with, and finally gives way to, autochthonous innovations felt that the specific advantages which Russia had enjoyed in the years before 1941 could not be expected to recur after the war. Indeed, the situation prevailing in the thirties when numerous new industries were being created and equipped with the latest Western technology had been a unique phenomenon. It could not be reproduced even if Soviet hostility to the West had not impaired Soviet access to Western technology. It seemed clear that technology must be put down as a retarding factor, making, that is, for conditions that were less favorable than had been the case before the war.

Second, one had to consider the contingency of *diminishing returns* in certain basic industries. When engaged in general theorizing, Soviet economists like to view diminishing returns as a malicious bourgeois invention. The concept in every form is at variance with the Soviet ethos of continuous economic development. Nevertheless, the Soviets did not hesitate to attack oversized plants under the label of "gigantomania." Nor have they been unwilling in concrete cases to discuss problems of depletion and deterioration of natural resources, such as the diminution of the iron content of iron ores.¹⁷ Production of basic industrial materials being a relatively small and declining portion of the total industrial establishment, the aggregate effect of diminishing returns in those branches could not be expected to bulk very large. Still, higher cost of extraction, investment in enrichment plants, the cost of operating those plants, and similar outlays meant that some resources otherwise available for the expansion of output would have to be used for maintaining previously reached levels of output. Again, it was clear that also in this respect the situation would be less favorable than in the thirties.

Third, one had to consider the impact of *investments in other than industrial branches* of the economy. Just as the Soviet government in the thirties derived great benefits from borrowing technology from abroad, it also enjoyed the advantage of having inherited from

¹⁷ I. P. Bardin and N. P. Banny, *Chernaya metallurgiya v novoy pyatiletke* (Ferrous Metals in the New Five Year Plan) (Moscow, 1947), pp. 36, 53.

the prerevolutionary period considerable unutilized capacities in capital-intensive areas, such as railroads and housing. This meant that in the thirties less capital had to be invested in railroad lines and urban housing. But those advantages were exhausted by the end of the period. In particular, the crowding of the urban population into narrow "living space" had reached an absolute maximum, which was hardly compatible with proper health standards, to say nothing of human dignity and elementary comforts. Even in the absence of war destruction, capital needs for housing would have competed effectively with the claims of the expanding industry; and the same was true of the demand for capital on the part of transportation enterprises. It was difficult not to conclude that in time a smaller share of total net investment would be available for placement in industry and that thereby the prospects for industrial growth would be further limited.

Finally, along with the problem of capital availabilities, there was that of *labor supply*. Again, the end of the twenties and the thirties was an exceptional period in this respect. During the First Five Year Plan (1928-1932) the annual movement of labor into heavy industry amounted to no less than 20 percent. The rate of growth of the total industrial labor force in the Second Five Year Plan (1933-1937) amounted to 4.8 percent per year, the heavy industry doubtless showing a somewhat higher rate. The comparable rate of growth for the labor force in all industry during the Third Five Year Plan (1938-1942) was scheduled to amount to 3.3 percent.¹⁸ Thus considerable reduction in the flow of labor to industry had taken place in the thirties. But the average annual increase between 1928 and 1940 amounted to about 10 percent, and there could be no doubt that the initial powerful injection of manpower into industry influenced the character of the whole period. It seemed extremely unlikely that any similar accretions to the labor force could be expected after the war

¹⁸ The rates of increase of labor force have been computed from the following sources: *Sotsialisticheskoye stroitel'stvo, Statisticheskii yezhegodnik* (Socialist Construction, A Statistical Yearbook) (Moscow, 1936), p. 508; *Sotsialisticheskoye stroitel'stvo Soyuzu SSR* (Socialist Construction of the USSR), 1933-1938 (Moscow-Leningrad, 1939), p. 138; Gosplan SSSR, *Treti pyatiletni plan razvitiya narodnogo khozyaystva Soyuzu SSR* (The Third Five Year Plan of the USSR), 1938-1942 (Moscow, 1939), p. 199.

because thenceforth for any man taken out of agriculture some mechanical substitution had to be provided; while for any man brought into urban industry an increased accommodating investment in housing and in some municipal services was necessary. It was felt therefore that after the war the flow of labor to industry would not be very much in excess of the natural increase of population of the appropriate age groups.

It was clear at all times that the four factors discussed in the preceding pages did not tell the whole story. Along with the decelerating forces, forces working in the opposite direction could be discerned. Yet the aggregate effect of the "retarding block" seemed to be so overwhelming as to justify the prediction that the rate of industrial growth in Russia would decline very considerably after the war.

As we know now, that prediction has not been borne out by the facts. To be sure, it was not meant to apply to the years of reconstruction after the war. Very high rates naturally could be expected then. But a rate of 12 or even 13 percent for the first half of the 1950s is clearly at variance with the prediction: referring once more to the calculations of Hodgman and Jasny, one must conclude that the level of the Soviet rate of industrial growth experienced no change at all between the thirties and the first half of the fifties. It is true that the rate was somewhat lower in the second half of that decade. Considering, however, that the reorganization of industry fell into the later period and that the Sixth Five Year Plan was abandoned in favor of the Seven Year Plan, no long-term factors need be called upon to explain the decline. At any rate, it is fair to say that if this writer had been asked, in 1945 or 1946, to guess the rate of industrial growth in Russia in the last years of the century's sixth decade, he almost certainly would have named a figure considerably below the 10.5 percent that was actually attained.

III

Why did the prediction fail to materialize? It is likely that only part of the fault lay in the selection or overestimation of the retarding factors. Thus the increases in the numbers of industrial manpower were far from negligible and were significantly in excess of the rate of growth of population. But even the high average rate of growth

of the industrial labor force of 5.4 percent per year which was registered between 1955 and 1960¹⁹ remained almost 50 percent below the average level of the thirties. A serious study of the economic aspects of Soviet technology is still searching for its author or authors, but it is very plausible to assume that the technological progress of the fifties did not rival that of the thirties. Nor had it been wrong to assume that investment in railroads or housing would deflect capital from industry, although it is probably true that for some time and to some extent investment in housing was increased at the expense of other investments in the municipal budgets. It is more reasonable to assume that much more weight should have been attributed to accelerating factors of which at least two deserve to be mentioned here.

First, it was obviously insufficient to consider prospective changes in the quantity of labor without paying proper attention to changes in its *quality*. The masses of laborers who in the thirties were transferred from the farms to the factories were either used as unskilled labor and occupied in multifarious auxiliary operations or else they were given a brief training designed to enable them to perform certain recurring operations on a given machine without providing any broader instruction. The result was a force of specialists in a distressingly narrow sense of the word. In particular, the individual worker's inability to understand his machine and to take care of simple repairs no doubt was responsible for many a hitch and snag in Soviet factories of which the thirties offer such a rich record.

In the second half of the forties, the Soviet government made a sustained effort to remedy the situation. In fact, the first steps were taken before the war, in the fall of 1940, when a compulsory "labor reserve" was established designed to equip Soviet youth with the rudiments of technical training through attendance of special schools and apprenticeship in factories. After the war the system of labor reserves was reinforced by adoption of special measures for professional training of young workers on the job and most notably for increasing the skills of the older members of the labor force. Under the provisions of the Fourth Five Year Plan no less than 13.9 million workers were supposed to benefit from such additional training.²⁰ The

¹⁹ Computed from *Narodnoye khozyaystvo*, 1960, p. 217.

