

Selected works of

**VSEVOLOD
HOLUBNYCHY**

**Soviet Regional
Economics**

Edited by Iwan S. Koropecykyj



Vsevolod Holubnychy
(1928–1977)

The premature death in 1977 of Vsevolod Holubnychy deprived Western scholarship of one of its leading economists. An incisive and prolific writer, Holubnychy had a wide field of interest that is reflected in this collection of essays: Ukrainian politics; Soviet regional economics and especially the position of Ukraine within the Soviet economic system; Marxist thought and its

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SOVIET REGIONAL ECONOMICS

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OF
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**Canadian Institute of Ukrainian Studies
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Introduction

Economic science has found fertile ground for its development in very few countries of the world. Only two Ukrainian economists, Mykhailo Tuhan-Baranovsky and Ievhen Slutsky, have made lasting contributions to this young, but increasingly important science. Vsevolod Holubnychy, with his ability and self-discipline, might have become another such scholar had he lived an average life span and under normal conditions.¹ However, the life of a political émigré and a premature death prevented him from attaining this. Although he was unable to develop his potential fully, he remains one of the most important Ukrainian economists of this century. The quality of his works renders them of lasting scholarly interest. The purpose of this volume is to make them more accessible to the reader.

Vsevolod Holubnychy was born on 5 June 1928, in Bohodukhiv, in the eastern part of Kharkiv oblast. His father, Serhii, was an agronomist who worked in the state planning office in Kharkiv; he also taught in the secondary schools. Between 1937 and 1941 Serhii was arrested for “political offences,” despite the fact that during the revolution he had served with the elite Budenny cavalry. Holubnychy’s mother, Lidia, née Kopeikina, an ethnic Russian, was a kindergarten teacher. At the age of three, Holubnychy broke his hip and, as a result, had to keep his leg in a cast for three years. He underwent additional treatment in a Crimean sanatorium that kept him separated from his parents for a year. One of his legs remained a little shorter than the other due to inadequate medical care. He had to wear specially designed braces for some time and an orthopedic shoe for the rest of his life. The separation from his family at

such a tender age and his inability to play with other children made Holubnychy a rather introspective and withdrawn child, who was inclined to solitude.

At the time of the outbreak of the USSR-German war in 1941, young Holubnychy had completed five grades of school in his native city. In this same year Bohodukhiv was occupied by German troops. In 1943 the entire family, which also included a younger brother, had to flee to the West before the return of the Red Army. The family travelled in a horse-drawn wagon through Ukraine, Hungary and Austria, before finally settling in Ingolstadt, Bavaria. During a short stop-over in Hungary, young Holubnychy had helped to earn a living for the family. He resumed his education in Ingolstadt, but soon moved to Regensburg where he completed secondary school. After graduation he enrolled at *Ukrainskyi Vilnyi Universytet* (Ukrainian Free University) in Munich, in the Department of Law and Economics. Concurrently, between 1947 and 1949, he studied at the Augsburg Institute of Modern Languages. In 1951 he emigrated to the United States and settled in New York City, where he lived until his death.

In New York, Holubnychy continued his study of economics at Columbia University, where he obtained a B.S. degree in 1953 and an M.A. degree in 1954. The title of his master's thesis was "Property and Life Insurance in the USSR." As a graduate student, Holubnychy was a Fellow of the Ford Foundation. He received his Ph.D. in Economics in 1971, and wrote a dissertation entitled "V. V. Novozhilov's Theory of Value." His areas of specialization were: economic theory, comparative economic systems—with emphasis on Soviet-type economies—and Marxist philosophy. While still a student, he taught at the Russian Institute of Columbia University between 1954 and 1956 and at Middlebury College, Vermont in 1957. From 1962 he taught at Hunter College, City University of New York, where at the time of his death he was an associate professor of economics.

In 1952 Holubnychy married his childhood sweetheart from his native city, Lidia Shehemaha, at this time a Ph.D. candidate in Chinese and Japanese history and philology at Columbia University. Her tragic death in 1975 impaired his ability to work to his full capacity during the last two years of his life and was probably one of the causes of his own untimely death on 10 April 1977.

As a young scholar he was associated with the Institute for the Study of the USSR in Munich from 1954 to 1959, and with the Institute of Asian Studies in Hamburg from 1963 to 1965. From the early 1950s he co-operated closely with the Ukrainian Academy of Arts and Sciences in the United States in New York. He became a full member of this academy and a member of its managing board. Within the academy he

was closely associated with the Law and Economics section and with the Commission for the Study of Post-Revolutionary Ukraine and the Soviet Union. He organized several conferences for the latter body and himself presented a large number of papers and speeches. From 1960 he worked with the Shevchenko Scientific Society, European branch, and participated in the publication of the *Ukrainian Encyclopedia* in the Ukrainian and English languages. He was chief editor of the economics section, but also wrote on history, politics and many other subjects. At the time of his death, Holubnychy had reached an agreement with the Canadian Institute of Ukrainian Studies, University of Alberta, which would have enabled him to work for two years on the new four-volume edition of the *Encyclopedia* in English. He would have been editor of the sections on economics and the post-revolutionary history of Ukraine.

Holubnychy became involved in research at a very early age and published, under his own name and various pseudonyms, about 500 scholarly and polemical works on a wide variety of topics. Some of his manuscripts have remained unpublished. His research activity can be divided into two periods: the decade of the 1950s, when he was associated with the Munich institute, and the period from the early 1960s, when he was teaching at Hunter College.

His works from the former period, most of which were prepared under contract for the Munich institute, appeared mainly in the institute's publications, which were issued in various languages. Most of them analyse the Soviet economy. They are based on sound economic theory and a thorough knowledge of history and ideology, and give a thoughtful analysis of the Soviet economic system. Holubnychy correctly anticipated many developments in Soviet economics and foresaw the direction of Western research on this subject. Regretfully, however, his works did not receive the recognition they deserved.

Holubnychy matured as a scholar during the 1960s and 1970s. His publications, chiefly in the field of economics, although less frequent, were longer and more profound than those of preceding years. They included co-authorship of a successful textbook on comparative systems as well as a number of articles and book chapters on specialized topics. This time, Holubnychy's works met with a positive response from the scholarly community.² For obvious reasons, the reaction in the Soviet Union was quite the opposite.³

Holubnychy's scholarly interests were wide: in addition to economics, they included philosophy, history and political science. One would need specialists in these fields to give a full analysis of his contributions. Such a task must be left to future researchers of his works. My objective here is merely to note the various areas of economics in which he was particularly interested.

First, Holubnychy studied various aspects of Marxism, and in particular, the labour theory of value. There is no doubt that he planned eventually to publish his *chef d'oeuvre* in this area. However, he was unable to complete his work, and left several unfinished pieces on specific problems as well as copious notes. But Holubnychy was not satisfied with the staple fare of a Marxist scholar. He wanted to move forward and apply Marxist thought to various modern conditions. Thus he gave an extensive analysis of Novozhilov's modified Marxian approach to efficient pricing, and, implicitly, to efficient planning in the USSR. He also examined the modification of Marxism by Mao Tse-tung in the radically different conditions of China. This area of Holubnychy's interest is represented by Chapters 7, 8 and 9 of this volume.

Holubnychy took particular interest in the development of the USSR. As a world power after the Second World War, the USSR became the subject of intensive studies by Western scholars. In order to make global comparisons, these researchers, especially economists, restricted themselves to studying the USSR as a homogeneous entity. Holubnychy was one of the first to show that the development of Soviet regions, and especially the union republics, requires a separate analysis if one is to understand the experience of the entire Soviet economy. Chapters 3, 4, 5 and 6 of this volume are good examples of his efforts in that direction. The increasing number of studies in recent years devoted to regional development in the USSR shows that this view has begun to gain ground among Western scholars. One would hope that this trend might also penetrate the thinking of political leaders and public opinion in the West.

Chapters 1 and 2, which are historically-oriented, represent Holubnychy's extensive work in the area of Ukrainian studies. Unfortunately, it has not been possible to include here some of his studies on Ukrainian economics. Yet the latter subject occupies a prominent place in the works of the late scholar. He presented its history and analysed its conditions extensively in various essays and entries in the Ukrainian encyclopedias both in Ukrainian and English.⁴ No doubt, given more time, he would have produced the definitive work on Ukrainian economics, both in its historical and analytical aspects.

As has been noted,⁵ Holubnychy's major contribution to the study of Ukrainian economics is a methodological one. Students of tsarist and Soviet economics have tended to disregard the role of Ukraine, despite the latter's significant influence on the overall performance of the larger economic entity. On the other hand, both Soviet and Western scholars often analyse the economy of Ukraine in isolation from that of Russia or the USSR. Throughout his writings Holubnychy emphasized that the analysis of both the entire Moscow-controlled economy and the Ukrainian economy can be conclusive only if the inter-relationship between them is

explicitly taken into account.

As Ukraine has been politically a part of the tsarist empire and subsequently of the USSR, economic relations between these two bodies have been more intensive than would be the case if both were independent entities. Since these ties have been politically enforced, the question arises as to what extent they have affected the growth of Ukraine's economy and the welfare of its population. Holubnychy rejected the view of many Ukrainian scholars that Ukraine was an economic colony of Russia during the tsarist period. He pointed out that the economy of Ukraine was more developed than that of Russia proper and ownership of capital in Ukraine was in the hands of Western European business. However, Ukraine was economically exploited because of its political subordination to Moscow. He argued that Moscow was able to act as a monopolist⁶ in its sales to Ukraine and as a monopsonist in regard to its purchases from Ukraine, thereby obtaining profits on both accounts.

Holubnychy also investigated various aspects of Ukrainian-Russian economic relations empirically. One paper, which unfortunately remained unfinished,⁷ concerned the ownership of capital in pre-revolutionary Ukraine. This problem is important not only because of its effect on the growth and structure of the Ukrainian economy, but also because of both the identification of capital flows between Ukraine and the rest of the world and receivers of capital returns. He demonstrated that the divorce between ownership and control as well as the different geographical locations of corporation headquarters and stockholders' residences make it difficult to give an unequivocal answer to this problem. However, despite the diverse ownership of capital, Ukrainian industry was controlled, in the final analysis, by holding companies in Western European countries, such as France, Germany and England.

Like other Ukrainian economists, Holubnychy could not remain indifferent to the budgetary transfers of funds from Ukraine to other parts of the pre- and post-revolutionary empire. One of his first scholarly works dealt with the views of M. Volobuiev and V. Dobrohaiev—two staunch defenders of Ukraine's right to dispose of its budgetary revenue—during the early years of the Soviet period. In a subsequent contribution, Holubnychy incisively surveyed the problem of financial relations between Moscow and Ukraine from a historical perspective.

Holubnychy also presented the views of various researchers on this subject and posed a fundamental question concerning the benefits of transfers of investable funds from Ukraine. If such funds are invested in other parts of Russia/USSR instead of Ukraine, does the entire economy gain by the higher returns in the former? If not, then what is the reasoning behind such a policy? Initially, Holubnychy advanced the hypothesis that this policy simply reflected Moscow's determination to exploit

economically the non-Russian nationalities under its rule. Later, probably under the influence of recent research on this subject, he was inclined to think that military considerations were an equally important factor in the USSR's regional policy.

Holubnychy also took an interest in trade relations between Ukraine and tsarist Russia/USSR, an important indicator of the degree of integration between the two. He surveyed this trade in one of his earlier works, but examined this problem more closely during the postwar period with a study on trade relations between the USSR and the socialist countries of Eastern Europe. He concluded that the Ukrainian SSR accounts for a substantial share of this trade. This led him to the following two hypotheses: first, that the organic ties of the Ukrainian economy lie with Eastern Europe rather than Russia proper. Second, that the degree of integration between Russia and Ukraine is not as extensive as often claimed in both the East and the West. Fate did not grant Holubnychy the time to develop these suppositions further. However, his preliminary outline will assist the work of future scholars.⁸

Holubnychy maintained interests outside his scholarly activities. Even as a teenager he was engaged in political activity in the Ukrainian Revolutionary Democratic Party, whose members were predominantly refugees from East-Central Ukraine. He was a leading member of the younger group and editor of its newspaper *Iunatska borotba* (Young Struggle). When this group split up in 1947, Holubnychy joined the group centred around the newspaper *Vpered* (Forward). He was editor of this newspaper to which he contributed numerous articles under his own name and various pseudonyms, most often Holub or Felix. This group stood to the extreme left of the political spectrum of the Ukrainian emigration. Its programme, which reflects Holubnychy's views, was approximately as follows: although the economic and social changes which took place in the Soviet Ukraine can be justified historically, one should condemn the barbarian methods used to attain these changes. Thus the goal of the Ukrainian nation should be to achieve political independence from Moscow, to replace state ownership of the means of production by social ownership, and to introduce democracy in all aspects of human activity. It would be the kind of socialism known later as "socialism with a human face."

In New York, Holubnychy became acquainted with the Ukrainian Supreme Liberation Council (UHVR) and the works of the Ukrainian underground writers of the 1940s, Poltava and Hornovy. He concurred with the latter's emphasis on the equal importance of national and social components in the liberation struggle of the Ukrainian nation and the dominant role of political processes in present-day Ukraine, including those within the Communist Party.

In the 1960s Holubnychy took an active part in the Club of the Round Table in New York, of which he was the chairman for many years. The club served as a forum for the exchange of opinions between visitors from Ukraine and Ukrainian émigrés, and encouraged free discussion of all problems dealing with social life.

I should emphasize that Holubnychy's political activity did not in any way impair the objectivity of his scholarly work, although his selection of subjects could have been motivated by political considerations.

Holubnychy possessed an excellent memory and a highly analytical mind, which could distinguish the important from the trivial, and could place phenomena in the context of their historical development and theoretical relationship. In addition, he was intellectually disciplined, had enormous capacity for work, and set high standards for himself. Sometimes he gave the impression of being aloof. Such characteristics did not make for an easy life and his relationships with others were often strained. But those close to him knew him as a sensitive and kind man, who was always willing to help others, particularly students and young scholars. Indeed, his knowledge and dedication to his work influenced some students to embark on the difficult and unrewarding road of academic scholarship.

* * *

The selection of works for this collection was not an easy task. As the attached bibliography shows, Holubnychy was a prolific writer. Some of his works can be classified as scholarly, while others are polemical. Only the former have been included. At the same time, an effort has been made to represent his wide range of interests. The collection includes three works written a few years before Holubnychy's death, which are published here for the first time. Although incomplete, they have been included because this may be the last chance for them to appear in print. They include certain defects, but no attempt has been made to correct any deficiencies in content since an evaluation of Holubnychy as a scholar must be made on the basis of his original work.

Holubnychy's writings are based on prodigious research. His sources have been included in order to facilitate further research in these areas. I am convinced that Holubnychy would have gladly approved of such use of his labours. Six of the works included originally appeared in other publications and consequently their style has been made consistent with that of the Canadian Institute of Ukrainian Studies.

I would like to express my gratitude to various institutions and persons who have helped in the preparation of this collection. The entire project would not have been feasible without the financial aid of the Canadian Institute of Ukrainian Studies, University of Alberta, which also took upon

itself the responsibility of publishing this volume. I am grateful to CIUS director, Professor M. R. Lupul, for taking an interest in this project, to the former associate director, Professor I. L. Rudnytsky, for encouraging me to undertake it, and to Mr. B. Krawchenko and Mr. D. Marples of CIUS for their help and co-operation in the publication of this volume.

I would like to thank Holt, Rinehart and Winston, New York, for permission to include in this collection "Some Economic Aspects of Relations among the Soviet Republics," originally published in Erich Goldhagen, ed., *Ethnic Minorities in the Soviet Union* (New York: Frederick A. Praeger, Inc., 1968); "Spatial Efficiency in the Soviet Economy," originally published in V. N. Bandera and Z. L. Melnyk, eds., *Soviet Economy in Regional Perspective* (New York: Praeger Publishers, 1973); and "Teleology of the Macroregions in the Soviet Union's Long Range Plans, 1920-1990," originally published in Andrew F. Burghardt, ed., *Development Regions in the Soviet Union, Eastern Europe, and Canada* (New York: Praeger Publishers, 1975). I am also grateful to the Contemporary China Institute, School of Oriental and African Studies, University of London, for permission to include "Mao Tse-Tung's Materialistic Dialectics," originally published in *China Quarterly* (July-September 1964) and to Mosaic Press, Oakville, Ontario, for "The Present State of Cybernetics and Republic Level Economic Planning," originally published in Peter J. Potichnyj, ed., *Ukraine in the Seventies* (Oakville: Mosaic Press, 1975).

I am grateful to Dr. Osyp Danko, Yale University, for compiling Holubnychy's complete bibliography. I would like to thank Professors Yaroslav Bilinsky, University of Delaware, Aron Katsenelinboigen, University of Pennsylvania, and Frederic Pryor, Swarthmore College, for reading various works of our late colleague and for advising me on the selection of material.

I. S. Koropecykj
Temple University

Notes

1. See my obituaries in *Annals of the Ukrainian Academy of Arts and Sciences in the U.S.* 13 (1977) and *Suchasnist* (Munich) (July-August 1977). A meeting in memory of Holubnychy was held at the Ukrainian Academy of Arts and Sciences in New York on 29 December 1977, at which papers were presented by V. Bandera, Y. Bilinsky, V. Hryshko and V. Lysko, and reminiscences by L. Maistrenko. The papers by Bandera and Hryshko have

- subsequently been published in *Suchasnist* (April 1978).
2. Cf. V. N. Bandera, *American Economic Review*, no. 1 (1959); W. Nutter, *Journal of the American Statistical Association*, no. 285 (1959); J. S. Reshetar, Jr., *Slavic Review*, no. 2 (1970); V. S. Vardys, *American Political Science Review* (April 1969); H. Hanak, *International Affairs*, no. 2 (1969); R. Hutchings, *Slavonic and East European Review*, no. 105 (1967); R. Campbell, *Association for Comparative Economic Studies Bulletin*, no. 1 (1972); F. E. I. Hamilton, *Canadian Geographer* (Spring 1977).
 3. See for example those of S. A. Khavina, V. Ie. Malanchuk, V. Zasansky, V. S. Zhuchenko.
 4. *Entsykopediia ukrainoznavstva*, 8 vols. (Munich: Molode zhyttia, 1948–) and *Ukraine: A Concise Encyclopaedia*, 2 vols. (Toronto: University of Toronto Press, 1963, 1971), both edited by V. Kubijovyč.
 5. Cf. V. Bandera in *Suchasnist*.
 6. Interestingly, Holubnychy's next research project was to have been an investigation of the prices of timber and wood products sold by the Russian Federation to the Ukrainian SSR. (The latter's need of these commodities is largely satisfied by imports from the RSFSR.)
 7. See "Natsionalist kapitalu v tsarskii Rosii i na Ukraini v dobu pershoi industriialnoi revoliutsii," paper presented at the Ukrainian Academy of Arts and Sciences in the United States on 3 February 1974 in New York.
 8. Since Holubnychy's death, James W. Gillula has estimated on the basis of input-output analysis, that in 1966 the Ukrainian SSR's import/consumption and export/production ratios were 13.3 and 14.8 per cent, respectively. See his "Input-Output Analysis," in I. S. Koropecykyj, ed., *The Ukraine within the USSR: An Economic Balance Sheet* (New York: Praeger Publishers, 1977), 213. These ratios are in the range of those for various independent countries of similar size to Ukraine.

I
Studies on Ukrainian
Social and Political History

1. The 1917 Agrarian Revolution in Ukraine

The Land Tenure System and General Causes of the 1917 Revolution

It is generally recognized that statistics on land tenure in Ukraine in 1917 are of poor quality and even contradictory. This study, however, is historical rather than purely socio-economic; it relies on statistics most frequently used today and considered sufficiently authoritative.

Table 1 illustrates ownership of agricultural land in Eastern Ukraine¹ in 1915.

TABLE 1 Land Ownership in Eastern Ukraine (1915)²

Class of Owners	Million Desiatiny ³	Per cent of the Total
1. Nobility and gentry	8.9	20.2
2. Merchants, city bourgeoisie, commercial and industrial firms, banks, foreign citizens	3.3	7.5
3. The crown, the church and monasteries	1.6	3.6
4. The state, municipalities and institutions	2.4	5.4
5. Peasants	27.9	63.3
Total	44.1	100.0

At the beginning of 1917 there were about 4,011,000 peasant households in Eastern Ukraine. Of these, 633,000 (15.8 per cent) had no land under cultivation; 802,000 (20.0 per cent) owned from 0.1 to 3.0 desiatiny per farm and were very poor; 2,230,000 (55.6 per cent) owned from 3.1 to 10.0 desiatiny, and were considered lower and middle class; the rest, 346,000 (8.6 per cent) owned more than 10.0 desiatiny each and were designated as rich peasants. The average landed peasant farm consisted of 8.3 desiatiny, and in addition 0.6 desiatiny were rented, (these figures may be slightly exaggerated since the statistics have not yet been fully researched).⁴ Of all the land-owning farms, however, 45.5 per cent had no draught power and 12.1 per cent had only one horse or ox; 44.9 per cent had no ploughs or other equipment, and 35.8 per cent had no cows.⁵ As a result of this shortage of draught animals and implements, about one-half of the poorer farms rented their land to rich farmers, while earning their livelihood as sharecroppers or hired hands. Rich farmers also leased land from the landlords and other big owners. Altogether, peasants rented to others 2.1 million desiatiny and rented from others 4.2 million desiatiny, which means that they netted from the landlords and other non-peasant owners 2.1 million desiatiny, or about 18 per cent of the latter's lands.⁶ Money rent and sharecropping were predominant forms of rent, with rack rents encountered infrequently. Unused feudal-type lands did not exist in Ukraine. Absentee landlords and sub-leasing middlemen were rare, as was usury. There were more than 5,000 small credit associations in 1914, and the number was growing.⁷

In 1914 there were some 5,000 large landed estates in Ukraine, with about 1,600 desiatiny per estate.⁸ Landholdings of nobility were slowly decreasing because many nobles were incapable of adjusting to capitalist-type, competitive farming, which was becoming prevalent on the remaining estates. From 1906 to 1917 peasants purchased 7,278,000 desiatiny, largely from this group.⁹

By and large, the problem of land hunger in Ukraine was not as serious as that of Russia, since the middle-class farmer was a more predominant figure in Ukraine than in Russia.¹⁰ However, in Right-Bank Ukraine in Podillia, Volhynia and Kiev provinces, where huge latifundia survived from Polish times, the degree of rural overpopulation and poverty was the most acute in the entire Russian empire.¹¹ On the Left Bank the poor, middle and rich peasants were about equally divided, with the largest estates in Kharkiv and Chernihiv provinces. In the Steppe region capitalist farming by rich peasants and landlords was more typical, with an average farm consisting of more than 300 desiatiny. The average for all classes was about forty to fifty desiatiny.¹² The rural population in general, however, was growing almost twice as fast as peasant land purchases, and,

accordingly, the class of poor peasants was continuously increasing.¹³ Emigration to Siberia and Kazakhstan made little impact on overpopulation, since up to 70 per cent of the emigrants returned from the east.¹⁴ Yields per acre were increasing about 2 per cent annually,¹⁵ which was somewhat less than the rural population's increment. Yet, Ukraine was exporting about 24 per cent of its net grain harvest.¹⁶ Obviously, the exporters were the landlords and rich peasants, while the majority of peasants either lived at subsistence level, or went hungry in bad harvest years.

Under the specific cultural, agricultural and socio-economic conditions of the time, the average Ukrainian peasant household operated a subsistence farm consisting of about twenty-four acres, one horse, one cow and very little capital formation. Had the forty-two million desiatiny of arable lands been distributed equally among the four million households, the average farm would have increased in size only by four acres. A twenty-eight-acre farm would still be merely a subsistence farm. In good harvest years it might produce a marketable surplus; in a bad harvest year, which would occur every four to five years under Ukraine's climatic conditions and with its lack of capital intensification measures, not only the peasants, but also the urban population would be endangered by food shortages. With the growth of population, marginal productivity of the available agricultural resources would tend toward zero. The average farm might keep afloat because of emigration and the absorption of surplus population by fast-growing industries, but a likely consequence would be some social differentiation within the peasantry. Perhaps the development of easy credit facilities, co-operatives and improved agricultural techniques might raise capital formation and marginal productivity of resources, but this would be a slow process.

This analysis contradicts the famous Russian "labour" or "family-farm" school of agricultural economists (A. Chayanov, A. Chelintsev, I. Oganovsky, S. Maslov et al.),¹⁷ which exerted considerable theoretical influence on the Russian and Ukrainian Socialist Revolutionaries before 1917. Its weakness is its assumption that the marginal productivity of agricultural inputs, particularly of labour, cannot reach zero. But the thought-provoking fact from this theory is that, when the zero point is reached, this by itself should not yet cause an agrarian revolution. No doubt the landless, poor and even middle-class peasants in Ukraine and Russia certainly coveted the upper classes' land. But in many countries conditions are similar to or much worse than those of the Ukrainian and Russian countryside in 1917, and yet revolutions have not occurred, or have not passed beyond the stage of local rebellion.¹⁸

Hence, the 1917 agrarian revolution had more symptoms than a purely socio-economic theory could predict. The socio-economic inequities of the

existing land-tenure system were undoubtedly major symptoms: the peasantry wanted the land. But, in addition, the following factors should be taken into account:

1. The agrarian revolution was part of a larger revolutionary situation; an exhausting and seemingly endless war, an economic crisis in industry, high inflation, a decline in agricultural output and growing hunger in the cities, which soon also afflicted the Russian countryside.
2. The younger generation learned the functions of discipline and power from service in the armed forces.
3. The older generation could recall both the recent revolution of 1905–7 and the terrible famines.
4. The population was affected by a new phenomenon: primary education, which was rapidly spreading. In the Ukrainian countryside at least one-third of the male population was already literate.¹⁹ Political agitation, the press, European ideas (socialism, co-operativism, etc.) were seeds sown in fertile virgin minds.
5. The collapse of tsarism bred an optimistic outlook. Political democracy was preferable to passive acceptance of prevailing conditions. The socio-economic dichotomy between classes eventually became openly political.

Significance and Nature of the Agrarian Revolution

In the literature on the 1917 revolution in Ukraine there are two opposing views on the significance of the agrarian movement. Both are politically inspired. Emigré literature gives priority to the national question and considers the peasantry's lack of national consciousness to be a major reason for the loss of national independence. Thus the analysis of the peasant movement and its relationship with the national revolution has been largely neglected. In contrast, Soviet historians are obliged to minimize the significance of the national liberation movement in Ukraine and in other non-Russian republics. They assign a secondary role to the agrarian movement in the "workers-peasants alliance," and present the Russian Communist Party as the organizer and leader of the revolution.

Some non-aligned historians in the West, however, espouse the thesis that the agrarian question was “crucial”²⁰ and “central”²¹ to the Ukrainian revolution. Also, some careful observers, such as Austrian intelligence officers, reported to their superior in Vienna that the “most important” matter in Ukraine was the agrarian question,²² and that the alleviation of all other problems depended upon its solution.²³

The Soviet historian S. Trapeznikov, an authority on the theory of the agrarian revolution, has conceded that the agrarian problem in 1917 was “most complicated.”²⁴ The foremost contemporary researcher of the agrarian revolution in Russia and Ukraine in 1917–18, the late academician P. Pershin, considered it the “most puzzling” agrarian movement in Russian history.²⁵ Despite the stereotyped critique of the early Soviet Ukrainian historiography of the 1920s by modern historiographers,²⁶ which emphasized the spontaneous character of the peasant movement in Ukraine, the leading Ukrainian scholar, I. Korolivsky, concluded in 1955 that “by March-April 1917, the Ukrainian peasantry had to solve [land] problems on its own initiative.”²⁷

One could, of course, argue that to an Austrian agent the agrarian question appeared to be a key to all problems in 1918 because the Central Powers needed Ukrainian food deliveries; but the same cannot be said about the official attitude of these countries in 1914. The spontaneity of agrarian outbursts in Ukraine will occupy a large part of this discussion.

To speak of the spontaneous nature of an agrarian revolution, meaning by this a conscious, but not pre-organized, fundamental attack on the existing socio-economic order by the peasant masses, may appear unwise. Such movements in medieval and modern times had, as a rule, if not an organization, then at least some strong ideological, religious or military-strategic leaders. The *Jacquerie* had its Guillaume Cale; German peasants had Thomas Munzer; Russian serfs had Iemelian Pugachev and Stenka Razin; the Taiping rebellion was inspired by Hung Hsiu-ch’uan. The Ukrainian *haidamaky* were led by Maksym Zalizniak, and their progeny had Ustym Karmaliuk, to name but a few among many. It is a fact, however, that since Karmaliuk (1835), the Ukrainian peasant movement had had no outstanding personality or organization in its leadership (and neither had the Russian movement). The 1905 revolution was also unplanned and leaderless.²⁸ This indicates the probability of a spontaneous peasant revolution.

On the other hand, at the start of the twentieth century in Ukraine political parties and ideologically inspired agrarian programmes began to develop, and there were some efforts to organize the peasant movement. In 1917 the parties formed the governments and tried to execute their agrarian programme. There was undoubtedly a certain relationship between the policies and programmes of these parties and governments on

the one hand, and the growth of the peasant revolution on the other, but this was a “feedback” relationship, in which each side influenced the actions of the other; yet the parties and their governments did not so much lead the peasant movement as react to it, and ultimately, they were led by it. Again, this reveals the basic spontaneity of the agrarian revolution of 1917.

Taxonomic Analysis of Peasant Actions

To date, the most developed taxonomy of peasant revolutionary activities in 1917 is that of the academician Pershin. He distinguishes thirteen types of more or less violent and lawless actions directed against the landlords, and attempts to quantify them statistically.²⁹ However, his research and conclusions are based on data for the Russian SFSR rather than for Ukraine.³⁰ Moreover, Pershin’s regionalization (of *povity*, where actions took place) is based not on national or administrative boundaries, but on a dubious socio-economic and agricultural regionalization found in the theories of Lenin.³¹ Still, it is a pioneering work and must be taken into consideration.

Pershin’s research indicates that in the period from March to September 1917 in Ukraine, peasant actions consisted mainly of “seizures of arable land and meadows,” “labour conflicts,” “timber cutting by the peasants,” and “the violation of lease contracts”; there were apparently very few armed conflicts or plundering and burning of estates.³²

It is almost impossible to avoid some arbitrariness in the taxonomy of peasant (and similar social) actions. I will attempt a more detailed classification in order to shed some new light on the events.

The source materials are made up of over thirty volumes of published archival documents and reprints of press reports that appeared in the Ukrainian SSR and the Soviet Union in the postwar period. Since most of these collections, especially the provincial ones, appeared as jubilee editions commemorating the fortieth anniversary of the Bolshevik revolution, they contain a good deal of repetition—reprints of the basic documents of Soviet power. About one-third of the collections contain little of value, but give a general picture of local events. Many, however, contain useful documents. Most useful were volumes edited by S. Korolivsky, N. Donii, P. Tronko, M. Havrylenko, A. Bugaiev and the USSR Academy of Science’s *Khronika*. The documents and materials published in these collections display a bias toward the pro-Soviet sources, selected and screened to produce a picture in accord with the philosophy of “Socialist Realism.” If non-Soviet sources are used, they are—aside from government and police documents—local Russian newspapers, which were quite often

very reactionary. On the other hand, very few Ukrainian sources are used and there is a tendency to belittle and conceal Ukrainian sources. For the purpose of this study, however, these biases are not of major consequence.

For a reliable taxonomic analysis, I applied the following rules in the selection of cases:

1. All descriptions of or references to events that did not indicate clearly what the peasants were doing, were excluded from the count. Only those items that mentioned explicitly to whom and by whom the action was carried out, when and where, how and/or why, were included.
2. Mere declarations and proclamations of intent, such as resolutions, appeals, etc., of peasant meetings or peasant organisation were excluded unless there was a clear indication that they were actually carried out. All uncertain cases were also discarded.
3. All events above the *volost* level usually fell under rule (2). There were exceptions to this rule, where, for example, higher authorities replied to some local landlord's complaint and explained in their reply what had happened and what they were going to do about it.
4. Overlapping cases were, of course, counted only once. If, however, the same landlord was being expropriated by several villages in his territory, each village was counted as a separate case. If several types of action were taken separately during a period of time against the same landlord, each type of action was counted separately.

In applying such strict rules to the selection of documents and cases, I considered it preferable to exclude the more ambiguous references to be more certain in drawing conclusions.

This analysis of Ukraine is based on 478 cases, or about 40 per cent of all the cases available in the documents and fitting the standards. These cover the period March 1917 to March 1918. A comparison is made with the territory of the rest of the Russian empire, in which 1,393 cases were counted (excluding Ukraine). Although the Russian data were taken from only one source, this is considered to be the most comprehensive to date.³³ The taxonomic findings are indicated in Table 2.

One serious shortcoming of the sources is that they rarely indicate how peasants divided land and property among themselves. It is not clear

TABLE 2 Taxonomic Analysis of Peasant Actions

Type of Peasant Activities	Incidence of Events (Per cent of Total)	
	Ukraine	The rest of the Russian empire
1. Seizure and confiscation of arable lands, with their subsequent free distribution, or sale (lease) at reduced prices by new "owners"	41.0	28.1
2. Seizure of meadows, pastures and fodder crop lands, with similar distribution	7.9	11.7
3. Seizure of woods and forests with similar consequences; also illegal cutting of timber, or prohibition to cut, by new "owners"	9.8	17.1
4. Seizure of harvest in the fields, of stocks of seed, fodder and foodstuffs; their distribution free or at reduced prices	8.4	7.5
5. Seizure of livestock, horses and oxen, and their similar distribution	2.3	4.8
6. Seizure of agricultural implements, machinery and tools	2.3	3.9
7. Seizure of water-mills and windmills	1.6	0.1
8. Seizure of estate buildings, their looting, burning, or organized sale (lease), whole or in parts	3.8	8.3
9. Damage to fields and meadows by illegal cattle grazing	3.5	2.2
10. Levy of illegal taxes and fines on the landlords	0.9	0.2
11. Disarming of landlords or their guards; armed conflicts with them	0.9	0.3
12. Refusal to pay or compulsory reduction of rent by the tenants	3.4	4.4
13. Coercion of landlords to pay higher wages to hired hands	3.6	0.6
14. Dismissal or hindering of prisoners of war or of hired hands from work on the estates	1.4	1.7
15. Prohibition of the use of machinery in place of hired labour	0.1	0.0
16. Fighting between villages during distribution of land and property	0.4	0.1
17. Spontaneous election or re-election of rural authorities; arrests of previous officials	3.8	2.8
18. Political agitation against existing authorities	1.2	0.7
19. Petitions, resolutions and demands, indicating concrete actions to be taken if unsatisfied	2.5	4.4
20. Demand for native (non-Russian) schools	1.2	1.1
Total	100.0	100.0

whether sales or leases of seized properties were based on egalitarian principles or on the ability and willingness to pay. Thus it is difficult to assess the actual implementation of ideologies and programmes of various political bodies. An intriguing question is: what happened to a windmill or

a threshing machine after its confiscation? Who received them subsequently: the rich peasants for their own private use, or the whole village for collective use? The answer, based chiefly on other evidence, is that both may have been the case: the rules of distribution varied from village to village.

From the documents, it is not always clear whether "seizure" meant "division" or merely establishment of control over property. Whenever seizure was not clearly accompanied by partition, it was included in Class (8), assuming that if the estate was not burned or otherwise destroyed, it was taken under control in an organized manner for future distribution. There were not many such cases, however.

The seizure of land and property in Ukraine was accompanied by immediate and free distribution among the peasants much more frequently than was the case in Russia. The proportion of cases was about two to one respectively. In Russia the new "owners," usually a village committee or a soviet, representing the *obshchina*, established control over seized properties first and then sold or, more frequently, leased them to members for rent, with proceeds to be used, presumably, for local collective purposes, such as schools, roads, etc.

The violent destruction of estates was carried out in a similar manner and in about the same proportion in both Ukraine and Russia. There was a particularly high proportion of violent destruction of estates in Belorussia and Tataria (middle Volga region).

An interesting phenomenon in Ukraine was the seizure and partition of lands sown with sugar beets, tobacco and other technical crops. After repartition peasants converted these lands to spring wheat and other edibles. This reveals that the peasants' earnings from technical crops, whether working for the estate owners or producing them for sale by themselves, were insufficient. Even the Soviet authorities, in Kharkiv province in February 1918, permitted peasants to partition sugar-beet estates, although this was contrary to Soviet principles.³⁴

A considerable struggle took place for meadows, pastures and livestock fodder due to acute shortages of the latter for peasant livestock. The prohibition of wood-cutting was of special significance in Ukraine. Eastern Ukraine is largely denuded of forests, but wood was used as fuel by sugar refineries, as props inside mines, as sleepers on railways and as building material. On the other hand, it was also used as firewood by the people. Hence, in some cases peasants cut the trees for their own use; in others, they prevented the owners from cutting wood for industrial uses because so little of it was left for them.

Some landlords tried to replace local hired hands and sharecroppers with the cheaper labour of prisoners supplied by the War Ministry. But the peasants forced the landlords to dismiss the POWs and hire local

workers, often for higher wages than before. Peasants also attacked the use of machines, which undermined their labour. Although about 2.5 million peasants in Ukraine were drafted into the armed forces,³⁵ the villages were still overpopulated and peasants needed work badly.

Some sources document fighting between villages in the course of the distribution of land and properties.³⁶ This suggests that there was no one in authority to supervise the distribution in an orderly manner and to prevent or arbitrate in such fights, and illustrates again the spontaneity of the peasant revolution.

Political agitation against existing authorities was probably more widespread than Table 2 indicates. The spontaneous attacks on the estates must have been preceded by some agitation, but the sources examined selected only those cases where police counteraction was involved. The peasants' demand for native-language schools was also a kind of political action, reflecting the level of their consciousness. In Russia such demands were particularly noticeable among the smaller nationality groups (Iakuts, Buriats, Chuvashi, etc.), which probably understood that they had little chance of obtaining anything more than cultural autonomy.

Social Taxonomy of Peasant Actions

From which classes of owners was property seized and partitioned in Ukraine? Of the total of 478 cases, 422 are useful for this type of analysis. The frequency is analysed in Table 3.

TABLE 3 **Land Seizure in Ukraine**

Owners	Per cent of Cases
1. Landlords	64.3
2. The church, monasteries, local priests	14.0
3. The state, tsar's family, corporations, railways, banks, army horse farms, etc.	12.4
4. Homesteaders, who established separate farms under the Stolypin reforms	9.3
Total	100.0

As far as state and crown lands are concerned, the case needs little explanation. Peasants considered such lands as "ownerless." The seizure of lands from the corporate companies, in addition to sugar refineries and alcohol distilleries, involved some coal and iron-ore mines and railways' options, as well as lands and estates mortgaged to and taken over by banks. Lands under corporate options usually lay fallow. Army horse farms

provided peasants with both land and horses.

Church and monastery lands were also seized frequently, though these often included forests and meadows (e.g., forests of the Metropolitan of Kiev and Galicia),³⁷ which were in a kind of usufruct institutional possession, not recognized by the peasants. Remarkably, not only were there cases of seizure of properties of small Polish Catholic *kościółts* in the midst of the Orthodox villages, reflecting religious and national animosities, but also there occurred frequent seizures of land, orchards and houses of local Orthodox priests.³⁸

For the landlords, some distinct patterns emerge. First, many of those whose lands were confiscated or estates attacked earlier in the period were people with aristocratic titles (princes, counts, barons) and foreign names—mostly Polish and German. This may have reflected the actual composition of this class, but it is more likely that the untitled gentry were in the majority. Several documents mention specifically that the landlords under attack were foreign subjects, such as Tilbland (Swedish subject), Dragasis-Paleologue (Greek subject), representatives of the Belgian Joint-Stock Co., Rottermund & Weiss, etc. There were also many Russian names, but very few of Ukrainian origin.³⁹ Perhaps the “foreignness” of the landlords was an additional irritant to peasants. The second pattern reveals that a relatively large proportion of female landowners were under attack. Perhaps female landowners outnumbered the males, but it is also conceivable that peasants attacked the women more frequently, gambling on their helplessness in defending the estates or in calling on the government for reprisals.

Since absentee ownership was not generally practiced in Ukraine, the question arises: what happened to landlords if they did not leave their estates beforehand? There is no evidence that they were killed, although some were reportedly arrested. In most cases they were driven away to the cities. (A masterpiece short story, “Tak vono pokazuiie” by Borys Antonenko-Davydovych vividly and humanely describes one such occurrence.)

Also of significance is the seizure of lands of the homesteaders (called variously: *khutir*, *otrubshchyk*, *nadilnyk*, but only seldom *kurkul* or *kulak*). The majority were Ukrainians, and some were of hereditary Cossack origin. But in most cases the homesteaders were attacked by the *obshchiny* they had left after the Stolypin laws (1906–10) came into effect. There were a few *obshchiny* remaining in Ukraine in 1917, many of which consisted of Russian peasants.⁴⁰ The *Khronika* shows that the compulsory return of *otrubshchiki* to the *obshchiny* in Russia was considerably more frequent than in Ukraine.⁴¹

Taxonomy in Time and Space

Was the development of the agrarian revolution a response to other events, specifically to government legislation adopted at certain dates? Current Soviet Ukrainian literature proposes two periodizations: the first perceives a break at the time of the Kornilov putsch, i.e., March-August and September-October; the other speaks of a "peaceful period" (March-June) and a "violent" one (July-December).⁴² Both suggest that in the second period the peasant revolution was more intense than in the first. These two views have been deservedly criticized; one critic states, possibly with tongue-in-cheek, that this periodization "might produce the incorrect impression that landlords' lands passed into peasants' hands before the Socialist Revolution," before the "Leninist *Decree on Land*."⁴³ In fact, violent actions frequently occurred in the "peaceful" period, and the Kornilov putsch has no definite link with the peasant revolution. Also already during the war, between August 1914 and December 1916, 160 violent peasant actions were registered by the police in Ukraine,⁴⁴ so the phenomenon was not new.

Four researchers, M. Rubach, A. Kozachenko, S. Dubrovski and E. Zhyvolup have given separate estimates of the number of peasant actions per month in 1917 in Ukraine as a whole (Table 4).⁴⁵

TABLE 4 Peasant Actions in Ukraine by Month

Months	M. Rubach	A. Kozachenko	S. Dubrovski	E. Zhyvolup
March	...	4	10	4
April	21	30	52	21
May	32	57	107	32
June	75	94	153	86
July	190	118	166	190
August	121	58	171	121
September	118	112	172	117
October	...	...	283	116
November	...	...	...	142
December	...	...	...	41

Data in these accounts, except of Zhyvolup's, derived from the provincial commissars' reports to the Chief Administration of Militia (police) of the provisional government in Petrograd. Pershin has established that this source considerably understated the number of peasant actions,⁴⁶ for it limited itself to the major events, such as estate looting and burning, and then only if they were reported to the centre. Local archives and local news reports yield a more comprehensive picture.

Yet it is clear from Table 4 that the division of 1917 into two distinct periods is unwarranted. Instead, the number of peasant actions generally increased over 1917, with some fluctuations.

Table 5 compares peasant actions in Ukraine and the rest of the Russian empire. These have been calculated from the *Khronika*, and, in contrast, from S. Dubrovski's data based on central police archives.⁴⁷

TABLE 5 Comparison of Peasant Actions in Ukraine and Russian Empire

Months	Khronika		Dubrovski	
	Ukraine	Russian Empire	Ukraine	Russian Empire
March	0.6	6.8	0.9	0.8
April	3.2	10.1	4.7	7.0
May	4.7	22.9	9.6	12.3
June	12.8	11.1	13.7	17.9
July	28.4	12.2	14.9	16.9
August	18.2	13.7	15.3	12.6
September	17.6	11.7	15.5	13.5
October	14.5	11.5	25.4	19.0
Total	100.0	100.0	100.0	100.0

These data show different patterns. According to the *Khronika*, the Ukrainian peasant movement started slowly, culminated in July, and then subsided; whereas in the rest of the empire, especially in central Russia, the movement started earlier, subsided after the spring, and then maintained its level. Dubrovski indicates that the Ukrainian movement was constantly on the increase, attaining its peak in the fall, while the Russian movement declined over the summer.