²⁰ G. R. Barker, "Soviet Labor," *Bulletins on Soviet Economic Development* (Birmingham, June 1951), p. 16.

deliberate purpose was to impart to the Russian industrial laborer some general technical education and to make him more mechanically minded. The program was pushed with great energy and appears to have provoked a good deal of resistance, some traces of which even penetrated into Soviet belles-lettres.²¹ The old workers seem to have stressed the dangers of raising a generation of jacks of all trades and masters of none. But the protests remained unheeded, and there can be little doubt that the program of retraining had a considerable positive impact upon the nature of the Soviet labor force. In particular, it greatly increased its flexibility and adaptability to new conditions. It must be considered to have had a major accelerating effect upon the rate of industrial growth. Naturally, the quality of the labor force will continue rising in the future. But the big discontinuous leap ahead implied in the delayed retraining of millions must remain a once-over affair.

The other accelerating factor is likely to be of even greater importance. Growth of output at all times creates the problem of the utilization of the increments of goods produced. Roughly speaking, those goods can be either consumed or invested — the investment being either unproductive, such as stock piling, or productive, such as machinery in plants. If the rates of consumption and investment in national income remain constant over time, the increment will be always divided in the same proportion. It is possible, however, to pursue a different policy. One could, for instance, try to keep the consumption per capita of the population constant and devote the rest of the increment to investment. To give an arbitrary example, let us assume that Soviet national income increased at, say, 6 percent per year, while the annual rate of growth of population amounted to 1.5 percent and the rate of consumption and investment to 80 and 20 percent per year respectively. It would be possible then at the end of the first year to take out one fifth (1.2) of the increment ($80 \times 1.015 = 81.2$) in order to safeguard the consumption of the current additions to the population, while the rest of 4.8 percent ($6 - 1.2$) would be added to investment, the rate of which would thereby increase from 20 to almost 23.5 percent: $[(20 + 4.8) / 106] \times 100 = 23.5$. Such a policy could be continued year in, year out.

²¹ See, for example, the novel by Vera Ketlinskaya, "Dni nashey zhizni" (The Days of Our Life), *Znamya*, no. 5 (1952), p. 82.

A simple arithmetic illustration does not purport to reproduce complex historical reality. Still, if one looks at Soviet economic history since the initiation of the five-year plans until, say, the middle of the fifties, it would be difficult to deny that an increase in the *rate* of investment and a corresponding decrease in the *rate* of consumption constituted perhaps the most significant feature of the period under review. This meant, however, that a good many relative disabilities of the Soviet economy, such as were described earlier, could be compensated for by the increased availabilities of capital, large portions of which, despite the increase in military expenditures, were devoted to productive investment. This policy provides perhaps the most important explanation for the Soviet success in keeping the rate of industrial growth after the war at a level altogether comparable to that of the thirties.

IV

But what about the immediate past and what about the future? As has been shown here, the record of former predictions is not particularly encouraging. Still, remembering Cournot's observation that the function of prediction is not to foretell the future, but rather to cast a sharper light upon the present,²² a few general remarks may be ventured.

It would seem to follow from the discussion in the preceding pages that the continuous increase in the rate of investment is of crucial importance in maintaining a high rate of industrial growth. It should be clear that within the Soviet institutional framework there is no *economic* reason why the policy of a rising rate of investment could not be pursued ad infinitum, despite the phantasmagoric results such a policy would produce in the end. The Soviet economy could go on turning out steel in order to produce machinery with which to produce more steel in order to produce still more machinery; the economic reality offers, of course, a large variety of possible circuits. It should be remembered that by the early fifties industrial output in Russia may have increased sixfold since 1928, while wages still lagged miserably behind the level of 1928. That was the very essence of Stalin's policy of industrialization. It is noteworthy that Soviet leaders still proclaim, and Soviet economists still write books to assert,

²² A. Cournot, *Souvenirs, 1760-1860* (Paris, 1913), p. 251.

the existence of a "law of economic development" according to which economic growth is said to be impossible unless output of producers' goods grows faster than output of consumers' goods.²³

Taken as analytical propositions, assertions of this sort are of course nonsensical. Because of technological progress that can be introduced into the processes of replacement of worn-out machinery, a zero rate, or even a negative rate, of net investment can be perfectly compatible with economic growth, quite apart from the fact that positive growth rates are also a function of increased labor skills and of other factors which have little to do with the supply of investment goods.

Yet analytical absurdities can make very good political sense. For there is an intimate connection between the totalitarian dictatorship in Russia and an economic policy of investment for the sake of investment. It is a truism that a policy of high and rising investment rates could not be pursued in Russia unless by a ruthless and all-powerful dictatorship. But the obverse may also be true: such a policy provides a dictatorial government with a social function and a justification for its existence. It satisfies well its specific needs for dynamism. At the same time, a policy of rapid increases in the levels of consumption may, in the short run, bridge the political difficulties, but in the long run it is likely to create troublesome problems. Plentiful supplies of consumers' goods produce a climate of relaxation among the populace which is not congenial to dictatorships. Once the stress and strain have been reduced, the problem of political liberty is almost bound to arise.

Russia has traveled a good deal since the year of Stalin's death. Caught in the throes of a prolonged succession crisis, the government accorded not inconsiderable increases in the supplies of consumers' goods. The rates of growth of industrial producers' and consumers' goods do not appear any longer to be separated by a very wide margin. And yet the average rate of industrial growth which Khrushchev has envisaged for the decade of the sixties is — at 10.2 percent per year — only negligibly below the 1955–1960 rate of 10.5 percent.²⁴ It

²³ A. I. Pashkov, *Ekonomicheskii zakon preimushchestvennogo rosta proizvodstva i sredstvo proizvodstva* (The Economic Law Concerning the Faster Growth of Output of Producers' Goods) (Moscow, 1958).

²⁴ See *Pravda*, October 19, 1961, p. 3.

is true that for the decade of the seventies a lower average rate of 9.2 percent per year is projected, which may mean that the Soviet government is not unaware of the existence of the retarding factors. But the decade of the seventies is still too far off and no one will believe in the precision of a twenty-year projection. As far as the foreseeable future goes, the Soviet government is not prepared to acquiesce in any real retardation of the country's industrial growth. It is, therefore, not surprising that Khrushchev, in his speech to the Twenty-second Congress, declared that heavy industry would retain its leading position in the country's economic development.²⁵ The rate of growth of producer-goods output continues to exceed that of consumer-goods output. True, the differential between the two rates has become small, but, as has been mentioned before, it is a moot question to what extent the index for consumers' goods and the rate of growth it implies can be accepted at face value. It is, in fact, possible to surmise that the high projected rate of growth for total industrial output may not be attained unless the rate of growth of producer-goods output will be increased at the expense of the rate of growth of consumers' goods.