It is difficult to correlate the data with the political history. As the land reform committees were established in May and June, why then did the movement in the Ukrainian provinces flare up immediately afterward, when these committees were supposed to have had a placatory influence? The slight decline of the movement in Russia in August coincided with the government repression that increased under the impact of Kornilov's putsch. Pershin suggests that this was also due to the peasants' preoccupation with their own harvest,⁴⁸ but this does not tie in with the Ukrainian situation. (On the other hand, government repressions of peasants in Ukraine were less harsh than in Russia.) Political events, then, did not have much impact on the agrarian revolution, which was autonomous in its spontaneity.

Unfortunately there is little documentary and statistical information on the post-October months. The fall of the provisional government put a stop

to the centralized collection of data. Yet, in November the Soviet government and the Ukrainian Central Rada adopted the main land-reform decrees. The only information about the effects of this legislation on the peasant movement is contained in local archives, but these materials are rarely published. E. Zhyvolup produced data for November and December (see Table 4), which indicate an increase in the movement in Ukraine in November, and an unexplained sharp decline in December. For Kiev province alone, S. Kahan counted 143 cases in November, but only 65 in December.⁴⁹ Another, less helpful, study concerning Taurida notes that from March to October there were 202 cases and from November to December, 75.⁵⁰ Whether this implies an increase in the last two months is a moot point. If Zhyvolup's and Kahan's data reflect a genuine trend, it is likely that in December the peasants decided to await the orderly implementation of the new laws. But this is a tentative conclusion. The fact remains that the laws were not passed until the agrarian revolution was in full swing.

Table 6 examines the spread of the peasant movement across Ukraine as examined by Dubrovski⁵¹ and Hamretsky.⁵² Dubrovski's data for the

TABLE 6 Territorial Incidence of the Peasant Movement in Ukraine

Provinces (Gubernii)	Number of Cases Counted by:	
	Dubrovski	Hamretsky
Volhynia	211	98
Podillia	138	87
Katerynoslav	123	55
Poltava	112	112
Kharkiv	85	95
Kherson	84	46
Kiev	80	81
Chernihiv	75	64
Taurida	38	30
Total	946	668

provinces of Volhynia, Podillia and Katerynoslav are generally more accurate than those of Hamretsky. The data for Kherson, on the other hand, must be closer to those of Taurida, as indicated by Hamretsky. The remaining provinces display a similar picture in both sources. A map produced by Pershin⁵³ supports Dubrovski rather than Hamretsky. On the other hand, it shows the Chernihiv movement as much weaker even than that in Kherson, and places Kiev province almost on a par with Podillia. Again, Pershin's estimate of the intensity of the Kiev movement may be correct, but to place Chernihiv below Kherson is probably wrong. The

subject requires further study, which can be undertaken only on the basis of local archives.

Geographic Confinement of the 1917 Agrarian Revolution

Pershin's regionalization of the agrarian revolution in the Russian empire is based on dubious subdivisions. He sees, for example, a "region of commercial grain farming of the South and South-East," which includes "the South of Ukraine and Moldavia."⁵⁴ There is no indication whether that "South-East" ends in Russia, or where the "South of Ukraine" begins in the north. There is also a "region of capitalist sugar-beet farming," although it is known that land was rented in this area. A "Central region of underdeveloped capitalist farming with many remnants of serfdom" may have existed before 1906-10, but what kind of "remnants" were there in 1917? No boundaries of these regions are given and they may well overlap. Dubrovski's regionalization is clearer. Unlike Pershin, who takes as his basic unit, a *povit* (Russ., *uezd*) Dubrovski bases his geography on the provinces (*gubernii*),⁵⁵ but since his sources are restricted to the governors' reports to Petrograd, his findings are incomplete.

Initially, Pershin found that the scope and intensity of the peasant movement was greatest "in the western agro-economic region, which included Lithuania and Belorussia," particularly in the *uezdi* "bordering on the front."⁵⁶ Soviet Ukrainian researchers also emphasized that in Ukraine, too, the movement was most intense in the regions near the front line. In 1917, the Russian-German-Austrian front was more or less stationary and ran north to south from the vicinity of Riga, Dvinsk, Baranovichi, Pinsk, Lutsk, Ternopil, Kamianets-Podilskyi and Chernivtsi, to the west of the river Prut, down to the Danube delta, and into western Armenia (Kars province).⁵⁷

To the west of the front line there was no agrarian revolution in 1917. Finland was not in the war zone and although it was part of the Russian empire, there are no reports whatsoever of any peasant disturbances there. In Estonia and most of Russian-occupied Latvia, there were reportedly only sporadic attacks on and seizures of the big landed estates.⁵⁸ Pershin's inclusion of all Lithuania in the area of peasant revolts must be erroneous, for only three eastern *uezdi* of this country were on the Russian side of the front, while most of the country was occupied by the Germans. There was no peasant revolution in Poland at this time and a Polish communist leader, Julian Marchlewski, writing in 1918, even suggested that "Poland should profit by the Russian example and avoid agrarian anarchy."⁵⁹

The agrarian situation in Eastern Belorussia in 1917 was similar to that of Ukraine.⁶⁰ Early Bolshevik writers stated explicitly that the agrarian

problem was the key to all other problems there.⁶¹ But, remarkably, while the agrarian revolution and class war were taking place in Eastern Belorussia under Russian control, no such events took place in Western Belorussia, which was under German authority, although agrarian conditions there were even worse in all respects.

This process was repeated in Western Ukraine under Austrian occupation. Here, the landlords, mostly Poles and Germans, possessed 37.8 per cent of all lands in 1912⁶² and overpopulation among the Ukrainian peasantry and land hunger were greater than in Eastern Ukraine, yet no peasant revolution occurred in Western Ukraine in 1917.⁶³ Similarly, there were no outbreaks of peasant violence in Bukovyna or Transcarpathian Ukraine.⁶⁴ One possible explanation of this phenomenon, which must be at least partially correct, is that in Western Ukraine, eastern Poland, Western Belorussia and Lithuania, German and Austrian troops were quite often billeted on the large agricultural estates (which was not the case with Russian troops on the eastern side of the front); hence, peasants may have been afraid to attack them. This subject, however, requires further study.

In Romania, to the west of Bessarabia, the Russian army occupied the *uezdi* of Botosani, Iasi, Bärlad and Tecuci along the Siret River, and slightly to the west of it until the end of 1917. Agrarian conditions were similar to other parts of Eastern Europe, yet no peasant revolution occurred. Romanian peasants cannot have been afraid of Russian troops, for the latter were demoralized at the time. On the other hand, in Bessarabia (Moldavia), which was well to the east of the Russian front, there took place an agrarian revolution equalling in its intensity that of Eastern Ukraine and Belorussia. Land reform, promised by the nationalist *Sfatul Tavrii* (National Council) in November 1917, was carried out slowly, after the annexation of Bessarabia to Romania.⁶⁵

In the Crimea, among the non-Tatar peasants, the agrarian movement was quite weak, and in the Tatar parts of the peninsula there was no movement at all. The *Milli Firka* nationalists demanded only the nationalization and distribution of properties belonging in usufruct to the Moslem clergy.⁶⁶ The principles of ownership and distribution of land were viewed as secondary in importance, since, according to the *Koran*, all land is ultimately the property of Allah.

In Kuban, Terek and Dagestan oblasti, Stavropol gubernia and the rest of the North Caucasus, no agrarian revolution took place in 1917, although there was an acute class struggle between the landed Cossack class and the poverty-stricken *horodovyky* or *inogorodtsy* (mainly Russian, Ukrainian and other immigrants who worked as hired hands on the Cossack farms or in the cities). A third force, the nationalistic mountaineers, fought against both classes, but also among themselves. In fact, in 1917 there were only two cases of estate burning by the

mountaineers.⁶⁷ In the Don Military oblast conditions were similar to those of the Kuban. A Cossack congress in April 1917 resolved that the Russian government should buy up the lands of the non-Cossack great landowners and distribute them to the needy *inogorodtsy*.⁶⁸ In the fall of 1917 some lands were forcefully seized by the peasants, but this occurred mainly across the Ukrainian border, in the Donbas and Tahanrih regions.

A full-fledged agrarian revolution did not break out in Transcaucasia, although conditions in many areas were close to feudal,⁶⁹ and the socialist parties were quite strong. The Mensheviks in Georgia promulgated a land reform law in December 1917 stating that the peasants could lease or buy land from the state land fund.⁷⁰ In Armenia and Azerbaidzhan there was no land reform in 1917.⁷¹ In Central Asia, east of the Caspian Sea and the Ural Mountains and across to the Pacific, no agrarian revolution took place. In Kazakhstan and Kirgizia the local Moslem populations waged guerrilla warfare against the Slav farmer-colonists throughout 1917, and both tsarist and provincial government troops were used to suppress them.⁷²

To the west of the Ural Mountains, in Perm, Viatka, Ufa and Orenburg provinces, there were some peasant outbursts in the spring and fall of 1917, but their intensity and frequency was well below the average for central Russia. In Astrakhan province there was no peasant movement of significance.

Further to the west, in the middle Volga region, i.e., in the Kazan, Samara, Saratov, Simbirsk and Nizhnii Novgorod provinces, the agrarian revolution was in full swing throughout 1917. The Kazan Tatars destroyed many local Russian estates, including homesteads of rich peasants. As Moslems, they were less interested in the land than in an anti-colonial struggle. Yet, Radkey has established that the Kazan Tatar Soviets, dominated by the Russian Socialist Revolutionaries (SRs), were the strongest in the entire Russian empire.⁷³ This surprising symbiosis of Tatar nationalism and Russian SR-ism still requires an explanation. Local Bashkirs, on the other hand, wanted the homesteaders' land returned to their *obshchiny*, as did the local Russian peasants.

There was another fierce struggle further to the west, in the ethnically Russian provinces of Pensa, Tambov, Voronezh, Kursk and Orel. The *obshchina* predominated, and its members seized the landlords' lands, meadows and forests for temporary usage. Few estates were physically destroyed, and most were taken over by peasant committees and Soviets. Confiscated properties were leased or, in a few cases, sold to *obshchina* members. One gets the impression that in this region more than any other the peasant revolution, despite its tremendous scope and intensity, was badly-organized at the grass roots level.

To the north of the Russian areas, in the provinces of Tula, Kaluga, Riazan, Moscow, Tver, Vladimir, Kostroma and Iaroslav, in contrast to a

strong workers' movement in the cities, the peasant revolts were moderate. Further to the west and north, in Olonetsk, Archangel, Vologda, Novgorod, Pskov and Petrograd provinces, the peasant movement was even more placid (with the exception of a few *uezdi* around Pskov). The peasants were backward and uninformed,⁷⁴ and workers' agitators paid little attention to them, in spite of the proximity of Petrograd, the heart of the revolution.

Clearly, the 1917 revolution in the countryside was rather confined in its territory. It took place only in the central and eastern Ukraine, Eastern Belorussia, Bessarabia, middle Volga and south-central Russia, areas which, with the exception of Belorussia, were also the location of the agrarian revolution of 1905–7.⁷⁵ Why it occurred only in these territories is a matter that still requires a thorough analysis, particularly a statistical correlation of various possible factors, as well as tests of hypotheses.

The Structure of the Ukrainian Peasant Movement

Initiators of Peasant Actions

Who initiated peasant actions in Ukraine in 1917? From the available source materials, 381 cases whose documentation appears acceptable, have been selected.

Table 7 is somewhat less reliable than the others. It is difficult to confirm the initiator of an action. For example, when the peasants of some village seized an estate, they may have been led by soldiers or merely be fulfilling a decision of some local rural authority. With these reservations, however, one may state that the initiative in the Ukrainian agrarian revolution in 1917 came largely from the peasants themselves.

TABLE 7 **Initiators of Actions in Agrarian Revolution**

Initiators	Per cent of Total Cases
1. Peasants	58.9
2. Village authorities	17.6
3. <i>Volost</i> land committees	17.3
4. Soldiers and sailors	4.1
5. Agitators	1.6
6. Peasant unions	0.5
Total	100.0

Scholars and observers of the 1917 events in Ukraine emphasize the role of the soldiers in peasant actions. These soldiers either deserted or returned to their villages after the cease-fire on the German-Russian front. Some came home to recuperate from wounds, or on furloughs.⁷⁶ Often they were the first to bring to their villages the news about the revolution.⁷⁷ In Vynnychenko's opinion, "No one in the countryside enjoyed more trust, more authority than the soldier." Peasants believed that the tsar had been overthrown by soldiers and expected that soldiers would also "give the land to the peasants."⁷⁸ Soldiers near the front line were especially active. One source reports that soldiers were the first to start looting alcohol distilleries and estate buildings, then local peasants joined in, and finally the peasants began to partition lands, cut woods, mow hay and so forth.⁷⁹ In Left-Bank Ukraine, where there were no front lines early in 1917, soldiers played a lesser role in attacks upon the estates.⁸⁰ Moreover, the soldiers' role should not be exaggerated since the peasants were also well armed.

Reports about the role of the rural intelligentsia in the peasant movement are contradictory. For example, the *Chernigovskaia zemskaia gazeta* (2 May 1917) stated that:

Unfortunately, some peasants are quite confused about the revolution. They do not trust the intellectuals: "They are the gentlemen [*pany*], we do not need them. We have our own heads to decide what to do and how. If we would listen to them, we might lose both our heads and our freedom."⁸¹

Small landowners in the same province of Chernihiv complained to Petrograd on 26 June 1917 that "all intellectuals have been removed" from the *povit* land committees and, as a result, the latter had become unruly and anarchistic.⁸² On the other hand, near Ielisivethrad peasants complained that they were "completely lacking in intellectual forces" in their village and asked that someone be sent in to explain matters.⁸³

Peasant Self-Government in the Revolution

As Table 7 shows, organs of peasant self-government (below the *povit* level) played an important role in the initiation of the agrarian movement in Ukraine.

Until about 1925, a Ukrainian village (*selo*) was ruled by a *skhod* (general meeting) of peasants. It was similar to the *mir* in Russia, but had less significant socio-economic functions and prerogatives. The village inhabitants in Ukraine comprised a *hromada*. (It translates better into Russian as *obshchestvo* [society] than as *obshchina* [commune], the latter being a socio-economic institution, the former a territorial-administrative one.) In Ukraine, the term *obshchina* was always distinguished from the

hromada (except in late-nineteenth-century popular socialist literature) and usually referred to Russian-type and Russian-settled communities. The *skhod* ruled the *hromada* through elections of its executive and judicial officers. Prior to 1861 the *skhod* possessed universal male suffrage. Between 1861 and 1910, however, its primitive democracy was curtailed by tsarist legislation: the male members of the *hromada* (heads of households only) had first to elect the delegates to the *skhod* (one or two per ten households). This limited *skhod* of delegates then elected a *starosta* (chief) of the village and other village officials. It allocated taxes among households, was responsible for the total amount of redemption payments of former serfs, and fulfilled other collective socio-economic functions that concerned the whole *hromada*. The same 1861–1910 legislation on rural government also applied in Russia. But the main difference between the Ukrainian *hromada* and *skhod*, on the one hand, and the Russian *obshchestvo* or *mir*, on the other, was the *obshchina*.

In Russia the *obshchina* was a predominant form of agrarian organization, a village commune, which held land collectively for the village as a whole. There were at least three types of *obshchina*: first, the oldest type, which was historically obsolete: a purely communal organization, in which land was possessed and work in the fields performed collectively. Second, the predominant type was a village commune with repartitional tenure, in which land was possessed collectively but divided among households periodically in order to equalize individual allotments, wealth and taxes. The third and youngest type, in which the greater part of the land (sometimes all of it) was permanently divided among households into individual hereditary holdings, was not subject to reallocation. The Stolypin reforms of 1906–10 permitted the *obshchina*'s members to convert their actual allotments into hereditary holdings by drawing out legal deeds to them; or by leaving the village altogether, combining all parcels into one holding (*otrub*) or settling on a separate homestead (*khutor*). Thus, the foundations of the *obshchina* had been legally undermined on the eve of the revolution, and, had Stolypin's reforms had more time to take effect, the *obshchina* might possibly have disappeared, thereby providing room for private capitalist farming. However, this was not the case, and the repartitional *obshchina* in Russia continued to exist after 1917 until the period of collectivization of agriculture under Stalin.

In Ukraine, the first two types of *obshchina*, if they ever existed at all, had disappeared centuries earlier. The *obshchina* of the third type was imported into Ukraine on a small scale around the turn of the eighteenth and nineteenth centuries by Russian landlords, who had arrived in Ukraine with their own serfs from Russia to settle the lands granted them by the tsar. Subsequently, and especially after 1861, the tsarist government tried

to foster the *obshchina* as a vehicle of taxation and collective responsibility for redemption of payments, but in most cases the *hromady* took care of the latter and the *obshchina* system was not adopted. In Ukraine the predominant and traditional land tenure was individual hereditary strip farming, which had survived (with various constraints) even under serfdom. After emancipation, among both former serfs and non-serfs in Ukraine, the head of the peasant household had the right to sell or lease his allotment and the *hromada* could not interfere with his decisions. But the common areas, such as collective pastures, woods and rivers, were under the *hromada's* control. Prior to the Stolypin reforms, the Russian-type *obshchiny* prevailed only in the provinces of Kherson, Katerynoslav, Kharkiv and to some extent Chernihiv, and most of them (except for those settled by the Russians) were *obshchina* in name only: functionally they did not differ much from the *hromady*, and not less than 80 per cent of them were non-repartitional, with individual hereditary landholdings and the right to sell and buy the land, at least inside the *obshchina*.⁸⁴

A law of 1910 had restored male suffrage to the village *skhod*, and the 1917 revolution extended the right of *skhod* to the entire *hromada*. Women, especially soldiers' wives, became eligible for village office. To be sure, the provisional government and the Central Rada both granted universal suffrage in the elections to the Constituent Assembly, but on the village level the changes were implemented from below. The village *skhod* elected and re-elected at will a variety of executive and judicial organs. Many were called traditionally the *uprava* (executive), headed by an elected *starosta* or *starshyna* (the chief) and consisting of a group of deputy members (*vyborni*).⁸⁵ Some were called the village *rada* (council; soviet in Russian), but contemporary Soviet researchers agree that there were very few of these on the village level and considerably less than in Russia.⁸⁶ The most widespread executive organ of the *hromady* in 1917 was called the *komitet* (committee), headed by a *holova* (head, chairman). There were at least five different committees, though their functions and prerogatives seem to have been the same: (1) the *hromada* (*hromadskyi*) committee; (2) the village (*silskyi*) committee; (3) the peasant (*selianskyi*) committee; (4) the land (*zemelnyi*) committee (on the village level); and (5) the executive (*vykonavchyi*) committee.⁸⁷ These committees, or their representatives, often decreed and conducted the takeover of landlords' property by the peasants.⁸⁸

The next level of peasant self-government was the *volost* (the same name as in Russia), which had jurisdiction over a group of villages, but was considerably smaller than a county in the United States or England. The *volost* had a long history similar to that of the *hromada*. Prior to 1917 it was governed by a *volost skhod*, consisting of the *volost* and

hromada officials, and *hromada* delegates (one per ten households). The *volost skhod* elected a *starshyna* (chief), a *pravlinnia* (permanent council), a court of justice, a *pysar* (secretary), etc. The *volost* government collected taxes from the *hromady*, but had no other significant economic functions until 1917. It was under the control of the *zemskyi nachalnyk*, a tsarist government supervisor with broad dictatorial powers.⁸⁹ There was no significant difference between the Ukrainian and Russian system at the *volost* level.

The 1917 revolution democratized the electoral system, and the *volost skhody* became more representative bodies, sometimes calling themselves *zizdy* (congresses). They also included female delegates for the first time. However, election rules and proportions, if they existed, were never published. The *volost* naturally removed the *zemskyi nachalnyk*, but its subordination to the *povit* (county) remained more or less intact. In 1917 the *volost* executive government consisted of a variety of committees, such as the *volost hromada* committees, executive committees and, in a few cases, *rady* and revolutionary committees. In contrast to the situation in Russia, there were only a few peasant *rady* or Soviets in the *volosti* in Ukraine, thus, at this level, the dichotomy of power prevailing in Russia and so successfully exploited by the SRs and Bolsheviks, did not exist.⁹⁰ Moreover, these *rady*, or Soviets, were not in Bolshevik hands even when the Bolsheviks came to power in early 1918, and the First Congress of the Communist Party of Ukraine warned its members to withdraw from them.⁹¹ Some Soviet researchers maintain that the Ukrainian *volost* government was dominated by the "rural bourgeoisie": members of various co-operatives, judges, physicians, clergy, rich peasants and "classless intellectuals" (*riznochyntsi*).⁹² Why a "bourgeois" *volost* government carried out such revolutionary actions is a matter for conjecture.

Traditional peasant self-government ended at the *volost* level. The *povit* (Russian *uezd*) government ruled over several *volosti*. It was not elective, but appointed by the government of the province (gubernia) on behalf of the central government. The tsar appointed the governor, who, in turn, appointed an *ispravnik* of a *povit*. Under the provisional government, and later under the Ukrainian Central Rada, the provincial and *povit* commissars were appointed representatives of the central government, with wide police and military powers. At this level the dichotomy of power in Ukraine began to develop during the revolution. Various provincial and *povit* congresses of deputies of peasants, soldiers and workers elected their own *rady* and Soviets, which often clashed with central government commissars.

The Land Committees

The land committees in Ukraine in 1917 have not yet been sufficiently studied and the existing approach is "one sided" and "negative."⁹³

The land committees were created by the provisional government of Russia upon the publication of the Statute of 21 April (4 May N.S.) 1917. They were governmental organs, subject at the highest level to the ministry of agriculture, with the task of preparing "the land reforms as well as . . . working out urgent temporary measures, pending the solution of the agrarian problem by the Constituent Assembly."⁹⁴ The provincial land committees were composed equally of *ex officio* government representatives, and members elected by the *zemstvy*⁹⁵ and *povit* land committees. The *povit* land committees had a similar composition and distribution of membership whereas the *volost* land committees were elected through universal suffrage. According to the Statute, not every *volost* was obliged to have such a committee, although in practice, they were elected in almost all cases. The village land committees were not cited in the Statute, but were formed in several Ukrainian villages. Sometimes they were called simply the village committees and performed the same function as the village executive government.

Table 7 reveals that the *volost* land committees, elected directly by the peasants, often took the initiative in radical peasant actions. These initiatives were sometimes opposed by the *povit* committees, although there were at least five cases when they approved of the *volost* committees' revolutionary decisions in Kiev and Kharkiv provinces in the summer of 1917.⁹⁶ Pershin uncovered an exceptional document of the Poltava gubernia land committee, dated 7 July 1917, instructing the toiling population in its urgent land requirements, pending publication of the land laws by the Constituent Assembly.⁹⁷ It recommended compulsory leasing of land confiscated from the landlords at a reduced rent, an unusual decision for a provincial committee, which was soon revoked by General Kornilov. Yet, in contrast to the *volost* land committees, the majority of provincial and *povit* committees usually took conservative positions and evaded peasant actions as long as possible.

Once they had renounced their loyalty to the provisional government, the Ukrainian national revolutionaries relied on the land committees to prepare and carry out land reform. The chairman of the first government, V. Vynnychenko, announced in June 1917 that the tasks of his secretary of agriculture, Borys Martos, were to include the "proper organization of the *volost*, *povit* and gubernia land committees in Ukraine as well as of the *Radas* of Peasant Deputies."⁹⁸ Khrystiuk, who was a political rival of Martos, insists that the latter did little to carry out this task in practice, other than to convoke a "semi-academic congress of the land committees of

Ukraine,” in Kiev on 26–7 July (8–9 August), to decide what should be done with the land.⁹⁹

The Third Universal of the Central Rada (7(20) November 1917), which abolished the landlords’ private property in Ukraine, announced that the secretary of agriculture was preparing to assess “how the land committees, elected by the people, should manage the lands prior to the convocation of the Ukrainian Constituent Assembly.”¹⁰⁰ Of significance is that all land committees were to be elected by the people.

The final “Land Law of the Central Rada” was adopted in Kiev on 18(31) January 1918, when Bolshevik troops were already approaching the capital, and published in the press considerably later. It gave the land committees the overall authority to carry out land reform in Ukraine. The following articles pertained to the land committees:

- 4(b). The right of management (*poriadkuvannia*) of agricultural lands belongs to: the village *hromady*, the *volost*, *povit* and gubernia land committees.
- 6(a). The land committees may organize and manage various “useful enterprises” for the state. A note to Art. 6(b) adds: Temporarily and in exceptional cases, land committees may permit peasant families and mutual societies to use hired labour in accordance with the rules established by these committees.
8. The land committees shall allocate confiscated land “for private-labour use” (*pryvatno-trudove korystuvannia*) to the village *hromady* and to voluntary societies; the rules of use of the allotted lands will be established by the *hromady* and societies in accordance with this law.
10. Local land allotment norms per household and per mutual society, “and their equalization,” shall be determined by the land committees and village *hromady* under the instructions and after the approval of a “central organ of state power.” The basic norm, however, according to Article 9, is the amount of land that can be cultivated by a family or a society without hired labour, and a minimum norm must not be smaller than is necessary for their consumption needs.
13. “The time period for the use of land” shall be determined by the *hromady* and societies according to the rules established by the land committees. (Note: The right of use “can be” hereditary (*mozhe perekhodyty v spadshchynu*).
14. Transfer of the right of use of land to other users is possible only with the permission of the *hromada* and land committees.
15. Allotments that are no longer in use, or on which a “non-labour” (*netrudova*) farm was established, are to be returned to the *hromady* and/or land committees.
17. In their land management practices, the village *hromady* and mutual societies “are responsible” to the land committees.

25. Together with the above-mentioned lands, under the management of the land committees shall also pass livestock, agricultural implements and buildings, except those required for livelihood and the conduct of private-labour farming, or for business and industrial enterprises mentioned in Article 23. [N.B. The law does not explain what was to be done with these items after their confiscation, or how they should be distributed. One can only assume that, as with the land, these decisions would be made by the *hromady* and land committees.—V. H.]
30. Surplus lands remaining after the partition carried out in accordance with this law may be further distributed by the land committees for above-the-norm use until the rules of the population resettlement and migration have been worked out.
32. Model farms shall be transferred intact into the use of societies or *hromady* for collective management in accordance with plans approved by the land committees.

In practice, the whole law appeared too late. On 30 April 1918 immediately following his coup d'état, Hetman Pavlo Skoropadsky published his *hramota* in Kiev, abolishing the laws of the Central Rada and dissolving all land committees.¹⁰¹

In Russia the land committees were dissolved by the Bolsheviks. The "Basic Law on the Socialization of Land," adopted in its final form in the RSFSR on 27 January (9 February) 1918, transferred land-reform powers from the land committees to the agricultural departments of the Soviets of Peasant Deputies.¹⁰²

The Peasant Unions

In Table 7 the peasant unions emerge as the least important force in peasant actions. This is misleading. The figures may be underestimated since extremely few documents have been published on the activities of these unions at the village, *volost* and *povit* levels. Also, as stated, little is known about the activities of the peasant unions at the grass-roots level of Ukrainian rural society in 1917; much more is known about them on the gubernia and national level.

Khrystiuk claims that the Ukrainian Peasant Union (*spilka*) was established by a group of former leaders of the All-Russian Peasant Union, who met in Kiev on 6–7 (19–20) April 1917 at a "congress of activists of the Ukrainian countryside." They represented eighteen union organizations already in existence, and decided to form a central union, which would demand the solution of the agrarian problem in Ukraine by a Ukrainian parliament.¹⁰³ The congress elected a provisional committee of the *spilka*,

headed by M. Stasiuk, who was non-partisan, but later joined the Ukrainian Party of Socialist-Revolutionaries (UPSR). Two days earlier the constituent congress of the UPSR had met in Kiev and had resolved to give full support to the formation of the *spilka*.¹⁰⁴ In a short time *spilky* were organized on the gubernia, *povit* and *volost* levels.

Between 28 May (10 June) and 2(15) June 1917 there took place at Kiev the first All-Ukrainian Peasant Congress, which was attended by 2,200 delegates. At the congress, the organizers of the *spilka* promulgated the so-called "Peasant Constitution," which envisaged the following organizational structure:¹⁰⁵ the legislative organs of the *spilka* were to be the peasant congresses at the *povit*, guberniia and All-Ukrainian levels. The interim legislative organs of the *spilka* between the congresses were to be the *povit*, guberniia and the All-Ukrainian *rady* of peasant deputies, elected by the congresses. The executive organs of the *rady* and of the *spilka* as a whole were to be the Central, gubernia, *povit*, *volost* and village executive committees. (Hence, when we encounter in the documents, "executive committees" and "*rady*" as names of the executive government at the *volost* and village levels, it is quite possible that they were the executive organs of the *spilka*, though this is only a hypothesis.) The All-Ukrainian Rada of Peasant Deputies, numbering 212 members after the First Peasant Congress, entered as a body into the Ukrainian Central Rada.

The constitution declared that the entire peasantry as a class "must be" organized by and into the *spilka*, while paragraph sixteen proposed that "all administrative, social (*hromadskyi*) and *zemstvo* institutions, land, food and other committees, as technical organizations that serve the peasantry, are subordinated in their activities to the *rady* or peasant deputies and the committees of the Peasant Union (*spilky*)" at each level of their organization. In practice, the phrase "are subordinated" was premature, for paragraph seventeen says that in order to realize the demands of the previous paragraph, "it is desirable that the peasantry elects" the members of the *spilka* to those organizations.¹⁰⁶ (If paragraph seventeen was realized in practice, the hypothesis that local executive government was in the hands of or identical with the *spilka* holds true.)

This "peasant constitution" was a grand design to organize the peasantry as a power base for the *spilka*. To what extent this plan was carried out in practice is still not known. Soviet researchers ignore Khrystiuk as a source, display little awareness of the bylaws of the *spilka* and as a result, are hopelessly confused by the numerous references to "*rady*," unions and committees in the sources.

In all provinces, the *spilky* and their *rady* initially came into conflict with the existing Russian SRs' *soiuzy* and their soviets, wherever the latter resisted Ukrainian demands for autonomy. According to Khrystiuk, the

spilky and *rady* soon won the allegiance of the Ukrainian peasantry in the provinces of Poltava and Kiev, but had some difficulty in the other provinces.¹⁰⁷ Eventually, he notes, the *spilka* won the upper hand over the *soiuz* in all regions. This latter generalization may be partially correct, but it needs more testing, for it is now known that the *spilky* and/or *rady* did not exist in every *povit* and *volost*.

In an earlier study, T. A. Remezova states that in October 1917, the *rady* of peasant deputies existed in fifty-four out of ninety-four *povity* of Ukraine, while at the *volost* and village levels they did not appear in any significant numbers "until after the October revolution."¹⁰⁸ (Implicit is the premise that these *rady* were similar in makeup to the Bolshevik soviet that emerged from the October Revolution, and Hamretsky wisely warns against exaggeration of Bolshevik influences among the Ukrainian peasantry.) A recent study by Zh. Tymchenko establishes that in June there were thirty-one *povitovi rady* and in October, fifty-six *povitovi rady* in Ukraine.¹⁰⁹ He is aware that the SRs had something to do with these *rady*, but believes that the *spilky* and the *rady* were two different organizations. This leads him to a hypothesis that the peasantry possessed "mixed forms" of organization: at the gubernia and *povit* levels, there were the *rady* of peasant deputies; in other *povity*, and in *volosti* and villages, there were the *spilky*. According to Tymchenko, this structure was approved by the gubernia peasant congresses of Poltava, Chernihiv, Kiev and Podillia.¹¹⁰ Khrystiuk, however, maintains that this structure was approved by the First All-Ukrainian Congress of Peasant Deputies in its "peasant constitution," the bylaw of the *spilka*, and although this structure existed in the gubernia mentioned above, this means only that the "peasant constitution" was functioning in the localities.

Tymchenko compiled a list of the *povit* and gubernia peasant congresses, convened in March-December 1917. It consists of 135 *povit* congresses, which took place in sixty-seven *povity*, and thirty-two gubernia congresses, which represented ten gubernii. The actual total is 163 congresses, however, because four were joint-congresses of several gubernii and *povity*. Tymchenko's data are grouped in frequency distribution and are portrayed in Table 8.¹¹¹

The tables show a surprising level of peasant activity in the *povity* and gubernii throughout 1917 in Ukraine. In the *povit* of Berdychiv, for example, in just ten months, seven *povit* congresses took place. The *povity* of Vynnytsia and Berdiansk each held five congresses; the *povity* of Kherson, Kiev, Bakhmut and Slovanoserbsk each held four congresses. In Kherson six gubernia and inter-gubernia congresses occurred at the same time, and in Katerynoslav and Kharkiv, five congresses. In almost all Ukrainian gubernii, including the Crimea, and in over two-thirds of all *povity*, there took place at least one local peasant congress. Evidently, this was a sign of

TABLE 8 Peasant Congresses of March–December 1917

Number of <i>povit</i> congresses	Number of <i>povit</i> Convened	Number of gubernia congresses	Number of gubernii represented
7	1	6	1
5	2	5	2
4	4	3	4
3	11	2	1
2	20	1	2
1	29	...	...

Congresses convened per month	
March	2
April	19
May	27
June	22
July	12
August	18
September	20
October	24
November	11
December	8

the peasant revolution per se.

But the gubernia and *povit* peasant congresses took place at the level of “mass politics.” Although most were called by the *spilka*, it was at the mass level that the ideologies and party programmes clashed to the full extent—probably no less so than at the All-Ukrainian congresses or in the Central Rada. At these local congresses there should have been a reaction between the ideologies and programmes, on the one hand, and the spontaneous revolution in the villages, on the other. Peasants coming to the congresses would carry the grass-root mood of their villages, and return with new ideas and concepts. But the above tables support the hypothesis of a spontaneous revolution at the grass roots with politics merely a secondary factor. The preceding analysis has established that the main peasant attacks on the landlords occurred in July (June-August), whereas the smallest number of congresses took place in July and August. The lowest level of grass-root revolutionary activity was in the spring, and the late spring was the time of intense congress activity. This may mean that the peasants were disillusioned with the spring congresses and took things into their own hands in the summer. The increase of congress activity in the autumn could have resulted from peasant activity in the summer. Autumn also saw the beginning of the leftward swing in the central organs of the *spilka* and the UPSR.¹¹²

Discussion of the Ukrainian Peasant Union should consider Majstrenko's assertion that the *spilka*, despite having "several million" members, was essentially a "non-political" professional organization, a trade union of the peasants.¹¹³ (The membership figures are exaggerated, especially with respect to 1917.) How it could be called "non-political" when it actively organized the peasantry, participated in the congresses, in politicking in the Central Rada, even in the formation of the para-military "Free Kozak" movement,¹¹⁴ is almost incomprehensible. Together with the UPSR, the *spilka* carried over 60 per cent of all votes cast in Ukraine in the elections to the All-Russian Constituent Assembly.¹¹⁵ It is true that the UPSR dominated the *spilka*, and that the latter was not a party organization per se. In some elections it allied itself not only with the Ukrainian SRs, but also with the Ukrainian Social Democrats and the Russian SRs, and sometimes appeared on the ballot independently. Its central executive committee, elected by the First All-Ukrainian Peasant Congress on 2 (15) June 1917, included not only the leading SRs, but also the leading Social Democrats and independents.¹¹⁶ It lacked a unified political programme and, on the agrarian question, the resolutions of its provincial congresses oscillated between the SR's "socialization" and the social democrats' "nationalization" concepts. Yet these factors hardly render the *spilka* a non-political trade union.

Main Political Parties in 1917 and Their Agrarian Programmes

The agrarian question in Ukraine attained a political status in the speeches of the Ukrainian deputies to the First (1906) and Second (1907) State Duma, and in the publications of the *Dumska Hromada*. Also there may have possibly been some Ukrainians among the 104 members of the *Trudoviki* group of deputies to the First Duma, who came out with the first comprehensive and influential agrarian reform programme in Russia, but this awaits further research.

Borys has compiled a list of twenty-three parties and organizations, Ukrainian and non-Ukrainian, active in Ukraine in 1917.¹¹⁷ His list omits the Union of Landowners of the South of Russia and the Union of Peasant Landowners, representing big landowners and rich homesteaders respectively. He also leaves out the Anarchists, who had some influence among Ukrainian peasants in Nestor Makhno's movement.¹¹⁸ However, the latter groups, though organized in 1917, only became active in 1918–19. Of the organizations listed, the great majority were small and uninfluential among the peasantry, and, therefore, are not of interest here. In the Ukrainian agrarian revolution the USDRP and the UPSR were the most influential

bodies at the level of government politics, and also influential were the Ukrainian Peasant Union (*spilka*), the Bolsheviks, and to some extent the Ukrainian Party of Socialist-Federalists (UPSF) and the Russian SRs. I. Vytanovych has made a pioneer study of the agrarian programmes of the Ukrainian parties,¹¹⁹ but he does not go beyond the programmes or consider their relationships with the actual events.

Also of note is the Union for the Liberation of Ukraine (SVU), a rather conservative intellectual émigré organization, financed by the German and Austrian governments during the First World War. As early as August 1914, the Austrian Consul, E. Urbas, reported that the "Russian Ukrainians" had suggested to him that, for political propaganda purposes, the Kaiser should issue a manifesto promising the Ukrainians "above all, a just partitioning of land," for this is "the most important issue."¹²⁰ In September 1914 the same consul wrote that according to the SVU, the Russian Ukrainians "would opt for our flag against Russia, provided we bring the Ukrainian peasantry (85 per cent of the population) the long-awaited agrarian reform, or at least would not hesitate to legislate it, if they brought it about themselves."¹²¹

The Ukrainian Social-Democratic Labour Party

The USDRP evolved from a split in the Revolutionary Ukrainian Party (RUP), but to date there is no comprehensive history of either party. The RUP was established by students in Kharkiv in 1900. In 1902 it accepted Marxism as its ideology, and in 1903 published its draft programme, modelled after the "Erfurt Programme" of the Social-Democratic Party of Germany. In the agrarian part of the programme the RUP demanded the confiscation of lands of the crown, the church, the monasteries and other big owners, and their transfer "into the ownership of the national (*kraievyykh*) self-governments."¹²² The "Erfurt Programme" spoke of the "*gesellschaftliches Eigentum*," which may mean "socialization," rather than "nationalization." To Marx and Engels, the "*Vergesellschaftung*" meant that big estates were "to be turned over to the rural workers who are already cultivating them and are to be organized into co-operatives. They are to be assigned to them for their use and benefit under the control of the community. Nothing can as yet be stated as to the terms of their tenure."¹²³ (Classical Marxism ended its agrarian programme at this point.)

The USDRP adopted its new name in 1904, and its agrarian programme was adopted at the Third Congress of the party in 1905. It ran as follows:¹²⁴

In the interest of free development of the class struggle in the countryside and of agriculture, the USDRP demands:

1. Confiscation of the lands of the government, the crown, the tsar's family, monasteries, the church and big private landowners, and the transfer of their ownership to the national (*kraievkyh*) organs of self-government.
2. Abolition of all remnants of serfdom in agrarian relations.
3. Abolition of laws that limit the right of the peasants to make free decisions concerning their land; granting them the right of separation (*vydil*) from and partition of the communal (*hromadskyi*) land.
4. Immediate and complete abolition of all redemptions, rents (*obrok*) and other taxes and levies, imposed on the peasantry as a taxable class.
5. Compulsory redistribution (*peremezhuvannia*) of land by the state at the expense of the big landowners.
6. The establishment of courts, which would have the right to suspend excessive rent charges and cancel all contracts of a servile character.

Two terms in this translation call for interpretation. The term *kraievkyh* (used in the RUP programme) has been translated as "national," meaning the territory inhabited by Ukrainians, on two grounds. First, in 1905 literary Ukrainian, as in colloquial western Ukrainian today, "*krai*" means "native country" rather than an administrative-territorial unit as in Russian; second, at the turn of the century the concept of a Ukrainian National Land Fund came into being and was understood as such by the Russian social democrats.

The term "*peremezhuvannia*" in Point 5 can also be translated as "resurveying," or "fixing new furrows between the fields." In every case it signifies a redistribution—quite possibly, the unification of the strips of land in single, large fields. Point 3 meant that peasant lands should not be confiscated, that peasants should remain free to sell and buy them at will, and to move from village to individual homesteads without the interference of the *hromada*. Points 4 and 1 implied that other lands should be confiscated without compensation.

A characteristic of inter- and intra-party squabbles, was the accusation that one's opponent was under Russian or other foreign influence, and was thus insufficiently nationalistic. Thus, the Ukrainian SRs maintained that

the USDRP “was greatly dependent in its ideas” on Russian social democracy; “following its Moscow mentors, it kowtowed to the god of economic centralization.”¹²⁵ In turn, the Ukrainian SDs claimed that the “Ukrainian SRs simply copied their agrarian programme from the Russian SRs,” and therefore “their entire party was a purely Russian product that could not grow on Ukrainian soil.”¹²⁶ No one, however, took the time to compare the Ukrainian and Russian programmes in order to distinguish fact from fiction and to establish the degree of their mutual interaction, for one must assume a priori that the respective ethnic parties were acquainted and had some influence on each other.

The first agrarian programme of the Russian Social-Democratic Labour Party, adopted at its Second Congress in 1903, was completely outstripped by the events of the (unforeseen) 1905 revolution. After prolonged debates, a second programme was adopted a year after that of the USDRP, in 1906, by the Fourth (United) Congress, in which the Mensheviks and Bolsheviks reunited briefly. Like the USDRP programme, this programme of the RSDRP remained formally valid until the 1917 February Revolution, and for the Menshevik wing of the RSDRP it lasted as long as the party was in existence.

The RSDRP 1906 agrarian programme had just four points:¹²⁷

1. Abolition of all class constraints on the person and property of the peasantry.
2. Abolition of all redemptions, rents and other taxes imposed on the peasantry.
3. Confiscation of the lands of the government, crown, monasteries, church and large landowners, and their transfer to the “large (*krupnykh*) organs of local self-government, which would unite urban and rural districts (*okruga*).” The exceptions were lands “necessary for the resettlement fund” and forests and waters of “state importance.” These exceptions were to be owned by the “democratic state.”
4. “Small-scale land ownership” is explicitly excluded from confiscation, although its size is to be determined by the “large organs of local self-government.”

The resolutions also urged the party to “warn the peasantry against being seduced by the system of small-scale farming,” which was declared to be uneconomical, and to keep the peasants “away from agricultural terror, arson, etc.”

This programme was a compromise between the Bolsheviks who wanted confiscated lands to belong to a centralized state, and the Mensheviks, who advocated the "municipalization" of confiscated lands, i.e., jurisdiction by small units of local self-government.¹²⁸ A minority of the Bolsheviks, including Stalin, advocated an immediate break-up of big estates and their partition among the peasants to be held as private property.¹²⁹ Of special interest are the awkward "large units" of self-government, the "*okruga*." They were proposed by Novosedskii and Dan, who felt that Lenin's nationalization and the Mensheviks' municipalization might lead to "nationalist-federalist tendencies."¹³⁰ Pershin points out that the *okruga* also implied the "formation of separate privileged regions and nationalities," which would possess a larger supply of land than others and could, therefore, "serve as a base of [political] reaction."¹³¹ This may explain why Lenin voted against the whole agrarian programme. The same reasoning undoubtedly lay behind the desire to nationalize resettlement lands.

Thus, Point 3 of the RSDRP programme was quite different from that of the UDSRP on the questions of nationalities and colonization. It is difficult to determine whether Point 1 of the Russian programme which was, incidentally, a carry-over from the first (1903) programme, implied the same as Point 3 of the Ukrainian programme, although the former carried a more explicit warning against the temptations of small-scale farming. Finally, Point 6 in the USDRP programme is absent from the RSDRP programme. One may conclude, therefore, that the programmes possessed both similarities and significant differences. Further, there is little evidence that the Ukrainians drew up their programme under Russian influence. In fact, Russian fear of the nationalities problem implies the contrary.