The Twenty-second Congress held in October 1961 devoted much of its time to the demoting and demonumenting of Stalin and some of his associates. One cannot help feeling, however, that behind the screen of the so-called de-Stalinization vigorous attempts were made in several important directions to return to the "normalcy" of the past. Whether one looks at the reversal of the decentralization movement in industrial organization; or at the attitudes displayed at the congress toward the "advent of communism"; or at the attacks launched against some timid libertarian tendencies in Soviet literature, one invariably gets the strong impression of forces at work struggling hard to restore the stability conditions of dictatorial power exercise. Those forces may be thwarted in the end. But if they are not, still another stability condition is likely to be successfully re-established. Then the plans for the output of consumers' goods will again remain systematically underfulfilled, as they were in the days of Stalin, while the aggregate rate of Soviet industrial growth may continue undiminished for a long time to come.

²⁵ *Ibid.*

I I

Industrial Enterprise in Soviet Russia

SOVIET Russia describes itself as a socialist country and its economy as a socialist economy. Those claims are seldom disputed. And yet, on reflection, they may well appear less valid than is generally assumed. In casting doubt upon them, our purpose is not merely to accuse the Russians of conceptual perversion and to defend some "correct" concept of socialism against Soviet encroachments. There may be indeed much need for, and justification of, tidier semantics; but what primarily matters within the present context is to elucidate some aspects of industrial enterprise and industrial management in Soviet Russia, and one way to approach the problems involved is to look briefly for the ideological antecedents of policies in the course of which the industrial organization in Soviet Russia has been shaped and reshaped.

To do this, let us have recourse to an expository device the attractiveness of which is attested by long centuries of use and abuse. Imagine an average Russian intellectual in the very early years of this century, preferably a university student, who, like a famous fictional figure of another age and continent, most likely would have "an insuperable aversion to all kinds of profitable labor." On the other hand, he would be passionately interested in politics and political debates and speculations and would consider himself an implacable enemy of the Russian autocracy. Imagine further that, like the princess in the Grimms' fairy tale, or like St. Vladimir's knight in the Russian ballad, or like the hero in Edward Bellamy's novel, he was put to sleep, say in 1902, and slept several decades in pleasant isolation from highly unpleasant world history, dreaming happily the

dream of a future Russia, free from the stupors of starvation, drunkenness, and illiteracy. True to our patterns, let him awaken as the Kremlin chimes strike the first hours of the century's second half. Let us agree that time had stood still with him and that, unlike the Catskill villager who had taken such a deep draught out of the mysterious flagon, he found his youthful vigor undiminished. We can therefore at once dispatch him upon an extensive journey through the highways and byways of the Soviet industrial landscape. Finally, let us posit — making the most fantastic assumption of them all — that he is allowed to give free vent to his observations, comparisons, and reactions.

Our traveler's first impressions are general but very exciting. He quickly discovers that private property in capital goods has been abolished. He feels that this is indeed a negative but very convincing proof that the previous "system of capitalism" has been replaced by the "system of socialism." In forming this view he feels corroborated by what he remembers from his perusal not only of socialist books and pamphlets but also from very scholarly and quite nonsocialistic treatises of the subject.¹ They all regarded the question of ownership over the means of production as the separating line between the two economic systems, the great watershed clearly and firmly drawn on the maps of social geology. Our explorer not only fails to be shocked by the change but tends to welcome it. His previous political views are not ascertainable in great detail. It is clear, however, that despite his dreams he was not connected with any of the then existing socialist groups; a fact which tends to set him somewhat apart, since in those days the average Russian intellectual liked to view the world through socialist spectacles with a better than fifty-fifty chance that the precise hue of his glasses had a Marxian rather than an agrarian or populist tinge. Yet, although not a socialist, he tended to contemplate socialism in its different connotations with a good deal of sympathy. In this, no doubt, he was very Russian and very un-American. He never felt the average American's aversion to the term which Bellamy once expressed so well and so forcefully, inviting the inevitable *a minori ad maius* inference.²

¹ V. Pareto, *Les Systèmes socialistes* (Paris, 1902), I, 107; Karl Diehl, *Über Sozialismus, Kommunismus und Anarchismus*, 2nd ed. (Jena, 1911), p. 7.

² "The word socialist is one I never could well stomach. In the first place, it is

On the contrary, for our man socialism always has been a perfectly respectable and much respected term. He never doubted that socialist ideas contained considerable ethical values. He felt that the socialist movement tried to satisfy age-old yearnings for justice and goodness. He had heard others use and was himself not past using the sacral phrase: "In a sense, of course, we are all socialists." At the same time, perhaps paradoxically and inconsistently, he was also attracted by the anethical tenets of Marxism which stressed the inevitable rise of Russian society from the barbarous depths of a primitive agrarian economy to the heights of a civilized industrial community. It was pleasant to have the certainty of economic progress assured by what he, along with many members of the intelligentsia, was glad to regard as the "last word of modern science."⁸ But neither respect for socialist values nor the thesis that Russia "was bound to pass through the stage of capitalism," to use the parlance of the time, had led him to a complete espousal of the socialist cause. What kept him from joining one of the many clandestine socialist groups, his strong individualism aside, were grave doubts as to the practicability and feasibility of the socialist system, particularly with regard to its ability to discipline and to organize.

Let us inject here that our man's surprise in seeing a socialist system established and working in his country is not paralleled by similar astonishment at the extent of industrialization which had taken place in the interval. He remembers well Count Witte's policy of rapid industrialization in the 1890s and his own conviction derived both from Witte's exploits and Marxian expositions that by mid-century Russia would become an industrialized country. When it is

a foreign word in itself and equally foreign in all its suggestions. It smells to the average American of petroleum, suggests the red flag, with all manner of sexual novelties, and an abusive tone about God and religion." Joseph Schiffman, "Mutual Indebtedness: Unpublished Letters of Edward Bellamy to William Dean Howells," *Harvard Library Bulletin*, XII (Autumn 1958), 370.

⁸"Later on, as a university professor, I had frequent opportunity in my seminars to argue against the theories of Karl Marx who at that time was the students' highest authority. Time and again, a freshman would tell me with a condescending smile: 'But, professor, Marx is the last word of science'; to which I usually replied: 'How do you know it to be the ultimate and not the penultimate word of science?' " Prince Evgeni Nikolayevich Trubetskoy, *Vospominaniya* (Memoirs) (n.p., n.d.), pp. 46-47. The period referred to is the turn of the century.

explained to him that the process of industrial growth had been interrupted by great wars, both foreign and civil, which left cruel destruction in their wake and presented vast and difficult problems for reconstruction, our traveler manages to requite this intelligence with a critique of a Russian statesmanship that did not know how to stay out of two world wars. Faithful to traditions of his youth, he is always willing to criticize the government. Yet his interests lie in a different direction. It is not the magnitude of the industrialization effort, which he persists in taking for granted, but the specific organization of Soviet industry that arouses his curiosity. Here he quickly discovers much reason for surprise.

As a young man, he used to read in many a treatise on political economy an expression of doubt that a socialist society would be able to increase or even to maintain its capital stock. Such a society, it was argued persuasively, would not be able to control its desires and would tend to squander its resources in excesses of consumption: "Men first feel necessity, then look for utility, next attend to comfort, still later amuse themselves with pleasure, thence grow dissolute in luxury, and finally, go mad and waste their substance."⁴ This side circuit of Vico's *corsi e ricorsi* was felt to foretell the nature, and to spell the doom, of a socialist society. Indeed, the socialist literature had seemed to place all weight of emphasis on redistribution of wealth and greater equality of income. Its interest in growth of production seemed quite overshadowed by its interest in distribution. But the Soviet society seems never to have been in danger of overconsumption. The traveler learns with amazement that, over the period of almost a quarter of a century, industrial output increased about six times, whereas the real wages of industrial workers actually declined absolutely, even though statistics for the magnitude of the decline would vary depending on the system of valuations used in making the comparison. Some preliminary conclusions begin to form themselves, though vaguely, in the traveler's mind. He begins to think that possibly his concept of socialism requires some readjustment if it is to be made to fit Soviet reality.

As he wanders from factory to factory and gathers his impressions

⁴G. Vico, *The New Science*, tr. T. G. Bergin and M. H. Fisch (Ithaca, 1948), p. 70.

of the way in which the Soviet industrial enterprises are organized and managed, this need for conceptual reassessment becomes stronger and stronger. He finds out that the enterprises are managed by individuals called "directors," as they had been in presocialist times. He sees those directors arrive at the factories in large chauffeured automobiles. He hears them in their conversations with their subordinates employ the old feudal *ty* (thou) while they are being addressed with the respectful *vy* (you). His confusion grows as he hears them speak of "profits," a category he had thought quite alien to socialist economy and for a long time a central target for socialistic attacks upon capitalism. He is astonished to hear occasional references to "trusts," an organizational form which he was wont to associate with monopolistic exploitation of both workers and consumers by an aggressive capitalist enterprise.

He discovers that the director wields what in theory at least appears an undivided power within the plant. In explaining the director's position to him people use the term *yedinonachaliye*, and our explorer cannot help reflecting that, while the Russian language has a different word reserved for a rendition of the Greek word "autocracy" (that is, *samoderzhaviye*), the Greek version of the term actually employed to characterize the director's status would be monocracy and, whatever the difference is between *autocracy* and *monocracy*, both seem sufficiently removed from *democracy*. Yet before he has absorbed the idea of a director of a socialist enterprise who acts so fully the part of master in his own house, our traveler is again jolted by hearing that the power of the director essentially consists in acting under orders and that his main function lies in being responsible for the exact execution of those orders. That, he is told, is the essence of socialist planning and the natural opposite of capitalist chaos. After having watched directors of huge enterprises upbraid their subordinates in a thunderous bass and immediately thereafter conduct a telephone conversation with their superiors in a softly ingratiating tenor, the tourist is ready to accept the fact of a duality in the director's social role. But while he marvels at the flexibility of human nature and the range potentiality of a man's voice, he finds it more and more difficult to bring his impressions into harmony with his admittedly preconceived ideas about the nature of the socialist

system. In fact, he finds he has reached a point at which he must try to reread what the socialist literature had to say of the problems of management and entrepreneurship and to see how it may have influenced the creation of the enterprise system in Soviet Russia. Accordingly, he interrupts his industrial tour and betakes himself to a library, anxious to spend some time buried in volumes of ancient and not-so-ancient lore.

Unfortunately, the very next day as he tries to order Oskar Lange's brilliant pamphlet *On the Economic Theory of Socialism* he finds himself questioned about his interest in counterrevolutionary literature in general and bourgeois theories of socialism in particular. The interrogation is stern and menacing, and at its close the disenchanting explorer quickly resumes his enchanted sleep, expecting to reawaken in more civil and less bewildering times.

Even so, he has been able to arrive at some helpful though negative conclusions. It appears that the great figures of socialist literature had paid very little attention to the problems of enterprise and its management. To the extent that they did, the chief purpose was to separate "administrative wages" from "entrepreneurial profit" (that is, *Verwaltungslohn* from *Unternehmergewinn*).⁵ The latter was seen as flowing from ownership over capital; the former included both managerial and entrepreneurial rewards and did not seem to constitute much of a problem. Marx may have praised in passing the "shrewd expert eye" of the capitalist selecting and combining the factors of production.⁶ But the emergence of both the workers' producer cooperative and the joint-stock company made it perfectly clear to him that the exercise of the managerial guidance (*Oberleitung*) by the capitalist had become superfluous.⁷

Karl Hilferding, writing a generation after Marx's death, naturally had a great deal more to say on the joint-stock companies. He stressed their powerful role in the process of concentration of capital. They created, he said, a financial basis which was much broader than that usually available to unincorporated enterprise. He

⁵ Karl Marx, *Das Kapital*, Volksausgabe, III (Moscow-Leningrad, 1933), part 1, 425.

⁶ Marx, *Das Kapital*, Volksausgabe, I (Moscow-Leningrad, 1932), 193.

⁷ Marx, *Das Kapital*, Volksausgabe, III, part 1, 422-423.

did not confine himself to stressing the "superfluity" of the capitalist within the joint-stock company, but went on to suggest that the corporate form opened far more fertile fields to entrepreneurial and managerial activity, permitting a greater degree of rationality, a faster discarding of obsolescent equipment, and a much more aggressive policy in widening the firm's market areas. According to Hilferding, a man who administered an enterprise that was not his could be presumed to act more vigorously, more boldly, and more rationally than an individual owner-entrepreneur, whom Hilferding believed to be restrained by anxieties and personal considerations of all kinds.⁸

The political implication of this appraisal for the future socialist economy was fairly clear. If the joint-stock enterprise had facilitated so much of the task of entrepreneurship and management, the socialist economy could have been expected to simplify it further. Despite all the differences in fundamentals and approach, Hilferding's conclusion came close to Schumpeter's view of the process. Schumpeter believed that the entrepreneurial function was losing its importance because generations of innovating entrepreneurs had firmly embedded the desirability of innovations within the social value system. As innovations became routine, special personal qualities and special efforts were no longer needed to overcome the resistances to change.⁹ Unlike Schumpeter, the socialist writers did not treat entrepreneurs and innovations as independent variables in the process of economic growth. For them the process did not have to "become depersonalized and automatized";¹⁰ it always had been viewed in those terms. But the final conclusion was the same: entrepreneurship and management could be taken for granted. As in so many other areas the problems of socialist management were assumed to be presolved in the course of the capitalist development. The Marxian literature was reluctant to indulge in detailed descriptions of the socialist system, but the general contours of the picture emerged with sufficient clarity: socialism meant organization of production not indeed by the state, which was to "wither away," but by the free collectives of "associated

⁸ Karl Hilferding, *Das Finanzkapital* (Vienna, 1910), pp. 137ff.

⁹ Joseph A. Schumpeter, *Capitalism, Socialism, and Democracy* (New York and London, 1942), pp. 132-133.