The USDRP was a small but influential party in Ukrainian politics. It was obliged by its ideology to work amongst a largely Russified Ukrainian urban proletariat, which cared little about the Ukrainian national issue.¹³² In the Central Rada it was very influential, however, because it possessed high-calibre intellectual cadres (which the UPSR lacked) and, in addition, it co-operated closely at first with the UPSF, a small, rightist, but highly intellectual organization.¹³³ Rejected by the RSDRP as a peasant party, the USDRP tried to sway the UPSR to its agrarian programme at the time of the organization of the Ukrainian Peasant Union (*spilka*) and its First All-Ukrainian Peasant Congress. The congress was presided over by two USDRP, one UPSR, and one independent member. After a good deal of USDRP rhetoric, the congress adopted a resolution on the agrarian question, which was essentially the same as the agrarian programme of the USDRP, and they congratulated themselves on teaching the UPSR a lesson.¹³⁴ Specifically, the congress asked the Ukrainian parliament to

proclaim all private property in land as cancelled without compensation; i.e., all selling and buying of land was to be prohibited. All lands were to belong to the Ukrainian Land Fund, and the USDRP believed that this meant nationalization, although this term was not used in the resolutions. The National Land Fund was to be managed by the Ukrainian parliament and the land committees; no mention was made of the *hromady*. The land from the fund was to be distributed free to peasant families, with the allotment norm as the amount one could cultivate with one's own labour (the maximum) and/or the family's subsistence needs (the minimum).

The congress felt it would be "desirable" to preserve the large estates undivided to be used as model farms, with agricultural machines and improved techniques of cultivation. These farms were to be managed by "agricultural societies." Forests, waters, mines and mineral wealth were declared the property "of the entire people" under the supervision of the government. All indirect and other taxes were to be cancelled and a single progressive income tax introduced. The resettlement lands were to be opened primarily for Ukrainian immigrants from Russia. The congress specifically called on peasants "not to engage in arbitrary land seizures and wilful wood cutting."¹³⁵

The congress took place in May and June 1917, and the next two months witnessed the zenith of peasant insurgence. Compared to the 1905 USDRP programme, the party had made a noticeable leftward turn, though it was a purely ideological shift that almost certainly occurred under the impact of the developing agrarian revolution. Yet the party still made a futile attempt to preserve the big estates, and was much too slow in legalizing these resolutions in the Central Rada.

The USDRP reconsidered its 1905 agrarian programme at a Fourth Congress, held in Kiev on 3(16)–7(20) October 1917. The programme adopted was brief and politically to the right of the resolutions of the *spilka*, calling for the confiscation of all non-peasant lands "above a certain allotment norm," which was not specified. All lands, including those of the peasantry, were to be excluded from the "commodity turnover," i.e., they could not be bought or sold. All confiscated lands were to be held by the National Land Fund under the supervision of the land committees (not the *hromady*).¹³⁶ The Fifth Congress of the USDRP, which met secretly in mid-May 1918, fully supported the agrarian programme of the Fourth Congress. The Bolsheviks, incidentally, did not have an official agrarian programme until March 1919.

The shift to the right in the USDRP programme will be discussed later. Let it suffice to say that on purely economic and doctrinal grounds, the USDRP disapproved of both the peasantry's division of the big estates and the egalitarian norms of land allotment advocated by the Ukrainian SRs.

The Ukrainian Party of Socialist-Revolutionaries

The UPSR had the closest ties with the Ukrainian peasant movement of 1917. Had normal, democratic conditions prevailed in the Ukrainian People's Republic (i.e., had there been no Bolshevik and German intervention), the UPSR would have won a majority in any democratic election and dominated the government, at least until its agrarian programme had been declared a failure. A systematic history of the UPSR has yet to be written and source materials on this subject are rather scattered and sparse. Zhyvotko states that the party was founded in 1906.¹³⁷ Khrystiuk, however, reports that only separate groups and organizations were in existence in 1905, and that the UPSR was in "one way or another connected with the Russian Socialist-Revolutionaries."¹³⁸ Vynnychenko believes that the UPSR was organized as a separate party only in 1912.¹³⁹ An anonymous rapporteur of the Austrian and German governments, in an undated document, originating about 1914, confirms the existence of Ukrainian SRs, but notes that they were not yet organized as a party.¹⁴⁰ Khrystiuk also reports that from 1913 until May 1915 the SRs published their organ the *Borotba* illegally in Kiev and included their first draft programme in the final issue.¹⁴¹

The official constituent First Congress of the UPSR convened in Kiev on 4–5 (17–18) April 1917 with delegates arriving from five gubernii. While organizing the *spilka* the UPSR began to grow faster and larger than any other party. On 15–19 July (28 July–3 August) 1917, at its Second Congress in Kiev, it adopted its official, controversial agrarian programme. A left "internationalist" wing appeared at this congress. A Third Congress, with 500 delegates, convened in Kiev on 21–4 November (4–7 December) 1917. In January 1918 the UPSR began to split apart; the *Narodna volia* became the organ of the right wing, the *Borotba* of the left wing, with *Borotbisty*, supporting Soviet power and co-operation with the Bolsheviks. At the Fourth Congress, which took place secretly in mid-May 1918, the left wing temporarily took control of the Central Committee, but subsequently the party dissolved irretrievably.¹⁴²

Figures on the membership of the UPSR are unreliable. I. Mazepa, a social democrat, declared that in a few months of 1917 the UPSR grew into "a million-member" organization because of peasant support.¹⁴³ Majstrenko repeated this figure, but later suggested that it was "largely a paper membership" because members of the *spilka* were also considered members of the UPSR.¹⁴⁴ My own estimates of the Ukrainian rural adult male population, (excluding those who were drafted into the army, among whom about a million were killed or taken prisoner), indicate that one in four males may have been a member of the UPSR in 1917. Another estimate by A. Richytsky, stated that in mid-1917 the UPSR had about

150,000 actual members, but commanded the votes of “millions.”¹⁴⁵ Finally, a reliable Soviet source quoted from *Borotba* of 27 December 1918 states that by the fall of 1917 the membership of the UPSR was 350,000.¹⁴⁶ The figures are accepted without reservation and thus the case may rest here.

Why did the UPSR, as distinct from other parties, find such rapport with the peasants? The answer lies not in its ideology, which was neither constant nor doctrinaire, but in its activity, its organizational fervour and the political idealism of its youthful cadres, many of whom were students.¹⁴⁷ Moreover, and this may be the decisive factor, other parties were not interested in arousing the peasantry to action other than for military duty, and the latter was for patriotic defence of the republic rather than for agricultural reform.

The agrarian programme of the UPSR oscillated between the terms “socialization” and “nationalization,” which created confusion among outsiders, but apparently was of little significance to rank-and-file members and the peasants. The First Constituent Congress of the party resolved in April that “socialization” was desirable, but not yet feasible and that all confiscated lands should belong to the Ukrainian Land Fund.¹⁴⁸ Both Vynnychenko and independent researchers¹⁴⁹ maintain that the concept of the Ukrainian Land Fund implied nationalization and revealed the influence of the social democrats upon the SRs. The reality was more complicated, however. The idea of a Ukrainian National Land Fund was undoubtedly of USDRP origin, but the concept of nationalization is quite different. Khrystiuk reports that in the first known agrarian programme, published in *Borotba* in May 1915, and prepared by M. Kovalevsky on behalf of the Kiev UPSR organization, “the land reform was realized in the form of nationalization of land (in the spirit of Peshekhonov’s nationalization).”¹⁵⁰ This is a revelation. A. Peshekhonov was the ideological leader of the “People’s Socialists” in Russia (the NSs) and a co-author of the “*Trudoviki*” platform in the 1906 state Duma. He was a profuse writer who in 1907 had published a pamphlet, presenting his own version of land nationalization. He believed that all land must belong “to the people as a whole,” and that the landed estates should be partitioned among the peasants, but not on the principle of egalitarianism advocated by the Russian SRs. He favoured the dissolution of the *obshchina* and subjugating peasant lands and farming to the competitive capitalist market economy, views that drew praise from Lenin. Peshekhonov’s nationalization was to be, in other words, a temporary measure to liquidate the big estates; Lenin seems either to have missed this point or to be unsure of which position to take up—probably, the latter.

The UPSR as a whole did not share Peshekhonov-Kovalevsky’s ideas, but as long as authority over the National Land Fund rested in the

Ukrainian parliament and the central land committee, it was regarded as a nationalized body.¹⁵¹ At the same time, however, beginning with its Second Congress in July 1917, the UPSR also advocated socialization, not in contradiction to, but alongside nationalization. The Second UPSR Congress called for the socialization of land and set out the following guidelines:¹⁵²

1. Abolition of private landownership and the removal of land from market turnover.
2. The transferral of all lands in Ukraine (Ukrainian Land Fund) without compensation “for the use of all labouring people” under the supervision of the village *hromady* and land committees.
3. The use of land only by those who till it individually or collectively (*v tovarystvi*) by their own labour and on the basis of “egalitarian (*urivniuiuchoho*) principles.” The latter signified the allotment norms: “not less than subsistency and not more than one’s own labour.”
4. Retention of “large model farms” and their transferral to “labour agricultural societies” which, the programme states, are economically more efficient than small-scale farms.
5. Rivers, forests, mines and all other natural resources were to be under the jurisdiction of the Ukrainian parliament.
6. The use of differential rent for social needs through special taxation.
7. Temporary aid “at the state’s expense” for those who “would suffer from the implementation of land reform.”
8. The land question was to be resolved by the Ukrainian Constituent Assembly.

If this programme is compared with the one adopted by the *spilka*’s First All-Ukrainian Peasant Congress under the Social Democrats’ influence, apart from the use of the word “socialization,” the only significant difference is the UPSR’s demand that the village *hromady* participate in the distribution of confiscated lands. Its main difference with the agrarian programme of the USDRP, adopted in October, in addition to the role of the *hromady*, is its emphasis on the equalization of landholdings

within the subsistence/labour norm. These two differences, then, embrace the UPSR's understanding of socialization: the maximum degree of decentralization in deciding the distribution of land (the rights of the *hromady*) and equal distribution within the specified subsistence/labour norm. In all other respects the UPSR programme upheld the principles of nationalization, as understood by the Social Democrats. The UPSR inserted these same principles, except for the word "socialization," into the Central Rada *Land Law* of 18 January 1918.

The Third and Fourth Congresses of the UPSR (November 1917 and May 1918), although more radical in their demands, upheld the agrarian programme of the Second Congress, while omitting the terms "socialization" and "equalization" from their resolutions.¹⁵³ This was a tactical manoeuvre to appease the critics on the right who had accused the UPSR of smuggling the programme of the Russian SRs into Ukraine, and in particular its emphasis on the *obshchina*. Vytanovych recognizes that the UPSR programme also aroused suspicions through its omission of the hereditary use of allotments.¹⁵⁴ However, the principle of hereditary use of land was not mentioned in the USDRP's programme either. On the other hand, in the *Land Law* of 18 January 1918 it is listed explicitly. Furthermore, and this is, perhaps, the key to the whole "socialization syndrome," the UPSR's emphasis on the *hromada* as distinct from the *obshchina*, made it clear to everyone, and especially to the *hromada* peasants, that the principle of hereditary land use was included by definition. This principle was one of the basic differences between the *hromada* and the *obshchina*.

The agrarian programme of the Russian SRS¹⁵⁵ defined socialization as "withdrawal of the land from commodity turnover and turning it from private property of individuals or groups into the wealth of the common people... to be supervised by the central and local organs of people's self-government," locally organized as "*obshchiny*." The central government was to control only the resettlement and emigration to lands in the possession of the National Fund. The land was to be distributed equally among the toiling people. The peasant *obshchina* was to repartition its lands among the peasant families periodically, which would eventually ensure an equal distribution of wealth in the village. The norms of reallocation were to be the minimum (per-capita subsistence) and the maximum (the area cultivated under the family's own labour). The principle of heredity in the use of allotments was not mentioned in the programme because it could not exist under conditions of compulsory periodic repartitions. The exception was the Left SR-Bolshevik *Land Law* of 26 October 1917, directed against the *obshchina*, which proclaimed in paragraph 8 that the immediate members of the family and persons designated by a departed member of the *obshchina* possessed a "priority

right" in retaining the "original kernel" (*pervonachalnoe iadro*) of his allotment. All other allotment areas had to be returned to the Land Fund for redistribution.

In their agrarian programme, the Ukrainian SRs were influenced more by the Russian SRs than were the Ukrainian SDs by their Russian counterparts. Nevertheless, the differences between the *hromada* and the *obshchina* were fundamental. Khrystiuk notes that: "Although originating from the Russian Party of Socialist-Revolutionaries, the Ukrainian SRs did not copy their programme from the Russian model. Throughout the revolution, the UPSR did its best to create its own programme, by itself and in accordance with its own ideas and Ukrainian conditions."¹⁵⁶

Although the SR programme corresponded most closely to the desires of the peasantry, it was unrealistic in its call for the preservation of "big model farms," to be used on a co-operative basis and slow to respond to the spontaneous actions of the peasantry. What the peasantry really wanted was an immediate distribution of all the land, including that of the "model farms."

The Central Rada and Agrarian Legislation

Despite the decrees of 12 (25) March and 16 (29) March 1917, which proclaimed the nationalization of the crown's and tsar's family lands, the provisional government of Russia was unable to carry out any land-reform—even after the Right SRs joined the coalition in July. Matters were also moving slowly in Ukraine. Many observers agree that the phenomenal growth of the Ukrainian national movement at the beginning of the 1917 revolution was closely connected with the socio-economic expectations of the Ukrainian peasantry and soldiers. To quote Reshetar:¹⁵⁷

The Rada, in the early months of its existence, enjoyed considerable peasant support because it was generally expected to come to grips with the crucial agrarian problem. The average peasant was concerned with obtaining additional land far more than he was with such intangibles as autonomy and federalism. To him, socialism meant obtaining land from the landowner without payment.... Only a swift and decisive agrarian reform could have convinced them that this was their government.

The Central Rada, however, was preoccupied with purely national problems, such as autonomy, federation and Ukrainian independence. It left socio-economic issues to the political parties, and congresses of peasants, soldiers and workers. In the First Universal on 10 (23) June 1917 declaring its formation, the Rada promised only that the All-Russian

Constituent Assembly would take over all the land in Russia and transfer its ownership to the "peoples" (*narodiv*, plural), after which Ukrainian lands would be under the autonomy of the Ukrainian parliament.¹⁵⁸

In practice, the First Universal did not fulfill the expectations of the people. The agrarian revolution was already in full swing, and the Rada's legislation lagged well behind the actual situation. Further, the Second Universal, on 3 (16) July 1917 did not mention the land question. The coalition government of the USDRP and UPSF parties, and the Rada's rightist local commissars were indifferent, if not outright hostile to the peasants' demands.¹⁵⁹ The prime minister, V. Vynnychenko, a centrist social democrat, was indifferent to the agrarian problem. His diary for 1917, preserved in his archives at the Ukrainian Academy of Arts and Sciences in New York, reveals the Rada's difficulties in establishing power in Ukraine, but ignores the peasants' uprisings and the land question in general.¹⁶⁰ Vynnychenko delegated all work on agrarian problems to his secretary of agriculture, Borys Martos, a right-of-centre social democrat and a leading member of the co-operative movement. Martos' undersecretary was Professor Kost Matsiievych, also a leading theoretician of agricultural co-operatives, and a member of the UPSF. They conducted hearings and research on the land question, but preparation of the land reform bill was inexplicably slow.

The Third Universal and Its Aftermath

The Third Universal, published 7 (20) November 1917, made the most radical statement on the agrarian question to date. It not only proclaimed the abolition of the private land of non-peasants, but also promised to empower the land committees to dispose of these lands prior to the convocation of the Ukrainian Constituent Assembly.¹⁶¹ This kept pace with reality, for the disposal of estates was already proceeding on a mass scale. But the proclamation, curiously, omitted to mention the National Land Fund, which immediately provoked accusations from the right that the Universal aimed at the socialization of land.

A crisis ensued. Matsiievych resigned from the cabinet and, in the UPSF organ *Nova rada* (no. 190), he vituperatively accused the Universal of fomenting peasant seizures of estates, ruining agriculture and introducing "Russian socialization" in Ukraine.¹⁶² On 11 (24) November a group of representatives of Kiev banks, the All-Russian Union of Sugar Refiners and the unions of landowners and excise tax collectors visited the General Secretariat to protest the Universal. Vynnychenko and M. Porsh, the secretary of labour, assured the critics that the sugar refineries and "model estates" were not covered by the Universal and would be protected

from seizures even by the armed forces, if necessary.¹⁶³ (The Central Rada was entirely dependent on sugar and other excise taxes for its revenues.) On the same day Vynnychenko and Martos issued an official explanation of the Universal to the press, explaining that the Universal did not sanction, but, on the contrary, prohibited all arbitrary seizures of land and estates, since the latter were now the "national wealth" of the people.¹⁶⁴

On 14 (27) November secretary Martos and his new deputy, O. Mytsiuk (an SR), sent a circular letter to the land committees, explaining once more the meaning of the Third Universal. The letter pointed out that the abolition of private property did not apply to "farms of, let us say, less than 50 desiatiny, if worked by one's own labour."¹⁶⁵ This reference to fifty desiatiny was immediately seized upon by Bolshevik-propagandists, who accused the Rada of serving the interests of the rich peasants and neglecting the poor. It also widened the split within the UPSR.

On 14 (27) December 1917 secretary Martos finally introduced in the Rada a draft of a provisional land-reform law, drawn up by a special inter-party commission, which included almost all factions represented in the Rada. The draft prohibited the selling and leasing of the large estates, and put them under the supreme authority of the All-Ukrainian (Central) Land Committee. The lands were to be partitioned among peasants by the land committees, with the maximum "labour norm" fixed at forty desiatiny.¹⁶⁶

Introducing the draft, Martos criticized ambiguities in the Third Universal that had contributed to peasant anarchy. Peasants were beginning to rob not only the big landowners, but also the rich peasants. They were dividing things among themselves in haphazard fashion; one would take a frame from a painting and the other would pull the glass out of it. "One village divided a piano among themselves." Pedigree cows were being slaughtered for meat.¹⁶⁷ Martos proposed to impose fines on the robbers of five times the value of the goods stolen. The speech, as well as the draft, unleashed a storm of protest among the UPSR and peasant deputies, who considered the forty-desiatiny norm too high. The draft was rejected and a new commission was formed, with UPSR members in the majority, to produce a new draft based on the principles of socialization,¹⁶⁸ i.e., leaving the establishment of allotment norms to local land committees and village *hromady*, within the subsistence/labour range.

The Fourth Universal, which went through three readings between 9 (22) January and 12 (25) January 1918 while the Rada was still in Kiev, proclaimed the total independence of Ukraine from Russia. It was adopted on 15 (28) January 1918, although the date of independence was accepted as 9 (22) January 1918.¹⁶⁹ The Fourth Universal announced that the Rada's commission "has already worked out the land law," which "in a

few days" was to be adopted. The law would be based "on the principle of the abolition of private ownership and the socialization of land."¹⁷⁰ The UPSR had managed to insert the plank of socialization into the Universal against the wishes of the USDRP and UPSF. Consequently, Vynnychenko's cabinet resigned, and a new cabinet, dominated by the right-wing UPSR members and headed by Vsevolod Holubovych, came to power.¹⁷¹

Finally, while in Kiev, the Little (as opposed to full) Rada adopted on 18 (31) January 1918 the *Land Law of the Central Rada*.¹⁷² As a conciliatory measure, it did not mention such terms as "socialization" or "nationalization," but in practice it represented the typical Ukrainian admixture of both. The Central Rada retained supreme authority over all lands; private property in all lands was abolished. The lands were to be supervised and distributed according to the consumption/labour formula by the land committees and the village *hromady*.

The First Two Months of German Occupation

Whereas the Third Universal with all its ambiguities further incited the peasants against the landowners, the *Land Law* of 18 January probably had little effect and was not implemented in an orderly fashion. Bolshevik troops entered Kiev on 26 January (8 February) 1918 and remained until 2 March 1918. Thus the law remained ineffective for at least two months in Left-Bank Ukraine and the Steppe regions, which were under Bolshevik occupation.

German and Austro-Hungarian troops entered Ukraine on 8 (21) February 1918 and the Holubovych government did little to implement the Land Law on the Right Bank. Upon its arrival in Kiev, the government declared that it would abide by the principles of the Third and Fourth Universals, but at the same time said that, in order to implement the agrarian law, it was necessary first to include agronomists and other technically educated people in the land committees.¹⁷³ Graf Forgach, the Austrian ambassador to Kiev, interpreted this as meaning that the Ukrainian government was looking for some kind of a compromise on the agrarian issue.¹⁷⁴ Austrian Army Intelligence in its 6 April 1918 report to Graf Czernin, the foreign minister, appraised the situation as follows: "The conditions of the Third and Fourth Universals concerning the socialization of land have not been carried out in reality: the peasants were informed only that the land belonged to them."¹⁷⁵ This was three weeks before Hetman Skoropadsky's coup d'état. Thus, wherever peasants had partitioned the land themselves, they did not have a legal title to it; but, the same report warned, to take the land from them would be almost

impossible because they were well-armed and would fight for what they now considered their own.¹⁷⁶

Meanwhile, the peasantry was growing impatient with the Rada. General Vsevolod Petriv, whose Ukrainian division advanced just ahead of the Germans, reported that the peasants were hostile toward the Rada for inviting the Germans and feared the restoration of the landlords.¹⁷⁷ Consul von Hoffinger reported on 12 March 1918 also to Graf Czernin, that "the peasants profoundly mistrusted the sincerity of the Rada's plans" and they were "completely unaware of their property rights."¹⁷⁸ Nevertheless, as Doroshenko reports, even as late as April 1918, in the *povit* of Kiev, "peasants robbed and burnt the estates, while the land committees displayed only weak activity."¹⁷⁹

Organized counter-revolutionary action against the Rada was begun by the Ukrainian Democratic Agrarian Party late in March 1918. The party demanded the abolition of existing agrarian legislation and restoration of private property rights. The Central Powers had already decided it was "absolutely necessary to turn Ukrainian politics to the right."¹⁸⁰ The reasons were partly ideological: Professor Oleh Fedyshyn has recently uncovered documents in German archives, revealing that at the highest level of government, the Germans covertly cursed the Rada for its "socialist nonsense" and for being "just as idiotic as the Bolsheviks" in its "communist experiments."¹⁸¹ The main reason however, was that the peasants were reluctant to sow the fields because they were not sure whether they could reap the harvest. In turn, the landlords lacked the implements and seed to carry out sowing.¹⁸² Forgach noted on 26 March that he expected the Germans to "interfere in an appropriate form" to "secure the autumn harvest for the Central Powers."¹⁸³

Agrarian Programme of the Bolsheviks in 1917

Lenin's Position

Although at the Fourth (United) Congress many Bolsheviks voted against the 1906 agrarian programme of the RSDRP (often for quite different reasons), it remained unchanged until 1917. Nevertheless, in the wake of the 1905–7 events, Lenin admitted that before 1905 he had erred in his belief that the Russian peasantry was incapable of agrarian revolution. Trotsky relates that upon Lenin's return from exile in 1917, the latter believed that rather than follow the workers' leadership, the peasants would come out on the side of the bourgeoisie.¹⁸⁴ This explains Lenin's

doctrinaire attitude before he realized that it might be possible to seize power with the aid of the peasantry, first by taking over the programme of the SRs, and, second, fomenting class struggle within the peasantry by forming an alliance with the landless and poor peasants, thus strengthening the Bolshevik regime.