¹⁰ *Ibid.*

producers," the tasks of management being discharged by salaried specialists. It was this image of the economy which inspired Lenin in 1917 as he stood at the threshold of power.¹¹

These basic attitudes would well serve as an ideological introduction to the views expressed by Oskar Lange in his celebrated piece.¹² The tenor of the former is in perfect harmony with the spirit of the latter. Also for Lange the managerial problem was simple indeed. The Central Planning Board is to tell the managers to minimize average cost and to produce as much of each commodity as will equalize the price of product and its marginal cost. The managers are to bid for labor in the market; similarly, consumers' preferences are to determine prices of consumers' goods, while all other prices and the rate of interest is set by the Planning Board, as far as possible so as to equalize demand and supply of producers' goods and of loanable funds. Finally, the Planning Board determines arbitrarily the rate of net investment from planning period to planning period.¹³

This scheme for the organization of the socialist economy has one guiding principle and one basic aim: "to satisfy consumers' preferences in the best way possible."¹⁴ There is every implication that, in determining "arbitrarily" the rate of net investment, the Planning Board is expected to be guided primarily by the welfare of the consumers and to operate with reasonable time-horizons.

It is, of course, not clear at all in the Lange scheme how it is assured that the manager will in fact observe the two fundamental rules with regard to methods of production and the composition of output. Neither a system of supervision of managerial activity nor a system of possible incentives to induce the managers to comply with the rules is included in the scheme. This omission, however regrettable, is perhaps not altogether incomprehensible. The point is not only that the market in consumers' goods, together with the emergence of surpluses and deficits in producers' goods and loanable funds, is thought to provide objective checks for the correct function-

¹¹ V. I. Lenin, *Gosudarstvo i revoliutsiya* (State and Revolution), *Sochineniya* (Works), 4th ed. (Moscow, 1949), p. 398.

¹² Oskar Lange and Fred M. Taylor, *On the Economic Theory of Socialism* (Minneapolis, 1938).

¹³ *Ibid.*, pp. 77-85.

¹⁴ *Ibid.*, p. 75.

ing of the system; no less important is the implied supposition that in a system based on consumers' preferences the consumers should find ways and means to control the activities of the managers and to enforce compliance with the rules; similarly, there is the further supposition that consumers will know how to force the Planning Board not to substitute its own preferences for those of the consumers. And above it all hovers the feeling that an economy of this type would generate a social environment within which compliance with rules that are socially so desirable will be forthcoming readily and spontaneously. *Le socialisme c'est la bonté et la justice*, says one of Anatole France's heroes. It should not be difficult for such a society to find "just" and "good" managers to administer its economic enterprises. This has been the traditional view of socialism by socialists. And even Lenin, who envisaged the managers as standing under "control of the armed proletariat," considered such control quite a transitory measure. Lange's system is a socialist system in terms of the ideological history of the socialist movement and must be read and appraised in the context of that history. Compared with the basic stress on popular welfare, the question of collective versus individual ownership of means of production would seem altogether ancillary.

But if the Lange system of socialist economy can claim to be considered the consummate model of socialism, by the same token it impedes rather than furthers our comprehension of the Soviet system to view it as a socialist system. It is a general hazard of social science that the objects of our study time and again tend to confuse the scholarly observer by making statements about themselves. When those statements are supported by monopolistic dominance over communication media on the part of a powerful dictatorial government, their persuasive power is further enhanced. Nevertheless, however often Soviet Russia may introduce itself to the world as a socialist country, the fact remains that the social scientist may find it much more illuminating to consider Soviet Russia not as a socialist economy but as an economy which by the will of a ruthless totalitarian government has been kept in the process of a very rapid industrialization. "Accumulate, accumulate! This is Moses and the Prophets!"¹⁵ Those are the words in which Karl Marx tried to describe the quintessence of

¹⁵ Marx, *Das Kapital*, Volksausgabe, I, 624.

capitalism. There is every reason to doubt that economy on modern historical record to which these words would apply with greater justification than to the economy of the Union of the so-called *Socialist* Soviet Republics.

Predictions are precarious. Still, so firmly has the Soviet political system been wedded to the policy of a high and growing rate of investment that at least this observer of its evolution has felt tempted to conclude that no other economic policy would be easily compatible with the maintenance of the Soviet dictatorship; in other words, that a policy of rapid increases of consumers' welfare either would remain unacceptable to the dictators or, if accepted, would in all likelihood lead to the disintegration of the dictatorship. It matters little in this connection whether future history will verify or falsify this hypothesis. It is referred to here in order to throw into relief the antagonistic nature of an allegedly classless economy in which the investment interest of the government has been continually opposed by the consumption interest of the population.

To return to the problem of management and enterprise: the socialist literature could afford to pay scant attention to the problem of management because it operated with the vision — or illusion — of a harmonious society unrent by any serious cleavage of interest. The antagonistic Soviet society was forced to pursue a different policy. Far from being able to ignore or to take lightly the problem of management, the leaders of the Soviet government came to regard the search for the appropriate degree of managerial dependence as focal to their economic policy. The position of the manager proved to be the all-important nucleus of the broader problem of the appropriate degree of centralization within the Soviet economy. So far, the very nature of that economy has precluded a clear and lasting solution to either problem. Thence came the uneasy compromise between the preached principle and the tolerated practice; thence came also the continual wavering to and fro in organizational structure, in the course of which the lines of command were alternatively lengthened and shortened, loosened and tightened. Quite recently, the Soviet government has embarked upon a far-reaching scheme of organizational reform, thus making dramatically apparent the inherent instability of the previously existing arrangements. The remainder of this

essay will be devoted to a sketch of those arrangements and an appraisal of the probable motivations and effects of the recent reforms.

The attempt is constantly made in Soviet writings to view the evolution of management and enterprise *over the whole Soviet period* as determined by one unvarying and unerring purpose. Such claims do not stand up under investigation. After the October Revolution, the institution of workers' control over economic enterprises was established by a rather perplexed and bewildered government. Even today the workers' control of those days (1918-1919) is still praised in Soviet literature as an important step on the road of Soviet managerial progress.¹⁶ In reality workers' control very quickly led to the diffusion of syndicalist tendencies; it served to hasten the disintegration of the country's economy and, probably even more than the simultaneous resistance of factory owners, forced the government, then in the throes of the civil war, to proceed with an otherwise unintended nationalization of industrial enterprises.

On the other hand, during the New Economic Policy of the twenties, the centralized grip on industry was considerably relaxed, even though large-scale industry remained in the hands of the state. "Trusts" which combined a number of connected industrial enterprises assumed some managerial decisions, while at the level of individual enterprises managerial activity was largely exercised by the so-called triangle or trio (*troyka*), consisting of the director of the enterprise, the local party cell, and the local trade-union group. This tripartite organization of factory management no doubt reflected some general socialist ideas concerning democratization of management. In the West, such ideas were mildly articulated in the socialization debates after World War I and affected various legislative acts.¹⁷ They continued to play a considerable part in the literature of the interwar period, in which "extension of democracy into the economic sphere"

¹⁶ See, for example, *Ekonomika sotsialisticheskikh promyshlennykh predpriyatii* (Economics of Socialist Enterprises in Industry) (Moscow, 1956), p. 25.

¹⁷ In Austria and in Germany, for instance, such ideas became reflected in the institution of work councils or shop stewards — see, for Austria, "Gesetz betreffend die Errichtung von Betriebsräten," May 15, 1919, *Staatsgesetzblatt*, no. 283, article 11, and, for Germany, the law of February 4, 1920 (*Betriebsrätegesetz*), and of February 5, 1921 (*Bilanzgesetz*). A. Shuchman, *Codetermination, Labor's Middle Way in Germany* (Washington, D.C., 1957), pp. 79-81.

was advocated.¹⁸ After the last war, those modest beginnings were further amplified in the various codetermination or cooperation schemes which were designed to give the workers some sense of participation in the conduct of the enterprise.¹⁹

In Soviet Russia, this legacy of socialistic ideas did not survive the end of the NEP. It was clearly at variance with the policy of superindustrialization. "The year of the great change" was Stalin's apt description of the year 1929. It was in 1929 that the thorough purge of the Central Trade Union Council took place. The emasculation of the unions as a representation of labor's interests was the result. Thereafter, Soviet industrial labor appeared reduced to the passive role of a "factor of production" and the unions were transformed into an arm of management, designed — to use Marxian terms — to extract from labor the greatest possible amount of surplus value. The readjustment of the unions was swift and far-reaching, and neglect of the interests of labor quite unhesitating. It was left to Stalin a few years later to follow his usual practice and to shift the blame onto subordinate shoulders by stressing the forgotten connection between incentives and output. It was only then that the unions began to proclaim some concern for the workers' living needs, although dealing with them "chiefly if not exclusively in terms of production needs."²⁰

It was the same year, 1929, in which the "triangle" was loudly denounced and the aforementioned principle of director's monocracy proclaimed. Henceforth neither the trade union nor the party cell was to interfere with the decisions of the manager. This "strengthening" of local authority naturally was not an act of decentralization but, on the contrary, an important precondition for a greatly enhanced centralization in the management of Soviet industry. Within the triangle the responsibility had been divided and was hence diffuse and elusive. Management was to become a stable, more easily supervised, and more readily apprehended recipient and executor of the orders

¹⁸ Cf. Fritz Naphtali, ed., *Wirtschaftsdemokratie, ihr Wesen, Weg und Ziel* (Berlin, 1929).

¹⁹ Shuchman, chaps. 9, 10.

²⁰ J. V. Stalin, Speech, June 23, 1931, in *Sochineniya* (Works) (Moscow, 1951), XIII, 55-60. G. Bienstock, S. M. Schwarz, and A. Yugow, *Management in Russian Industry and Agriculture* (London, New York, Toronto, 1944), p. 37.

that came from the center. The intention no doubt was a fully centralized organization in which the factory manager was no more than a transmission belt in the formidable industrialization machine whose prime movers and control levers were concentrated in Moscow. It was in this spirit therefore that, in 1929, the individual enterprise was both solemnly pronounced an "independent productive and commercial unit," and made fully dependent upon the decisions in the administrative center. At the same time, the "center" was appropriately reorganized so as to establish the closest possible connection with the individual enterprises. As a part of this process, the Supreme Economic Council was split into three People's Commissariats (much later, in 1946, renamed Ministries) with a rapid proliferation in the following years of special commissariats for every important branch of Soviet industry. In 1934, the previously existing intervening links were abolished and, at least in the rapidly growing heavy industry, the enterprise became directly subordinate to the respective commissariats in Moscow, thus consummating the centralization of the industrial structure.²¹

The formidable effort at centralization is a historical fact. Nor is there any doubt that a complete subjugation of the manager of the individual enterprise was the aim. And yet, even for an omnipotent and ruthless dictatorship, the coefficient of "will enforcement" rarely equals unity. What is so striking about the outcome of this process is that dictatorial order and resistance inherent in men and things combined to produce an organizational structure whose lines possessed neither the charming simplicity of Oskar Lange's pair of rules nor the uncharming straightforwardness of an absolute "I order, you obey" economy. To understand the position of the manager as it was pressed into shape in Stalin's organizational rolling mill, it is advisable to present first an image of Soviet industrial management as seen through the wishful spectacles of the official theory of that

²¹ It is not necessary for the purposes of this presentation to go into detailed description of the administrative structure and to dwell on the different types of People's Commissariats beyond saying that for the bulk of the heavy industry the commissariats were of the "all-union" type which allowed of no intermediary organs in the constituent republics of the USSR. Light industries were controlled by the so-called Union Republican Commissariats, for which, at least in theory, the relations with the enterprises were channeled through People's Commissariats in the individual republics.

period. One may proceed then to compare the image with a more concrete presentation of Soviet reality.

In the official view, the manager's activity in his enterprise was regulated by a linguistic monstrosity known as the annual *Tekhpromfinplan*, which was a complex of targets for the prospective plan period, comprising quantities and values of output, utilization of workers of different categories, use of different types of raw materials and fuels, magnitudes of gross and net investment, data on cost, prices and profits, and finally a description of technological and organizational innovations. That plan, prepared within the enterprise upon central directives and then approved by the central authority, was regarded as an integral part of the annual over-all plan for the development of the Soviet economy. For the manager it possessed the force of law.

An appropriate avenue leading to an understanding of the plan and the manager's official position within its framework may be found in the concept of profits, an obvious curiosity within an allegedly socialistic system, which caused so much surprise to the errant intellectual who haunted the introductory pages of this essay. Originally introduced for reasons of imitative respectability as a symbol of American businesslike matter-of-factness (*delovitost'*), the category of profits has become a carrying pillar of the system of economic accounting (*khozraschet*), which in turn is identified with the aforementioned "independence" of the enterprise. Having been supplied from the state budget with fixed capital, receiving a modicum of working capital from the state budget, and covering the balance of its needs in working capital through credits from the state bank, the manager of the Soviet enterprise as a rule is expected to husband his resources in such a way as to produce the planned quantity of output without exceeding the prescribed planned cost of that output; since, again as a rule, unit prices exceed unit cost and sales are assured, the enterprise is expected to achieve a certain planned profit. If, in addition, the enterprise should succeed in achieving some "unplanned" profit, so much the better and this achievement is appropriately rewarded. In this way, even though every industrial enterprise in Soviet Russia is owned by the state, its accounts are kept discrete from the state budget; the revenues and the expenditures of the firm do

not enter the budget, except for the investment funds (and subsidies) received from and for taxes (on turnover and profits) paid into the government treasury.

What, then, is the function of profits within this system? A simple answer distilled from the official writings may be formulated as follows. Just as the main function of prices for producers' goods in the Soviet economy — prices for consumers' goods are a different matter — is said to lie in their role in planning output and in supervising the degree to which plans have been fulfilled, so the role of profits — as distinguished from taxes on turnover — lies in their serving as an index of the degree to which resources have been used in accordance with the plan. Needless to add, the indicator is a very crude one. Very different combinations of the individual cost factors are, of course, compatible with a given level of profits, and the planners' point of view of the desirability of the individual combination might differ very widely. Yet, such as it is, the category of planned profits has provided the central authorities with a simple global check on the use of resources by the individual enterprises.