In his famous *April Theses*, Lenin called for confiscation of all landed estates and nationalization of the land, including that of the peasantry; formation of Soviets of Agricultural Labourers' Deputies and Soviets of Poor Peasants' Deputies; and the establishment on the estates of large-scale model farms, ranging in size from 100-300 desiatiny, under the jurisdiction of the Soviets of Agricultural Labourers' Deputies.¹⁸⁵ He remained opposed to the partitioning of the large estates.

The *April Theses* were to be discussed at the forthcoming Seventh Party Conference, but even before it began, Kalinin and Stalin published articles calling for immediate revolutionary seizure of estates by the peasants, thereby implying their partition.¹⁸⁶ Thus, the Bolsheviks were still divided on this issue. But, although the Seventh Conference did not adopt Lenin's draft of the agrarian programme, its resolution, nevertheless, contained Lenin's basic principles and did not mention the partition of the estates.¹⁸⁷ The Sixth Party Congress, convened on 26 July–3 August (8–16 August) 1917, was again unable to agree on an official party programme. In its political resolutions, however, the congress noted that the landlords' lands were already being transferred into the hand of the peasantry.¹⁸⁸ Lenin maintained his position also at the First All-Russian Congress of Peasant Deputies, although opposed by the predominant SRs. His attention was drawn to the so-called "Exemplary Instructions" (*Primernyi nakaz*, also known as the *Krestianskii nakaz o zemle*), composed of 242 "instructions" brought to the First All-Russian Congress of Peasant Deputies by peasant delegates from all over Russia, and published in *Izvestiia* of the All-Russian Soviet of Peasant Deputies on 19–20 August 1917 (O.S.). It was a typically SR document, but in his analysis of it, published on 29 August, Lenin decided that the peasantry's desires must be immediately granted.¹⁸⁹ The Bolshevik Central Committee agreed, resolving on 31 August (13 September) 1917, that the landlords' land must be transferred immediately to the land committees without waiting for the Constituent Assembly.¹⁹⁰

At the Second All-Russian Congress of Soviets of the Workers', Soldiers' and Peasants' Deputies, at which Lenin announced the overthrow of the provisional government, he also introduced his *Decree on Land* (*Dekret o zemle*, also known as *Zakon o zemle*, the *Land Law*). The law, which was adopted for immediate implementation, consisted of four paragraphs (in some editions, five), written by Lenin as an introduction to eight paragraphs of the "Exemplary Instructions" (mentioned above),

which were included, without changes as part of the law. The introduction notes that the entire law is based on the 242 peasant instructions, edited and published in *Izvestiia*.

Later at the congress Lenin explained his tactics.

There are voices here saying that both the Decree and the Instructions have been composed by the Socialist-Revolutionaries. It does not really matter who composed them. What matters is that we, as a democratic government, cannot disregard the decision of the lower classes, even if we disagree with them. . . .¹⁹¹

Approving the decision to enter into coalition with the Left SRs the Bolshevik Central Committee resolved on 15 November (28 December) 1917:

. . . that the land law of our government, which has been copied in full from the SR instructions, has proven, in fact, the complete and honest readiness on the Bolsheviks' part to carry out a coalition with the absolute majority of the people of Russia.¹⁹²

Again, while explaining the victory of the October Revolution, Lenin admitted:

We won because we have adopted not our agrarian programme, but that of the SRs, and have implemented it in practice. Our victory was achieved because we carried out the SR programme. That is why this victory was so easy.¹⁹³

Do these admissions disprove the standard Soviet line that it was the Bolsheviks, Lenin himself, who "gave the land to the peasants"? The truth is dialectical. Certainly, it was Lenin who proclaimed the *Decree on Land*; certainly, he implemented the SR programme. But would the Left SRs have introduced their own programme? This reminds one of Lypynsky's comment that the Ukrainian socialist parties "gave away" the land "in order to be politically popular." Unfortunately, they did not give away enough and therefore were not sufficiently popular. And this is why they failed, while Lenin succeeded.

But to be more precise: Lenin only gave the land to the peasants in theory, and then only partially. The peasants had taken the land for themselves and the Bolsheviks capitalized on this spontaneous agrarian revolution, led the movement, and as the shrewdest political tacticians, conquered the revolution itself. Hence, it was a Bolshevik victory, and in Russia at least, a comparatively easy one.

The Left SR-Bolshevik Agrarian Legislation

This analysis is based on an original copy of the *Decree on Land* in pamphlet form, entitled *Zakony o zemle* (Land Laws), found at Hunter College, City University of New York. The pamphlet has no place or date of publication, but from the appendices comprising the resolutions of the Second All-Russian Peasant Congress, it is evident that it is a Left SR publication, issued shortly after 10 December 1917. In addition to the *Decree on Land* and the resolutions, the pamphlet includes the *Statutes (polozhenie) on Land Committees and the Instruction of Land Committees (by the Collegium on Agriculture)* signed by V. Ulianov (Lenin), A. Kolegaev, V. Bruievich and Gorbunov; and the *Instruction on the Regulation of Land and Agricultural Relations by the Land Committees*, signed by A. Kolegaev and Ia. Aksel. I have compared the land law of the Ukrainian Central Rada of 18 January 1918 with this Left SR-Bolshevik legislation, which the Bolsheviks brought to Ukraine at the beginning of 1918. There are some similarities between these two pieces of legislation, but overall they are the two most different documents ever produced by the Ukrainian and Russian SRs on the agrarian question.

Both laws proclaim the confiscation of all lands without indemnity, but with temporary aid to those who would suffer most. The Ukrainian law declares that estates to be used as model farms are to be transferred intact to the local authorities. The Russian law, on the other hand, prohibits the partition or theft of estates before they have been selected for preservation, and it establishes an institute of so-called "land commissars" to guard confiscated estates and to oversee their productive activities. For the confiscated model farms, the Ukrainian law foresees workers' self-management and the operation of farms as co-operative associations. The Russian law, on the other hand, refers to workers on such estates as hired hands, does not permit self-government, and clearly views the model farms as state farms, rather than co-operatives.

The Russian law gives priority to the following in the distribution of land: (a) collective farms (*arteli*) of landless and small-scale farmers, and labour-production societies; (b) small-scale farms; (c) landless farms; (d) agricultural workers (hired hands). Thus landless farmers have lower priority than the small farmers, and landless hired hands have the lowest priority of all. This again implies a preference for state and collective farms, for hired hands must remain landless in order to work on model estates. On the other hand, the Ukrainian law gives priority in land distribution to small-scale and landless farmers.

Another significant difference between the two laws is that the Ukrainian law places the village *hromada* on almost equal footing with the *volost* land committees in the distribution of local lands and properties,

and their subsequent management. The *hromada* is a legally recognized, local government institution at the bottom of the land committees' pyramid. In contrast, the Russian law does not give the *obshchina* such rights and prerogatives. The lands and properties are to be distributed and managed solely by the *volost* land committees. Political power in the rural areas rests in the village Soviet, while the *obshchina* is restricted to selecting members for resettlement (for example, deserters and convicts). Compared to the Ukrainian enactment, the Russian law foresees a considerably higher degree of centralization.

Both laws set the same theoretical norms of land allotments, ranging from subsistence consumption to one's own labour force. The Russian law unequivocally prohibits hired labour, except on the model farms, whereas the Ukrainian law permits "temporary hired labour" on private farms "in exceptional cases" as decreed by the land committees. The Ukrainian law mentions equalization in the distribution of property only twice: in the initial act of distribution, that is, at the beginning of land reform, and in the form of a progressive income tax on revenue from surplus lands or lands of unusually high quality. The time period for the use of land is to be allocated by the *hromady* and land committees, which suggests that redistributions are to be spasmodic under the Ukrainian law. On the other hand, the Russian law emphasizes regular, periodic repartition as a method of equalization. It also specifies (and this also is not mentioned in the Ukrainian law) that the *volost* committee (rather than the *obshchina*) should periodically order repartition of land allotments among both the villagers and the villages; the *uezd* land committees should order repartition among the *volosty*, and the gubernia land committees among the *uezdi*. In the Russian law, income tax as a means of equalization takes the form of the per-desiatina land tax, levied by the land committees on all lands (rather than only on surplus lands, as in Ukraine). Thus, in economic terms, the Russian law establishes state land rent, and the distribution of land to the peasants is, therefore, not free of charge. The land tax is the same as indemnity, for it is fixed and is independent of actual income.

Further, the Russian law specifies that a differential rent is to be extracted from the land tax revenues and reallocated by the land committees from the gubernii with abundant lands to those with land shortages. This is an additional means of wealth equalization. Finally, according to the Russian law, the confiscated cattle, draught animals, agricultural implements, machinery and similar properties that are designated for distribution are in the charge of the land committees (not the *hromady* as in Ukraine), and are to be distributed for temporary, repartitional use among the recipients for a fee (rent). On the other hand, the Ukrainian law leaves distribution of items to the discretion of the *hromady* and land committees, but explicitly states that "there will be no

payments for [their] use.” Thus under the Ukrainian law absolute rent in the economic sense is abolished, while the differential rent, left to the users, is taken at least partially from the revenue of the progressive income tax. The major differences between the two laws are synthesized in the terms used to designate the principles of land use. The Ukrainian law calls it “private labour use” (*pryvatno trudove*), whereas the Russian law refers to it as “equal labour use” (*uravnitelno trudovoe*).

The All-Russian Constituent Assembly, which met in Petrograd on 5 (18) January 1918, rejected the *Decree on Land*. The Right SRs, the NSs and the majority of the deputies began the debate, but the assembly was dispersed by the Red Guards the next day. Hence, the Bolsheviks and Left SRs needed a new land law. This was drafted by the People’s Commissariat of Agriculture, which was again in the hands of the Left SRs, and its main points were accepted by the Third All-Russian Congress of Soviets of the Workers’, Soldiers’ and Peasants’ Deputies on 18 (31) January 1918. The remainder was published on 6 (19) February 1918 as the *Decree on the Socialization of Land*, also known as the *Basic Law on the Socialization of Land* in an abridged form.¹⁹⁴

Although a product of the Left SRs, the new *Decree* contained more Bolshevik influence than the first *Decree on Land*,¹⁹⁵ although the differences were not major ones. The *Decree on the Socialization of Land* gives more explicit information about the state farms to be established on the confiscated estates. It also discusses the agricultural communes (in a purely communistic sense) and gives them priority over the collective farm in all matters.

The “Left Communist” opposition, headed by Bukharin, Radek and Preobrazhensky, which arose in the Central Committee of the Russian Communist Party (Bolsheviks), was totally opposed to the distribution of land among the peasants. But Lenin still needed the support of the SRs and his appraisal of the mood of the peasantry was realistic. At the Seventh Party Congress (6–8 March 1918) he said: “We shall divide the land equitably from the point of view of the predominantly small farmer, although we shall consider the communes and big workers’ collective farms as more advantageous.”¹⁹⁶ Lenin’s view prevailed, and with this programme the Bolsheviks entered Ukraine in 1918. When Ukraine fell under German occupation two months later, these decrees were implemented in central Russia and in the summer and fall of 1918, the confiscation of landed estates there was completed. Also, rich farms were reduced in size, and the first state farms and communes appeared.¹⁹⁷ Trapeznikov says that the partition of lands and properties in Russia in 1918 “was a genuine revolutionary ‘black partitioning’”¹⁹⁸ (*chernyi peredel*, the slogan of the old Russian Populists). Whether this was really the case requires more research.

Bolshevism in Ukraine from the Agrarian Perspective

The Bolsheviks in Ukraine Before 1918

As stated earlier, Soviet Ukrainian researchers now openly criticize each other for "exaggerating" Bolshevik influences among the Ukrainian peasantry in 1917. Trotsky remarked that: "The steadily increasing complaints against Bolsheviks were, however, in many cases invented or exaggerated. The landlords hoped in this way to make sure of getting help."¹⁹⁹

Statistics on Bolshevik party membership in Ukraine in 1917 are confusing because most of the original materials were lost in the civil war. Also, in the latter part of 1917, most Bolshevik organizations in Ukraine were still united with the Menshevik organizations and after they split, there was no common party organization for Ukraine until 1918. Hence, some statistics include Mensheviks, others correspond only to some gubernii, but have been used for all Ukraine. Moreover, party membership fluctuated with events.

Sources published during the 1920s indicate that by mid-1917, there were about 18,300 Bolshevik party members in Ukraine, of which no more than 17 per cent were of Ukrainian nationality.²⁰⁰ Varhatiuk estimates that on the eve of the February Revolution the number was over 2,000, and by April about 8,500.²⁰¹ Another source also gives a figure of 8,000.²⁰² The current official party history, however, places the membership in July 1917, at close to 33,000,²⁰³ and the most recent estimate, which claims to include the members among the soldiers on the German front, puts the total for December 1917, at "close to 70,000."²⁰⁴ These figures are almost certainly exaggerated, for the First Congress of the CPU, held in Moscow, in July 1918, officially represented only 4,364 members.²⁰⁵

Thus, the Bolsheviks in Ukraine were a very small party in 1917, predominantly non-Ukrainian in composition, based almost exclusively in large industrial cities. In the villages in 1917 there were 209 party "cells" in Ukraine, and among the new members who joined the party during 1917, peasants comprised only 16.3 per cent.²⁰⁶ In Right-Bank Ukraine, the number of Bolsheviks was particularly small and they were poorly organized even in the urban centres.

In October 1917 in Ukraine the Bolsheviks published only ten newspapers, compared to 350 "bourgeois and bourgeois-nationalist" periodicals; in Kiev alone, where Bolsheviks had only one newspaper, the Ukrainian "nationalists" published twenty dailies.²⁰⁷ Some Bolshevik publications were sent from Russia, but the number was not large. For

example, during the advance of the Red troops into Ukraine in January 1918, seven newspapers with a circulation of 9,000 were ordered from Petrograd for distribution among soldiers and the population.²⁰⁸ Also, the Bolshevik periodicals in Ukraine were directed toward the urban population, and only occasionally contained materials of interest to the peasantry. In fact, in all Russia, the first and only Bolshevik peasant newspaper, *Bednota*, first appeared only in September 1917. Only five Bolshevik newspapers carried the *Decree on Land* in Ukraine in late 1917 and 50,000 copies circulated in a separate pamphlet form.²⁰⁹

Moreover, the Bolsheviks in Ukraine were confused about the agrarian platform of their own party. For example, late in April, after the publication of Lenin's *April Theses*, a meeting of the Bolsheviks in Vynnytsia postponed the study of the agrarian question because none of them understood it.²¹⁰ Contrary to the resolutions of the Seventh (April) Party Conference, the Bolsheviks of Kharkiv published instructions on 11 May 1917 calling on the peasants to at once seize and divide all large estates.²¹¹ On 2 June 1917 they called on the peasants to establish "special *volost* rural mir committees," seize the land, divide it among the *obshchiny*, work it "collectively," and pay rent to the *volost* mir committees, rather than to the landlords.²¹²

Soviet scholars now admit that the Ukrainian SRs had more influence over the peasantry than the Bolsheviks. The SRs "had old connections and larger and better-prepared cadres than the Bolsheviks."²¹³ This is, of course, rather like discovering that the Dnieper River flows into the Black Sea. But the period following the publication of Lenin's *Decree on Land* and of the Third Universal, just prior to the entry of Russian troops into Ukraine, November and December 1917, has not yet been studied sufficiently. Some Soviet writers ascribe the entire peasant movement in this period to the effects of the Lenin *Decree*, even though the peasants could find out much more about the Third Universal, which gave the peasants more opportunities for independent action. What evidence do they have for such an assertion? Khmil cites five cases in which the landlords and the Central Rada's *povit* commissars from various parts of Ukraine complain about peasant attacks, which, they say, had been incited by the Bolsheviks and/or the Lenin *Decree*. Their complaints may lack foundation; first because in their view, all rebels were "bolsheviks" and the Third Universal was a "Bolshevik-inspired document." Second, it was the landlords and the *povit* commissars rather than the peasants who read Lenin's *Decree*. Khmil also mentions twenty-eight other direct peasant actions, but in only four is it clear that they occurred with direct Bolshevik participation, or under Bolshevik influence. Another study, by S. Kahan, concerns Kiev gubernia. She cites just one report by a *povit* commissar that the peasants were acting under the influence of the "Bolshevik decree

about land.”²¹⁴ For 208 events that took place during November and December, Kahan does not mention any Bolshevik presence or influence. Similarly, Austrian archival documents often blame the Central Rada for events in the Ukrainian countryside, but not a single document refers to Bolshevik influence.

Two Months of Bolshevik Occupation

Soviet Russian troops entered Kharkiv on 7 (20) December 1917; on 12 December they also attacked from the north across Chernihiv gubernia. By mid-February 1918, the gubernii of Kharkiv, Chernihiv, Poltava and Katerynoslav were under complete Bolshevik control; in the remaining provinces the situation was fluid, with the cities of Kiev and Kherson and Tavrida gubernia falling under Soviet control for about five weeks. The Russian and Ukrainian troops were making unpredictable manoeuvres, while the Central Powers' troops were advancing from the west. Thus, during this period, the Bolsheviks controlled only four gubernii in Ukraine and these for just two months.

Did the food crisis in Russia prompt the Bolshevik attack on Ukraine? Clearly, this was the case. Although during the negotiations, on 7 (20) December 1917 Ukrainians were still offering to trade grain and other foodstuffs with the RSFSR, they asked for a payment that was two-thirds in bank notes and one-third in gold.²¹⁵ Perhaps the price was too high. In any event, negotiations broke down and the war began.

The food situation in Russia was desperate. On 14 January 1918 Lenin ordered the formation of special detachments of workers and soldiers to be sent into all provinces to find and requisition food.²¹⁶ On 19 December (1 January 1918) two days after the formation of the Soviet government of Ukraine, he had appointed Sergo Ordzhonikidze an “extraordinary commissar” for Ukraine and the South as well as the sole official representative of the RCP(b) Central Committee in this area, with the task of supplying food supplies for Russia.²¹⁷ In the Donbas, Katerynoslav, Kharkiv and other major industrial centres of Ukraine under Bolshevik occupation, by the end of January there was also a food crisis, with bread rations cut to 0.5 lbs. per capita.²¹⁸ On 15 January Lenin sent an urgent message to Ordzhonikidze, demanding “bread, bread and bread!!!” In turn, Ordzhonikidze informed his Commander-in-Chief, Antonov-Ovseenko from Katerynoslav, that in Petrograd the bread rations had been cut to one-quarter of a pound, while the Donbas miners were literally starving; although grain in Ukraine was available, the peasants would not deliver it for nothing, while railroad men were sabotaging trains destined for the north.²¹⁹ On 26 January a member of Ordzhonikidze's staff, A. Iakubov,

who was leaving Petrograd for Ukraine, informed Lenin that in exchange for fifty to sixty million poods of grain, the peasants wanted textiles and at least 200 million roubles, and these were to be delivered to Kharkiv.²²⁰ This money never arrived. At the end of January and during February, Antonov-Ovseenko sent the Red Guards to requisition "surpluses" in the villages, and also posted them at railway stations to capture the "speculators" and watch over the railroad workers and saboteurs. Those who made "moonshine" alcohol were pronounced "counter-revolutionaries," to be dealt equally with saboteurs.²²¹ But the crisis continued, and on 1 March 1918 a "Food Committee of the South of Russia" was set up in Kharkiv and given special powers to procure and send food to Russia.²²² Later, in the retreat from the advancing German and Ukrainian troops, Lenin instructed Ordzhonikidze to evacuate grain and metal to the east and "unconditionally destroy" all other food reserves and "valuable property," if they could not be evacuated.²²³

The first Soviet government of Ukraine, called the "People's Secretariat of the Ukrainian People's Republic," was formed in Kharkiv on 17 (30) December 1917. The Secretary of Land Affairs, E. Terletsky, a Russian Left SR, had the tasks of "inventory-taking of all lands and control over their correct distribution."²²⁴ One of the first acts of the Central Executive Committee of Ukraine (TsIKU) was the publication of the decree on land, which was a copy of the *Decree on Land* of the RSFSR.

Concerned that the peasants were not represented in their legislative organs (TsIKU), the Bolsheviks decided to call an "All-Ukrainian Peasant Congress." Although 300 delegates were expected to attend, on 20 January 1918, five days behind schedule, only seventy-eight delegates were present.²²⁵ Hence, the congress was renamed a conference. Terletsky delivered a report "about a draft of a decree on land," which, with amendments, was made into a resolution and sent to the People's Secretariat for execution.²²⁶ Although various resolutions of this peasant conference have been published, nothing on the land question has yet appeared in print. Hence, it is not known what kind of legislation on land was adopted.

Several *povit* and gubernia peasant congresses also debated land reform. A congress in Katerynoslav on 28 January 1918, attended by 1,200 delegates, debated a "socialization" proposal, to be valid for only one year. It appears that the proposal reportedly contained not only the Russian SR planks (a *povit* divides the land among the *volosty*), but also some planks from the Central Rada (permission to use hired labour on private farms under special circumstances).²²⁷

The Lenin decree, in practice, varied from one region of Ukraine to another. A typical session of the Terny *volost* land committee, Kharkiv gubernia, on 5 March 1918 debated four different proposals submitted by

twenty-one villages. These were as follows: (1) to divide the land between each ten households, and leave further partition to the latter's discretion; (2) for the whole village to sow the land collectively and then divide it per household; (3) to partition the land per capita and then let the people cultivate it; and (4) to leave the entire matter to the *hromada*. Some proposed allotment norms per family as high as sixty desiatiny, but the *volost* land committee finally established a norm of twenty desiatiny.²²⁸ Although the source does not specify, it is possible that all four proposals were accepted. In any event, such sessions had not been foreseen by the land legislators in the RSFSR.