To gauge an industrial manager's freedom of decision, it is useful to turn for a moment from planned profits to unplanned profits. Obviously in order to overfulfill the plan — be it in the quantity of output or in the sum of profits — the manager must be able to display freedom of initiative outside the area circumscribed by the prescriptions of the plan. But how can the manager increase profits beyond the level provided for? Theoretically, numbers of workers, wage rates, cost of available raw materials, selling prices, funds available for technological improvement — all those are circumscribed by the plan and must be regarded as "givens." The manager cannot vary any of those magnitudes as might his counterpart — the Western manager operating within a freer competitive structure. As long as total output is held constant, the only way open to a Soviet manager who wishes to achieve unplanned profits is through introduction of innovations which reduce cost while costing nothing. A more rational arrangement of men and machinery within a plant, less wasteful handling of materials and machines, insistence on greater diligence on the part of the workers — those are the primary methods of increasing unplanned profits at the disposal of a Soviet industrial

manager, as pictured by official writings. It is difficult to avoid the conclusion that his range of freedom is severely limited.

It is true, of course, that output need not be considered constant. No Soviet manager in his right senses will contemplate an increase of profits by reduction of output below the planned level. On the other hand, overfulfillment of the plan is not only permissible; it is enthusiastically encouraged by multifarious rewards. An increase in output may increase or decrease profits, but it is fair to say that in all probability a Soviet manager will be willing to swap some decrease in profits for some increase in output; if an increase in output would bring the enterprise across the magic line that separates underfulfillment from overfulfillment, the probability becomes a certainty. Yet what has been said of higher-than-planned profits largely holds also of higher-than-planned output. How can a Soviet manager, officially described as narrowly circumscribed by the plan, find the labor, raw materials, semifabricates, and possibly also some investment goods that are needed in order to increase output? Would not overfulfillment of the output plan in one area of necessity lead in this fully employed system to underfulfillment of the plan in other areas? And if the plan provides, as is claimed, for balanced growth of the economy as a whole, would not such lopsided sallies beyond the plan targets disrupt the functioning of the economic system, leading to useless surpluses in some spots and badly missed deficits in others? Is it not correct to infer that in an economy in which individual enterprises are allowed to indulge in such disruptive activities, the position of those enterprises and particularly that of the leaders of those enterprises must be a good deal less restricted than might appear from our official image of the Soviet economy?

It is half a century since a brilliant German sociologist put on paper what certainly has proved to be a profound insight: "The elimination of any spontaneity in a subordinate position is in reality much rarer than one might assume from popular speech which uses very freely such terms and phrases as 'compulsion,' 'no other choice,' 'absolute necessity,' and so on. Even in the most cruel and oppressive states of subordination, there usually exists a considerable measure of personal freedom."²² Modern studies on Soviet industrial man-

²² Georg Simmel, *Soziologie* (Leipzig, 1908), p. 135.

agement by Western economists have well borne out the truth of Simmel's generalization.²³

The conclusion is inescapable that the official theory is a poor guide in assessing the true role of Soviet industrial managers. Far from being bound, trunk and limbs, by the plan, the manager enjoys a large sphere of independent activity. On the one hand, he is able to influence the targets of the plan. In so doing he tries to maneuver in such a way as to achieve two disparate ends: to establish for himself a reputation of a bold administrator insisting on high rates of growth and at the same time to keep the planned rates of growth well within the capabilities of the enterprise so that they can be attained with a good deal of certainty and without undue stress and strain. In Soviet conditions where interindustry supplies have remained the weakest point of the whole economic system,²⁴ and where, on the other hand the policy of high rates of growth keeps the enterprises at a very low level of inventory, the managers are almost forced to hold hidden reserves. To carry on such a policy it is necessary first to convince the central authorities that the input-output coefficients are higher than they actually are; it is necessary, second, to engage in various strictly illegal dealings, in the course of which materials and goods produced are bartered away to neighboring factories in an attempt to provide substitutes for the shortcomings of the central system of allocations. To be able to do this effectively, the manager must also deceive the central authorities as to the actual level of his plant's output. Only in this way can he accumulate a stock of finished goods of which he can dispose through other than the planned channels.

Those who are interested in the details of these evasive arrange-

²³ See particularly, David Granick, *Management of the Industrial Firm in the USSR* (New York, 1954), and Joseph S. Berliner, *Factory and Manager in the USSR* (Cambridge, Mass., 1957).

²⁴ A Soviet journalist, Boris Polevoy — well but not always pleasantly known — a few years ago crossed the United States from coast to coast without apparently finding anything to excite his admiration. But in Los Angeles he was shown through a Chevrolet assembly plant and was told that the plant received its materials from twelve thousand different factories, some of them many hundreds of miles away from Los Angeles; still the assembly line moved on without interruption. This was so downright un-Soviet that Polevoy could no longer suppress a burst of enthusiasm. See *Amerikanskiye dnevniki* (American Diaries) (Moscow, 1956), p. 214.

ments may refer to the two excellent works by Berliner and Granick mentioned earlier. What matters here is only to throw light on a fundamental peculiarity of the Soviet industrial system — that is, the well-built-in discrepancy between plan and reality. In the light of this discrepancy it is easy to see that the manager as a rule has many ways of achieving unplanned profits, or of increasing output above the plan figures, or of deciding between the one and the other course of action. Thus the actual situation no doubt is a great deal more complex than it appears to be on the basis of the official descriptions of Soviet planned economy. It is safe to conclude that the Soviet government's power over the economy is somewhat less complete than Soviet literature would make us believe.

The reason for this bashfully concealed but nonetheless very real limitation on the power of a ruthless dictatorial government is not far to seek. The official view of the Soviet economy is premised upon the assumption of unrestricted knowledge and foreknowledge on the part of the central planners. Needless to say, this assumption is far from realistic. The stream of paper reports that flows from the plants to the central authorities may belittle the majesty of the Volga River, but it provides no assurance of real insight into the conditions within the individual plant. The fundamental ignorance of the central authorities restricts their ability to enforce their will. Obversely, it is the knowledge of the manager that assures for him his area of freedom. Once the assumption of complete knowledge is dropped, it becomes immediately clear why the Soviet planners in the past had frequent recourse to the price system of producers' goods, not just in order to check and supervise but also to change the allocation of scarce resources. Increases in prices of commodities such as oil or copper were cases in point. The purpose was to induce the managers of industrial enterprises to economize on those commodities in favor of the more plentiful substitutes. And the reason why the device of a price increase, so much less direct and so much less transparent in its effects than a change in quantitative allocations as among firms, was chosen must be sought precisely in the ignorance of the authorities, who were in the dark as to what allocation claims of what plants to accept or reject. Presumably, once the prices were changed and the managers adjusted their decisions accordingly, the plan targets for

the utilization of the relevant materials were also appropriately adjusted. But the process reveals both the importance of the area of free managerial decisions and the *mirabilia* of such decisions' determining the plan, rather than vice versa — surely a rather perverse sequence from the point of view of the official theory.

The Soviet government is not known for its tolerance. Nor does it readily brook disobedience to its orders. If it has been acquiescing in a widely diffused system of plan evasion, the reason is that — aware of the extent of its ignorance — it has recognized that a measure of managerial freedom from the plan was a prerequisite to the fulfillment of the plan. The price it pays is not simply in terms of abdication in favor of abstract managerial independence. Up to a point, evasions of the plan are indeed designed to fulfill it. But some of the evasions are dictated by very different motives, including the managers' personal enrichment, something that is not easily compatible with the Soviet ethos of absolute devotion to the state.