The Second All-Ukrainian Congress of Soviets convened in Katerynoslav on 17–19 March 1918. The Bolshevik delegates were in a minority, with about 43 per cent of the total voting delegates, and on the eve of the congress they had quarrelled with their allies, the Russian Left SRs, who had refused to recognize M. Skrypnyk's new government.²²⁹ The congress adopted the so-called *Provisional Instructions on the Socialization of Land*, "based...with appropriate corrections and amendments" on the Russian *Decree on the Socialization of Land*.²³⁰ The instructions were to be valid for 1918 only, "pending the elaboration of the land law in final form."²³¹ In fact, the resolutions could not be carried out because the Soviet government had to abandon Ukraine two weeks later.

Thus Lenin's *Decree on Land* was never fully implemented in Ukraine. Subsequent Soviet Ukrainian land legislation was quite different, and leaned more toward the left than Lenin's original decree.

Results of the 1917 Revolution

The dearth of reliable statistics for 1917–18 and Soviet propaganda have obscured the results of the 1917 agrarian revolution. In 1936, Stalin declared that in the Soviet Union the peasantry had received 150 million hectares of lands from the October Revolution.²³² Soviet writers have accepted this figure without reservations, with a figure of 14 million hectares for Eastern Ukraine.²³³ Prior to 1936, however, Soviet sources gave a figure between 20 and 100 million hectares for the USSR as a whole.²³⁴

Trapeznikov commented frivolously that "in the first year of the revolution, nothing was left of the big estates."²³⁵ If the statement is true, it refers only to central Russia. Similar statements arise for Ukraine. Thus, D. Manuilsky wrote that in Ukraine, in the fall of 1917, "the peasants spontaneously seized and partitioned among themselves the landlords' property. By the spring of 1918," the whole operation "was completed."²³⁶ An Austrian document states that, in the spring of 1918, "the peasants

have in their possession all the land taken from the landlords"; whereas another notes that the "peasants were informed only that the land belongs to them."²³⁷

Both the Ukrainian and Soviet governments declared that private property was abolished and that the land belonged to people. But the theory and the practice were quite different. How much land was actually distributed? How many estates were actually broken up, partitioned and destroyed? The Austrian intelligence reports are vague and even contradictory on this matter. A report, dated 4 October 1917 declares that, "for the most part, the partitioning of the big landed estates among the peasantry has actually been carried out."²³⁸ Another report, dated 6 May 1918 says that, in November, "only a part" of the large landed estates had been seized and partitioned.²³⁹

The Soviet scholar I. S. Khmil believes that everything happened in accordance with Lenin's decree. Thus, by mid-December 1917, "peasant control" over large estates was established "almost everywhere" in Ukraine.²⁴⁰ Both the landlords and land committees drew up exact inventories of their possessions and submitted them to the authorities, hoping that if their estates were partitioned or robbed, they would be compensated for their losses. In this sense, it is quite conceivable that most estates were surveyed and inventoried, that is, taken under "control" by the land committees.

Regional data are more specific, although there is still need of further research. The most authoritative estimates thus far have been advanced by M. Rubach,²⁴¹ who claims that, by October 1917, about 50 to 60 per cent of estates had been destroyed and partitioned in the *povity* of Podillia and Volhynia provinces, near the front line. In the eastern *povity* of these provinces and in Kiev province, this percentage declined to about 20–25. In the Left-Bank provinces, the greatest destruction occurred in Chernihiv province—15 to 20 per cent of all estates. In the industrial regions of Ukraine, destruction and partition of estates was minor, about 5 to 10 per cent of the total excluding estates under the control of the local authorities). Rubach's estimates are supported by an Austrian intelligence document, dated 24 March 1918, which reports that in Podillia province most estates were destroyed.²⁴² The delegates to the Seventh RCP(b) Congress (6–8 March 1918) from the Donets-Kryvyi Rih region reported that there were no landlords remaining in the area, but more recently P. Reshodko, stated that in Kharkiv province by October 1917, one-fifth of all non-peasant lands had been partitioned by the peasantry.²⁴³ In the spring of 1918, "complete redistribution of all lands... was accomplished only in individual villages of Chernihiv, Podillia [*sic*—perhaps Poltava], and in Kharkiv gubernii. On the whole there was little 'black partitioning'."²⁴⁴

Rubach, whose estimates are perhaps the most accurate, declares that in Ukraine as a whole, by the fall of 1917, the peasantry had seized and divided, or taken in compulsory lease, 25 to 30 per cent of all non-peasant lands. Pershin estimated that, in the course of 1917, in the south of Ukraine and in Moldavia, 27.4 per cent of all peasant households participated in the distribution of land, of which 82.4 per cent were individual farmers, and the rest, 17.6 per cent, in *hromady*. In the "region of capitalist sugar-beet farming," which included not only central and north-eastern Ukraine, but also parts of south-central Russia, the same percentages are, respectively, 11.0, 88.2 and 11.8.

After two months of Soviet rule, perhaps one-third of all legally confiscated non-peasant lands had been partitioned or taken into compulsory lease by the peasantry of Ukraine as a result of the 1917 revolution. Thus the agrarian revolution was basically successful: the foundations of the pre-revolutionary agrarian system and social structure had been undermined irrevocably. To be historically accurate, however, one must recall Isaak Mazepa's remark that by April 1918, "the peasantry scarcely had time to take over the land from the landlords when a new regime began . . . to take it all back."

The revolution was not yet over.

Notes

1. Unless otherwise indicated, 'Ukraine' refers only to Eastern Ukraine, nine provinces of the Russian empire.
2. *Peremoha radianskoi vlady na Ukraini: zhovten 1917-sichen 1918rr.: Zbirnyk dokumentiv* (Kiev 1947), 1: 36. Cf. also *Ukrainska silsko-hospodarska entsyklopediia* (Kiev, 1970), 1: 26.
3. One desiatin equals 2.69 acres.
4. *Peremoha radianskoi vlady*, 1: 37; V. Kubijovyč, ed., *Ukraine: A Concise Encyclopedia*, 2 vols. (Toronto: University of Toronto Press, 1963, 1971), 1: 845. [Referred to hereafter as *UCE*.]
5. *UCE*, 2: 845.
6. *Peremoha radianskoi vlady*, 1: 37.
7. *UCE*, 2: 844.
8. *Podgotovka velikoi oktiabrskoi sotsialisticheskoi revoliutsii na Ukraine: Sbornik dokumentov i materialov* (Kiev, 1955), 9.
9. *UCE*, 2: 844.
10. *Peremoha radianskoi vlady*, 1: 39.
11. *Ibid.*, 38.
12. *Ibid.*

13. *UCE*, 2: 843.
14. *UCE*, 1: 194; I. Romanenko, *Silske hospodarstvo Ukrainskoi RSR* (Kiev, 1958), 14.
15. Romanenko, *Silske hospodarstvo URSR*, 14.
16. *UCE*, 2: 846.
17. Cf. A. Chayanov, *The Theory of Peasant Economy* (Homewood, Ill: R. D. Irwin, 1968). There is a brief and sympathetic summary in B. Kerblay, "The Russian Peasant," St. Anthony's Papers, no. 19, *Soviet Affairs*, no. 4 (1966).
18. According to Soviet estimates, prior to land reforms, non-peasant owners possessed the following percentages of land: Iran-90, Syria-85, Argentina-90, Chile-70, India-70, Indonesia-62, Brazil-50, Turkey-40, Egypt-35. *Sovetskaia istoricheskaia entsiklopediia* (Moscow, 1961), 1: 181. [Referred to hereafter as *SIE*.]
19. *UCE*, 1: 177; also Romanenko, *Silske hospodarstvo URSR*, 408.
20. J. S. Reshetar, *The Ukrainian Revolution, 1917-1920: A Study in Nationalism* (Princeton, N.J.: Princeton University Press, 1952), 141.
21. I. Vytanovych, "Ahrarna polityka ukrainskykh uriadiv rokiv revoliutsii i vyzvolnykh zmahan," *Ukrainskyi istoryk*, no. 3-4 (1967): 5.
22. *Ereignisse in der Ukraine, 1914-1922: Deren Bedeutung und Historische Hintergründe* (Horn, Austria: Verlag Ferdinand Berger & Söhne, 1966, for W. K. Lypyns'kyi East European Research Institute, Philadelphia), 1: 12.
23. *Ibid.*, 315.
24. S. P. Trapeznikov, *Leninism i agrarno-krestianskii vopros* (Moscow, 1967), 1: 363.
25. P. N. Pershin, *Agrarnaia revoliutsiia v Rossii* (Moscow, 1966), 9.
26. Iu. M. Hamretsky, "Radianska istoriohrafiiia selianskoho rukhu na Ukraini v 1917r.," *Istoriografichni doslidzhennia v Ukrainskii RSR* (1968), 1: 56, 72.
27. *Podgotovka velikoi oktiabrskoi*, 19.
28. P. N. Pershin, *Narysy ahrarnoi revoliutsii v Rosii* (Kiev, 1959), 157. The Russian edition is longer than the Ukrainian, but this reference to the absence of organized leadership in 1905 is omitted.
29. *Ibid.*, 290-1.
30. *Ibid.*, 6.
31. *Ibid.*, 31-2.
32. *Ibid.*, 290-1.
33. *Velikaia oktiabraskaia sotsialisticheskaia revoliutsiia: Khronika sobytii*, 4 vols., (Moscow, 1957-61). [Referred to hereafter as *Khronika*.]
34. N. I. Ksenzenko, "Reshenie agrarnogo voprosa v svekloseiushchyykh raionakh Ukrainy, 1917-1922 gg.," *Voprosy istorii*, no. 2 (1972): 21.
35. *Peremoha radianskoi vlady*, 1: 20-1.
36. D. Doroshenko, *Istoriia Ukrainy 1917-1923 rr.* (New York: Bulava Publishers, 1954), 8-9. Chykalenko recalls in his memoirs that in 1917, Kiev newspapers reported that peasants fought among themselves for the estates.

- using machine guns and cannon. Ie. Chykalenko, *Uryvok z moikh spomyniv za 1917r.* (Prague, 1932), 26–7. This may be an exaggeration, but it is clear that fighting occurred in some places.
37. *Podgotovka velikoi oktiabrskoi*, 350.
 38. *Ibid.*, 641.
 39. Chykalenko reports that his states were unharmed because he was popular with the peasants. He later sold all his lands, however. Chykalenko, *Uryvok z moikh*, 17, 20, 26.
 40. Cf. e.g. *Podgotovka velikoi oktiabrskoi*, 732; *Khronika*, 2: 618.
 41. The *obshchina*, which is discussed later in this paper, has been studied comprehensively in pre-1917 Russia in G. T. Robinson, *Rural Russia Under the Old Regime* (Berkeley: University of California Press, 1969).
 42. Hamretsky, “Radianska istoriografiia selianskoho rukhu,” 60–1.
 43. *Ibid.*, 61.
 44. I. T. Shcherbyna, “Liutneva burzhuazno-demokratychna revoliutsiia na Ukraini,” *Ukrainskyi istorychnyi zhurnal*, no. 2 (1967): 27.
 45. Quoted by Hamretsky, “Radianska istoriografiia selianskoho rukhu,” 62–3; Dubrovski’s work is taken from S. Dubrovski, *Die Bauernbewegung in der Russischen Revolution 1917* (Berlin: P. Parey Verlag, 1929), 90.
 46. Pershin, *Agrarnaia revoliutsiia*, 408.
 47. Dubrovski, *Die Bauernbewegung*, 90.
 48. Pershin, *Narysy ahrarnoi revoliutsii*, 287.
 49. S. Kh. Kahan, “Selianskyi rukh na Kiiivshchyni v veresni-hrudnoi 1917r.,” in *Z istorii borotby z ustanovlennia radianskoi vlady na Ukraini* (Kiev, 1957), 199.
 50. A candidate’s dissertation by V. M. Nemchenko, quoted in Hamretsky, “Radianska istoriografiia selianskoho rukhu,” 64.
 51. Dubrovski, *Die Bauernbewegung*, 98–9.
 52. Hamretsky, “Radianska istoriografiia selianskoho rukhu,” 62.
 53. Pershin, *Narysy ahrarnoi revoliutsii*, 288–9.
 54. *Ibid.*, 290; cf. also 31–2.
 55. Dubrovski, *Die Bauernbewegung*, 97.
 56. Pershin, *Narysy ahrarnoi revoliutsii*, 288.
 57. *SIE*, 10: 976–7, 990.
 58. Pershin, *Narysy ahrarnoi revoliutsii*, 295.
 59. M. K. Dziewanowski, *The Communist Party of Poland* (Cambridge: Harvard University Press, 1959), 93.
 60. Cf. *Khronika*; also *Velikaia oktiabraskaia sotsialisticheskaia revoliutsiia v Belorussii: Dokumenty i materialy*, 2 vols. (Minsk, 1957).
 61. V. K. Shcharbakou, *Katsrychnitskaia revoliutsiia na Bielarusi i Bielopolskaia okupatsiia* (Minsk, 1930), 7, 15.
 62. *UCE*, 2: 849.
 63. *UCE*, 1: 183.
 64. Vytanovych, “Ahrarna polityka ukrainskykh uriadiv,” 52.

65. N. A. Mokhov and I. U. Mokhov, "Borba krestian Bessarabii za zemliu v period provedeniia agrarnoi reformy 1918–1923gg.," *Istoricheskie zapiski*, no. 38 (1951): 59.
66. R. Pipes, *The Formation of the Soviet Union: Communism and Nationalism, 1917–1923* (Cambridge: Harvard University Press, 1954), 79.
67. V. Ivanys, *Stezhkamy zhyttia: Spohady* (Neu Ulm, W. Germany, 1959), 328–31.
68. *Khronika*, 1: 594.
69. *Sezdy Sovetov Sovetskikh Sotsialisticheskikh Respublik: Sbornik dokumentov 1917–1922gg.* (Moscow, 1960), 449.
70. F. Kazemzadeh, *The Struggle for Transcaucasia: 1917–1921* (New York: Philosophical Library, 1951), 188.
71. *Ibid.*, 222–4.
72. *Khronika*, 1: 169, 2: 118; cf. also Pipes, *Formation of the Soviet Union*, 82–4.
73. O. H. Radkey, *The Agrarian Foes of Bolshevism: Promise and Default of the Russian Socialist Revolutionaries, February to October, 1917* (New York: Columbia University Press, 1958), 373.
74. *Khronika*, 2: 128, reports that in Novgorod province, local peasants "asked" the government to "confiscate the lands of the House of Romanov" as late as August 1917.
75. Cf. P. I. Lyashchenko, *History of the National Economy of Russia to the 1917 Revolution* (New York: Macmillan, 1949), 743.
76. N. I. Myronets, "Uchast soldatskykh mas pivdenno-zakhidnoho frontu v borotbi selianstva Podillia za zemliu v period pidhotovky Velykoi zhovtnevoi sotsialistychnoi revoliutsii, berezen-zhovten 1917r.," *Pytannia istorii narodiv SRSR*, no. 2 (1966): 11.
77. V. L. Kharytonov, *Liutneva revoliutsiia 1917 roku na Ukraini* (Kharkiv, 1966), 199, 209–10.
78. V. Vynnychenko, *Vidrodzhennia natsii* (Kiev, 1920), 1: 176.
79. Akademiia nauk Ukrainskoi RSR, *Peremoha Velykoi sotsialistychnoi revoliutsii na Ukraini*, 1: 158–61.
80. *Ibid.*, 161–2, 225.
81. Quoted in *Podgotovka velikoi oktiabrskoi*, 274.
82. *Ibid.*, 615.
83. *Ibid.*, 269.
84. V. Kubijovyč, ed. *Entsyklopediia ukrainoznavstva: Slovnykova chastyna* (Paris-New York: Molode zhyttia, 1948), 2: 785. The real problem of land tenure in the Ukrainian *hromada* system was the absence of the law of primogeniture. Hereditary landholdings were parcelled into ever smaller strips among the heirs and could be consolidated only through marriage, purchase or exchange, or through success in holding a large family together. After the 1917 revolution the landlords' lands were often partitioned per family; hence to obtain more land, families had to divide and the size of the average farm decreased to even more inefficient proportions in the 1920s.

85. Cf. e.g. *Podgotovka velikoi oktiabrskoi*, 397, 820.
86. Zh. P. Tymchenko, "Rady selianskykh deputativ na Ukraini v 1917r.," *Ukrainskyi istorychnyi zhurnal*, no. 8 (1971): 52, 54. Tryhub reveals that there were 101 village *rady* in Ukraine at the end of 1917, and 357 in April 1918, when the first Bolshevik occupation ended. P. M. Tryhub, "Pro kilkist, partiinyi ta sotsialnyi sklad Rad Ukrainy v hrudni 1917-kvitni 1918rr.," *Ukrainskyi istorychnyi zhurnal*, no. 1 (1972): 109.
87. Cf. *Podgotovka velikoi oktiabrskoi*, 419–21.
88. In some villages there were food committees, which first collected foodstuffs for the army and later confiscated food from the landlords for peasant use. *Podgotovka velikoi oktiabrskoi*, 489, 826, 842.
89. *Entsyklopediia ukrainoznavstva*, 1: 314.
90. Tymchenko, "Rady selianskykh deputativ," 54.
91. *Komunistychna partiia Ukrainy v rezoliutsiiakh zizdiv i konferentsii 1918–1956* (Kiev, 1958), 16.
92. Kharytonov, *Liutneva revoliutsiia*, 203.
93. See, for example, Hamretsky, "Radianska istoriografiia selianskoho rukhu," 66–7.
94. *SIE*, 4: 661.
95. During the revolution the provisional government and the Central Rada tried to democratize the *zemstvy* through universal suffrage, but without success. They did, however, maintain rural schools, hospitals and agricultural extension stations out of their taxes.
96. *Podgotovka velikoi oktiabrskoi*, 296, 418, 420.
97. Pershin, *Narysy ahrarnoi revoliutsii*, 387–90.
98. P. Khrystiuk, *Zamitky i materiialy do istorii Ukrainskoi revoliutsii 1917–1920rr.* (New York: Vydavnytstvo Chartoriiskykh, 1969), 1: 80.
99. *Ibid.*, 110.
100. Khrystiuk, *Zamitky i materiialy*, 2: 52.
101. *Ibid.*, 3: 4–5.
102. *SIE*, 3: 812–13; 5: 661.
103. Khrystiuk, *Zamitky i materiialy*, 1: 24–5.
104. *Ibid.*, 37.
105. *Ibid.*, 137.
106. *Ibid.*, 138.
107. *Ibid.*, 43, 137–8.
108. Quoted by Hamretsky, "Radianska istoriografiia selianskoho rukhu," 68.
109. Tymchenko, "Rady selianskykh deputativ," 54, 57.
110. *Ibid.*, 50–2.
111. Zh. P. Tymchenko, "Selianski zizdy na Ukraini v 1917r.," *Ukrainskyi istorychnyi zhurnal*, no. 11 (1969): 113–20. The list says nothing about the composition of the delegates, or on whose initiative they were convened, thus the author was either unaware of, or ignored the fact that they were predominantly organs of the *spilka*.

112. Khrystiuk, *Zamitky i materiialy*, 2: 60–6.
113. I. Majstrenko, *Borot'bism: A Chapter in the History of Ukrainian Communism* (New York: Research Program on the USSR, 1954), 39.
114. Khrystiuk, *Zamitky i materiialy*, 2: 63.
115. J. Borys, *The Russian Communist Party and the Sovietization of Ukraine* (Stockholm: Kunkl Boktruckeriet P.A. Norsted, 1960), 92.
116. Khrystiuk, *Zamitky i materiialy*, 1: 128.
117. Borys, *Sovietization of Ukraine*, 92–9.
118. *Entsyklopediia ukrainoznavstva*, 4: 1493–4.
119. Vytanovych, "Ahrarna polityka," 17–60.
120. *Ereignisse in der Ukraine*, 12.
121. *Ibid.*, 160.
122. P. Fedenko, *Sotsializm davnii i novochasnyi* (London: Nashe slovo, 1968), 192.
123. F. Engels, "The Peasant Question in France and Germany," in K. Marx and F. Engels, *Selected Works*, 2 vols. (Moscow, 1955), 2: 438.
124. V. Levynsky, *Selianstvo i sotsiialdemokratiia: Dodatok-aharni prohramy sotsiialistychnykh partii* (New York: Holos pravdy, 1918), 105.
125. Khrystiuk, *Zamitky i materiialy*, 1: 34.
126. Vynnychenko, *Vidrodzhennia natsii*, 1: 182.
127. *KPSS v rezoliutsiiakh i resheniiakh sez dov, konferentsii i plenumov TsK* (Moscow, 1953), 124–6.
128. Trapeznikov, *Leninizm i agrarno-krestianskii vopros*, 1: 144ff.
129. *Protokoly obiedinitelnogo sezda Rossiiskoi sotsiialdemokraticheskoi rabochei partii* (Moscow, 1907), 60.
130. *Ibid.*, 146.
131. Pershin, *Narysy ahrarnoi revoliutsii*, 116.
132. Vynnychenko, *Vidrodzhennia natsii*, 1: 252; 2: 96.
133. Khrystiuk, *Zamitky i materiialy*, 2: 116–17.
134. Vynnychenko, *Vidrodzhennia natsii*, 1: 181–3.
135. Khrystiuk, *Zamitky i materiialy*, 1: 100–1.
136. *Ibid.*, 2: 33, 190.
137. A. Zhyvotko, "Do istorii Ukrainiskoi partii sotsialistiv revoliutsioneriv," *Vilna spilka*, no. 3 (1927–9): 128–32.
138. Khrystiuk, *Zamitky i materiialy*, 1: 35.
139. Vynnychenko, *Vidrodzhennia natsii*, 1: 251.
140. *Ereignisse in der Ukraine*, 1: 167.
141. Khrystiuk, *Zamitky i materiialy*, 1: 125.
142. Majstrenko, *Borot'bism*, 124.
143. I. Mazepa, *Ukraina v vohni i buri revoliutsii 1917–1921* (Neu Ulm, Germany: Prometei, 1950), 28.
144. Majstrenko, *Borot'bism*, 36, 69.
145. A. Richytsky, *Tsentralna Rada* (Kharkiv, 1928), 11.