Thus the Soviet system of industrial management defies an easy circumscription of its contours. For it has no fixed contours at all. The zone of managerial freedom is largely *extra legem*. Hence its boundary is in perpetual motion, being continually adjusted and readjusted. At the level of each individual enterprise, a managerial sally into greater independence is followed by a retreat toward greater obedience. Shifting the managers from factory to factory, maintaining a well-developed system of informers, increasing control over the "monocrat" by the local party organs — those are some of the devices by which the central authorities have often attempted to shorten a manager's tether or at least to control its length. Yet as managerial disobedience is eliminated, so is his free initiative. And since the latter soon proves indispensable for the successful operation of the enterprise, the rope must be played out again, starting a new cycle, the regularity of which would have surprised and delighted Polybius or Vico.

But is the Soviet government really doomed to keep this zigzag course, which no doubt is wasteful of time and effort? Must it continue living in fear of managerial autonomy? Cannot it rather face up to its necessity and mete out to managers an openly recognized generous measure of freedom? There is little doubt that tendencies in this

direction have been present within the Russian economy long before Stalin quit the stage. This should not be surprising. Apart from the reasons just mentioned, the existence of a twilight zone of tolerated illegality agrees ill with the nature of Soviet dictatorship. And yet it is the mechanics of power exercise by the self-same dictatorship that make it so difficult to take the step from grudging acquiescence to open recognition.

It is very often not recognized that dictatorial power requires incessant exercise. It is maintained and asserted by ruling and regulating. A decrease in regimentation therefore tends to be tantamount to a decline in power. Even more important, however, is the previously mentioned connection between the dictatorship and the high rate of growth. If it is true that the Soviet dictatorship not only makes rapid industrialization possible but continually derives from it new strength and new vindication, then it is also true that the high rate of investment and, obversely, the low rate of consumption must remain characteristic of the Soviet economy. Yet, because of the relative neglect of consumption, the path of an industrial manager is strewn with manifold temptations. Wherever technically possible, there is a strong urge to deflect resources into consumption and away from investment. A recognized and firmly established sphere of managerial autonomy is therefore very likely to produce results that would be most undesirable from the point of view of the basic interests of Soviet dictatorship. To give an example: in 1934, the Soviets decided to grant increased freedom of action to so-called local industry, producing for the local market with the help of local fuels and local raw materials. Stalin spoke of the need to "liberate its initiative." Appropriate resolutions were adopted.²⁵ And yet after a short period the policy was abandoned, because even in the limited sphere of "local industry" freedom from regulation soon clashed with the basic principles of Soviet policy.

There were other similar oscillations. But what has been taking place in the Soviet Union during the past few years is an effort at organizational reform without precedent and parallel in the history of the country since the inception of central planning. It seems to introduce far-reaching changes in the distribution of economic author-

²⁵ Stalin, Report to the Seventeenth Congress, *Sochineniya*, XIII, 315-317.

ity and, possibly, to affect the position of industrial managers as it developed under Stalin and has been described in the preceding pages. The reform originated as an attack upon the central organs of economic administration which began within less than a year after Stalin's death and proceeded rapidly to gather momentum.²⁶

About a year later (August 9, 1955), the scope of managerial rights was expressly expanded through a resolution of the Council of Ministers.²⁷ In this way, some of the activities previously proscribed, though tacitly tolerated, were solemnly legalized. Among these activities were unplanned purchases and sales of materials, equipment, and finished goods to other enterprises, as long as they remained on a small scale. Furthermore, the managers became entitled to more flexibility in adjusting wage rates and wage payments, and they also received the right to shift outlays from one category to another and from one period to another. All this was to be done within certain narrow limits. It is quite doubtful, therefore, that the resolution brought any substantive change into the management of the Soviet enterprise, even though it may have had the effect of providing to managerial consciences some relief from the burdens of evasions and collusions.

Finally, in May 1957, the Supreme Soviet of the USSR passed an act under the terms of which most of the central economic ministries were abolished.²⁸ The area of the USSR was divided into more than one hundred administrative regions, and in every region a National Economy Council (*Sovnarkhoz*) was entrusted with the local administration of industrial enterprises. The *Sovnarkhoz* reports to the Council of Ministers of the individual republic, which in turn is subordinated to the Council of Ministers of the USSR.²⁹

²⁶ The first resolution in the matter was adopted by the Central Committee of the Communist Party on January 25, 1954. It was followed by the joint resolution on October 14, 1954, of the Central Committee and the Council of Ministers, which used little restraint in criticizing the bureaucratic confusion, inefficiency, and incompetence of the economic ministries and suggested and demanded various improvements without yet proposing any fundamental organizational changes. See *Direktivy KPSS i sovet'skogo pravitel'stva po khozyaystvennym voprosam, 1917-1957 gody* (Directives of the Communist Party of the Soviet Union on Economic Matters) IV (Moscow, 1958), 155-156, 311-317.

²⁷ *Direktivy*, IV, 451-457.

²⁸ "Zakon o dal'neyshem sovershenstvovanii organizatsii upravleniya promyshlennost'yu i stroitel'stvom" (Act Concerning Further Organizational Improvement in the Administration of Industry and Construction), *Direktivy*, IV, 732-738.

²⁹ See A. N. Yefimov, *Perestroyka upravleniya promyshlennost'yu i stroitel'stvom*

The sphere of competence of the *Sovnarkhozes* as defined in a special charter is vast indeed.³⁰ Particularly striking is the right bestowed upon them to change both output and investment targets, apparently not merely by shifts as among enterprises of the same industrial branch but also by shifts as among industrial branches. At the same time, a considerable increase in "local industry" is envisaged, which is to be supervised by local rather than regional organs.

The central guidance of Soviet industry henceforth is to reside in the Council of Ministers and to proceed on the basis of a unified plan prepared by the State Planning Commission (*Gosplan*). The latter institution is called upon to watch over the "rational location of industry," to assure a unified policy in developing the leading branches of Soviet industry, to supervise the rate of economic progress, and so forth.³¹ It is intended that the most crucial economic decisions for the economy as a whole should continue to be made in Moscow. In particular, the basic determination of the rate of investment and the rate of consumption remains reserved to the central organs. Similarly, the central quantitative allocation of scarce materials (which used to be called "funded commodities") is to continue, possibly even on a somewhat expanded scale. Khrushchev solemnly announced that the organizational reform would not weaken the central guidance of the Soviet economy.³²

It cannot be the purpose of this essay to go into details in describing the organizational transformation that is being carried out. It is more important at this point to form some idea with regard to the possible motivations of the reform. In this connection it might be possible to appraise both the correctness of Khrushchev's prediction and the probable durability of the change.

In reviewing the possible aims of the reform, what comes to mind first is its potential military aspect: to split the Soviet economy into a large number of more or less watertight compartments may enhance its power of resistance in case of war. If this is true, the reform may be somewhat comparable in character, though not in

v SSSR (Reorganization of Administration of Industry and Construction in the USSR) (Moscow, 1957), *passim*.

³⁰ Resolution of the Council of Ministers of the USSR (September 26, 1957), *Direktivy*, IV, 784-805.

³¹ Yefimov, p. 44.

³² *Pravda*, March 3, 1957.