146. *Peremoha velykoi sotsialistychnoi revoliutsii*, 1: 98.
147. Reshetar, *Ukrainian Revolution*, 51.
148. Khrystiuk, *Zamitky i materiialy*, 1: 37.
149. Vytnanovych, "Ahrarna polityka," 22.
150. Khrystiuk, *Zamitky i materiialy*, 1: 125.
151. M. Kovalevsky, *Pry dzherelakh borotby* (Innsbruck, Austria, 1960), 246.
152. Khrystiuk, *Zamitky i materiialy*, 1: 108.
153. *Ibid.*, 2: 65-6; 3: 16-17.
154. Vytnanovych, "Ahrarna polityka," 21.
155. The programme is quoted in Akademiia nauk SSSR, *Istoriia russka ekonomicheskoi mysli* (Moscow, 1966), 406-7.
156. Khrystiuk, *Zamitky i materiialy*, 2: 118.
157. Reshetar, *Ukrainian Revolution*, 140-1.
158. I. Zozulia, comp., *Velyka ukrainska revoliutsiia: Kalendar istorychnyk podii za liuty 1917 roku—berezen 1918 roku* (New York: UVAN, 1967), 66.
159. Khrystiuk, *Zamitky i materiialy*, 2: 15.
160. V. Vynnychenko, *Shchodennyk*, 11 October 1917 (courtesy of Mr. H. Kostiuk).
161. Khrystiuk, *Zamitky i materiialy*, 2: 51-2.
162. D. Doroshenko, *Istoriia Ukrainy 1917-1923rr.* (New York: Bulava Publishers, 1954), 1: 188.
163. *Ibid.*, 1: 189.
164. Khrystiuk, *Zamitky i materiialy*, 2: 58-9.
165. *Ibid.*
166. Zozulia, *Velyka ukrainska revoliutsiia*, 42.
167. Doroshenko, *Istoriia Ukrainy*, 1: 247-8.
168. Zozulia, *Velyka ukrainska revoliutsiia*, 43.
169. *Ibid.*, 46-8.
170. *Ibid.*, 75-6.
171. *Ibid.*, 50.
172. *Ibid.*, 50, 87-90.
173. *Ereignisse in der Ukraine*, 1: 376.
174. *Ibid.*, 339-40.
175. *Ibid.*, 370.
176. *Ibid.*, 370, 374.
177. V. Petriv, *Spomyny z chasiv ukrainskoi revoliutsii, 1917-1921* (Lviv, 1928), 2: 28, 72-3, 104.
178. *Ereignisse in der Ukraine*, 1: 320-1.
179. Doroshenko, *Istoriia Ukrainy*, 2: 8.
180. *Ereignisse in der Ukraine*, 1: 323.
181. O. S. Fedyshyn, *Germany's Drive to the East and the Ukrainian Revolution, 1917-1918* (New Brunswick, N.J.: Rutgers University Press, 1971), 124.

182. *Ereignisse in der Ukraine*, 1: 315–16.
183. *Ibid.*, 334–5.
184. L. Trotsky, *The History of the Russian Revolution*, 3 vols (New York: Simon and Schuster, 1937), 1: 406.
185. V. I. Lenin, *Selected Works*, 3 vols. (Moscow, 1970), 2: 45.
186. Pershin, *Narysy ahrarnoi revoliutsii*, 222.
187. *KPSS v rezoliutsiakh*, 1: 340–1.
188. *Ibid.*, 374–5, 391, 394.
189. V. I. Lenin, *Sochineniia*, 4th ed. (Moscow, 1954–62), 25: 253–60; 26: 42–3, 198, 225–9.
190. *KPSS v rezoliutsiakh*, 1: 396.
191. Lenin, *Sochineniia*, 26: 228.
192. Pershin, *Agrarnaia revoliutsiia*, 31.
193. Lenin, *Sochineniia*, 32: 451.
194. *Sobranie uzakonenii i rasporiazhenii rabocheho i krestianskogo pravitelstva RSFSR* (Petrograd, 1917), no. 7, 105.
195. *Ibid.*, no. 25, n. 346.
196. Pershin, *Agrarnaia revoliutsiia*, 2: 32–42.
197. Lenin, *Sochineniia*, 27: 114.
198. *SIE*, 1; 169.
199. Trapeznikov, *Leninizm i agrarno-krestianskii vopros*, 1: 350.
200. Trotsky, *History of the Russian Revolution*, 3: 23.
201. *UCE*, 1: 795.
202. P. L. Varhatiuk, “Bilshovytski orhanizatsii Ukrainy v liutnevii revoliutsii,” *Ukrainskyi istorychnyi zhurnal*, no. 2 (1967): 39, 44.
203. *Podgotovka velikoi oktiabrskoi*, 39.
204. *Narysy istorii Komunistychnoi Partii Ukrainy* (Kiev, 1964), 174.
205. *Ukrainska RSR v period hromadianskoi viiny 1917–1920rr*, 3 vols. (Kiev, 1970), 1: 159.
206. *Perepiska sekreteriata TsK RSDRP(b) z mestnymi partiinymi organizatsiami, mart-iiul 1918g. : Sbornik dokumentov* (Moscow, 1967), 3: 349.
207. S. Kikhteev, *Oktiabrskaiia revoliutsiia i pervye sotsialisticheskie preobrazovaniia v Donetsko-Krivorozhskom basseine* (Kiev, 1969), 110.
208. *Ukrainska RSR v period hromadianskoi viiny*, 1: 112.
209. *Bolshevistskie organizatsii Ukrainy v period podgotovki i provedeniia Velikoi Oktiabrskoi sotsialisticheskoi revoliutsii: noiabr 1917-aprel 1918. Sbornik dokumentov i materialov* (Kiev, 1962), 40.
210. I. S. Khmil, “Borotba selian Ukrainy za zdiisnennia dekretu pro zemliu, zhovten-hruden 1917r.,” *Ukrainskyi istorychnyi zhurnal*, no. 5 (1971): 47.
211. *Podgotovka velikoi oktiabrskoi*, 281.
212. *Ibid.*
213. *Ibid.*, 385–6.
214. *Ukrainska RSR v period hromadianskoi viiny*, 1: 55; cf. also Hamretsky,

- “Radianska istoriografiia selianskoho rukhu,” 71.
215. Kahan, “Selianskyi rukh na Kiiivshchyni,” 196.
216. Khrystiuk, *Zamitky i materiialy*, 2: 87.
217. *Ukrainska RSR v period hromadianskoi viiny*, 1: 251.
218. I. A. Gladkov, *Ocherki stroitelstva sovetskogo planovogo khoziaistva 1917–1918 gg.* (Moscow, 1950), 266.
219. *Ukrainska RSR v period hromadianskoi viiny*, 1: 250–1.
220. *Bolshevistskie organizatsii Ukrainy*, 41–2.
221. *Ibid.*, 52.
222. *Ibid.*, 252–3, 256.
223. *Ibid.*, 254.
224. *Direktivy slavnogo komandovaniia krasnoi armii, 1917–1920: Sbornik dokumentov* (Moscow, 1969), 19, 32.
225. *Ukrainska RSR v period hromadianskoi viiny*, 1: 204.
226. *Ibid.*, 241–2.
227. *Ibid.*, 244.
228. *Ibid.*, 245–6.
229. *Ibid.*, 246–7.
230. *Istoriia derzhavy i prava Ukrainskoi RSR v dvokh tomakh, 1917–1967 rr.* (Kiev, 1967), 1: 117, 123–7.
231. *Ibid.*, 1: 122.
232. S. M. Korolivsky, M. A. Rubach and N. I. Suprunenko, *Pobeda sovetskoii vlasti na Ukraine* (Moscow, 1967), 487–9.
233. J. Stalin, *Problems of Leninism* (Moscow, 1954), 69.
234. *Ukraina za piadesiat rokiv, 1917–1967; Statystychnyi dovidnyk* (Kiev, 1967), 36.
235. Iu. A. Poliakov, *Perekhod k NEPu i sovetskoe krestianstvo* (Moscow, 1967), 100.
236. Quoted by S. M. Gritsai, *Razvitie ekonomicheskoi mysli po agrarnomu voprosu na Ukraine v perekhodnyi period ot kapitalizmu k sotsializmu* (Kharkiv, 1970), 25.
237. *Ereignisse in der Ukraine*, 1: 323, 370.
238. *Ibid.*, 272.
239. *Ibid.*, 316.
240. Khmil, “Borotba selian Ukrainy,” 51.
241. M. A. Rubach, *Ocherki istorii revoliutsionnykh preobrazhenii agrarnykh otnoshenii na Ukraine* (Kiev, 1956), 184.
242. *Ereignisse in der Ukraine*, 1: 334.
243. P. F. Reshodko, “Borba krestian Kharkovskoi gubernii v 1917 godu,” *Uchenye zapiski Kharkovskogo universiteta* 145 (1964): 178.
244. Korolivsky et al, *Pobeda sovetskoii vlasti*, 490.

2. Outline History of the Communist Party of Ukraine*

The aim of this article is to give a brief chronological history of the CP(b)U (Communist Party [Bolsheviks] of Ukraine), based on reports of congresses, conferences and plenary sessions of its Central Committee and other party documents.

Generally speaking, the history of the CP(b)U has been seriously neglected. For this period there are the accounts by M. Ravich-Cherkassky and M. M. Popov, a *History of the CP(b)U in Materials and Documents* (published in 1933), the writings of M. Iavorsky, the memoirs of Ievheniia Bosh, I. Kulyk and M. H. Rafes, and also such materials published in the United States as I. Majstrenko's *Borot'bism*, and Richard Pipes' *The Formation of the Soviet Union: Communism and Nationalism, 1917-23*. On the period since the twenties, no exhaustive work has been published, either in Ukraine or abroad. Within the CP(b)U itself, work on the history of the Party ceased in 1933. All we have from then on are such official Party documents as stenographic reports of proceedings and the texts of resolutions adopted at congresses, conferences and plenary sessions of the

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Central Committee, and even these have never been collected in a single volume. A bibliography of most of these original materials, many of which are unavailable abroad, is given in Iu. Lawrynenko's *Ukrainian Communism and the Policy of Soviet Russia Toward the Ukraine* (New York, 1953). Of other works, both published and unpublished, that have some bearing upon the subject, mention should be made of those by H. Kostiuk, I. Majstrenko, U. Lutsky, M. Luther, J. Armstrong and Y. Bilinsky. The present article is based on the above sources, in addition to journals and newspapers published by the CP(b)U. The material is presented in the form of a résumé of the relevant documents, interspersed with illustrative statistics and references to prominent persons and important events. (For a fairly complete list of members of the Party Central Committee and its more important component bodies throughout the period of the Party's existence, see *Ukrainskyi zbirnyk* (Munich), no. 9 (1957): 117–35.)

Creation of the CP(b)U

Bolshevik organizations in Ukraine began to make their appearance in 1902, when the RSDRP (Russian Social-Democrat Workers' Party) first split into Bolsheviks and Mensheviks. Organizations were created in Odessa, Iekaterynoslav, Mykolaiv, Luhansk, Kharkiv and Kiev after the Second Congress of the RSDRP in 1903. Until 1917, there was no single organization uniting these units for all of Ukraine, and they were accordingly directly subordinated to the Central Committee of the RSDRP.¹ In the elections to the Fourth Duma, the Bolsheviks of Ukraine elected two delegates—H. I. Petrovsky for the Iekaterynoslav and Muranov for the Kharkiv district.²

The Bolsheviks of Ukraine may be said to have first displayed interest in the "nationalities question" in 1912. (The term "nationalities question" as used in the USSR and in this paper means the question of the national minorities—i.e., the non-Russian peoples—in the Soviet Union.) In its eighth issue for that year, the paper *Rabochaia gazeta* reported from Mykolaiv that a meeting of the local RSDRP organization had discussed the question whether the Prague Conference of the Party should be regarded as the highest Party organ, since it had not been attended by representatives of the national minorities of Russia. The meeting decided that the Central Committee of the RSDRP should pay more attention to the "nationals."³ The Bolsheviks first addressed the workers of Ukraine as such in 1914, when the paper *Trudovaia pravda*, in its twenty-eighth number for that year, printed an appeal addressed to them and signed by Oksent Lola from Iekaterynoslav. In a note appended to the appeal, Lenin

stated that Lola was a Ukrainian Marxist.⁴

After the revolution of February 1917 the Bolsheviks of Ukraine became noticeably more active, but during the first months they were in the minority in workers' committees and soviets: the Social Revolutionaries and the Mensheviks were still in the majority.⁵ Disunited as they were, the local Bolshevik organizations adopted various tactics. On 18 April 1917 the Kiev Bolshevik committee declared itself opposed to any collaboration with the USDRP (Ukrainian Social-Democrat Workers' Party), and decided instead to begin publishing its literature in Ukrainian.⁶ On 2 July 1917 the Bolsheviks of Iekaterynoslav, through the medium of their paper *Zvezda*, declared their sympathy with the national claims of the Ukrainian Central Rada.⁷

The first move toward creating an all-Ukrainian Bolshevik organization was taken by the Kiev Bolshevik committee, which on 2 July 1917, heard speeches by A. Horvits and Iu. Piatakov on the Ukrainian national movement. The former observed that this movement was powerful and could not be ignored. He advocated resisting Ukrainian and Russian chauvinism, but said that certain links should be maintained between the two countries, since the northern provinces of Russia could not exist without Ukrainian grain. Piatakov disagreed with Horvits' estimate of the strength of the Ukrainian movement and deprecated the policy of supporting it, on the ground that the movement tended toward the separation of Ukraine from Russia, which could not exist without the Ukrainian sugar industry, coal from the Donbas, grain from the black-earth belt, etc.⁸ The committee passed a resolution underlining the need for a centre to co-ordinate the work of the various local Party organizations in Ukraine. In addition, an organizational bureau was set up, consisting of Piatakov as chairman, V. Zatonsky and I. Kreisberg.⁹

At first, however, this organizational bureau, situated in Kiev, exerted little influence upon the other Bolshevik organizations in Ukraine. In the first place, these organizations—in Odessa, Kharkiv, Iekaterynoslav and Luhansk—were subordinate only to the Central Committee of the RSDRP, by virtue of Paragraph 7 of the party constitution.¹⁰ In the second place, they were big enough and powerful enough to resist any claims of the Kiev organizational bureau upon their prerogatives, 67 per cent of the Bolsheviks of Ukraine being concentrated in 1917 in the Donbas and Kryvyi Rih areas.¹¹ In the third place, being removed from the centres of the Ukrainian national movement, they underestimated its strength and failed to grasp the importance of establishing a party organization uniting all Ukraine. Their colleagues in Kiev understood the situation much better, and even began to collaborate with the Ukrainian Central Rada: for a while, indeed, Bolsheviks were represented on the so-called *Mala Rada* or Small Rada.¹²

During September, October and November 1917, the strength and influence of the Bolsheviks within the workers' movement and in the soviets rose considerably. In the elections to the soviets, they won a majority over the Mensheviks and Social Revolutionaries. Nevertheless, they were still unprepared to take over control. The Kiev group (Bosh and Piatakov) supported the views of Kamenev and Zinoviev, who on the eve of the October Revolution spoke against Lenin's demands for revolution. The Bolsheviks of Iekaternoslav (E. Kviring and Ia. Epshtein) went even farther in their rightist demands, advocating collaboration with the Mensheviks and considering the possibility of offering legal opposition in the Central Rada. At the time, none of them believed in the possibility of a proletarian revolution in Ukraine.¹³

On 15–17 December 1917 the Kiev Bolshevik organization, parallel with the First All-Ukrainian Congress of Soviets, held a conference of Bolsheviks of Ukraine, to which the Party organizations of the Donbas and Kryvyi Rih areas decided not to send representatives. The agenda included the following questions: (1) the policy to be adopted toward the Central Rada; (2) the creation of all-Ukrainian Soviet and Party centres; and (3) the unification of all Bolshevik organizations in Ukraine. The conference decided to create a "Social Democrat Party of Bolsheviks of Ukraine" and elected a central committee consisting of Bosh, V. Aussem, V. Shakhrai, A. Aleksandrov, V. Liuksemburg, H. Lapchynsky, V. Zatonsky and I. Kulyk. The influence of this committee was entirely confined to the Bolsheviks of Kiev and Right-Bank Ukraine (i.e., the area west of the Dnieper).¹⁴

The Bolsheviks who came to the First All-Ukrainian Congress of Soviets in Kiev suffered a defeat there and therefore decided to move to Kharkiv, where a congress of soviets of the Donbas and Kryvyi Rih areas was taking place. Merging with this congress and calling themselves the "First All-Ukrainian Congress of Soviets," the Bolsheviks, together with some of the left-wing Social Revolutionaries and Social Democrats, proclaimed a Soviet government on 25 December 1917. This date marks the creation of the Ukrainian SSR. The first cabinet of this republic, which included representatives from both Bolshevik groups, the Kiev and the Donbas-Kryvyi Rih, consisted of the following members: Ie. Bosh (Secretary for Internal Affairs); V. Shakhrai (succeeded by Iu. Kotsiubynsky, E. Neronovych [left Social Democrat] and A. Bubnov, Secretary for Military Affairs); V. Liuksemburg (succeeded by H. Lapchynsky, Secretary for Justice); E. Luhanovsky (Secretary for Food); V. Aussem (Secretary for Finance); Ariom Serheev (Secretary for Commerce and Industry); I. Martianov (Secretary for Postal and Telegraph Services); S. Bakynsky (Secretary for Communications); E. Terletsky (Left Social Revolutionary, Secretary for Agriculture);

S. Bakynsky (succeeded by M. Piontkovsky and I. Kulyk, Secretary for National Minorities).¹⁵

The Kharkiv government was created in order to represent the war against the Ukrainian People's Republic as an internal affair and not a war between Russian and Ukraine. Supported by the Russian Red Guard formation heading from Kursk and commanded by Antonov-Ovseenko, the Red Army, under the command of Iurii Kotsiubynsky and Muravev, began an advance on Kiev. According to Bosh, the local Bolshevik organizations in Bakhmach, Brailov, Vinnytsia, Mariupil, Mykolaiv, Kherson and Ielysavethrad began uprisings and seized power.¹⁶ On 12 February 1918 the Bolshevik government moved from Kharkiv to Kiev, only to abandon the city on 27 February in its retreat before Petliura's troops and the German army.¹⁷ On the way to Poltava, the government split and a part of its members went to the front. M. Skrypnyk co-opted additional Ukrainian Bolsheviks as members of the government, and in Poltava, on 7 March 1918, he proclaimed the liquidation of all the independent Soviet republics on Ukrainian territory—i.e., the Donbas-Kryvyi Rih, Odessa and Crimean republics—and their unification with Ukraine. On this occasion, the name "Ukrainian Socialist Soviet Republic" was used for the first time: it was described as a "federal republic," similar to the RSFSR.¹⁸ At the end of March, Skrypnyk's government summoned at Iekaterynoslav the Second All-Ukrainian Congress of Soviets, which was attended by 969 delegates. Half of these consisted of Bolsheviks, the other half of Social Revolutionaries, Social Democrats and other groups. At the congress, the left-wing policy favouring war against the Germans prevailed. Since, however, the RSFSR had signed a peace treaty with the Germans, prolonging the war would have put Lenin in a difficult position. The congress, therefore, declared Soviet Ukraine to be an independent state and its government to be in a state of war with the German occupying armies.¹⁹

Before the congress was over, the Germans had reached Iekaterynoslav, and the Bolsheviks were obliged to move to Tahanrih, capital of the "Don Soviet Republic." Against the German army, 200,000 strong, they could only put 11,000 men into the field, and in consequence all Ukraine was quickly occupied by the Germans.²⁰

On 19–20 April 1918 the Bolsheviks who arrived in Tahanrih from Ukraine summoned a conference, which was attended by A. Bubnov and S. Kosior from Moscow. Kharkiv and the Donbas were unrepresented, so that the only Bolshevik delegates present were those from Kiev, Poltava and Iekaterynoslav. The conference was also attended by a group of Ukrainian left-wing "independent" Social Democrats headed by P. Slynko.²¹ The main item on the agenda was the creation of an all-Ukrainian Bolshevik Party organization. On this subject there were two resolutions. That of Kviring, supported by the majority of the delegates

from Iekaterynoslav, proposed a partially autonomous party, whose Central Committee would be directly subordinate to the Russian Party Central Committee. The resolution proposed by Skrypnyk, supported by the Kiev and Poltava delegates and calling for an independent party, connected with the Russian Communist Party through the Third International only, won by 35 to 21 votes. For the name of the new party there were three proposals. Shakhrai, Lapchynsky, the Poltava group and all the Social Democrats who supported the Bolsheviks proposed to call it the Ukrainian Communist Party (UCP). Kviring and the Iekaterynoslav group voted for the name Russian Communist Party of Bolsheviks of Ukraine (RCP[b]U). Skrypnyk's proposal to call the new party the Communist Party (of Bolsheviks) of Ukraine (CP[b]U) was adopted by a majority of 34 votes.²² The CP(b)U, created in Tahanrih on 19–20 April 1918 was thus an independent Bolshevik party, organizationally independent of the Russian Communist Party. Its creator was Skrypnyk.

Also in Tahanrih, the CP(b)U elected its first organizational bureau, headed by Piatakov, with Skrypnyk as secretary and Kosior, V. Zatonsky, I. Hamarnyk, A. Bubnov and Kreisberg as members.²³

First Congress of the CP(b)U

Having left Tahanrih for Moscow, the organizational bureau of the CP(b)U organized, under the Central Committee of the Russian Communist Party, a Foreign Information Bureau for liaison with Ukrainian Bolsheviks who were dispersed throughout Russia. In June 1918, the organizational bureau of the CP(b)U began publication of its official organ, entitled *Kommunist*.²⁴ The editors included Piatakov, Bubnov and Zatonsky. Bubnov was later replaced by Kviring.²⁵

Bolshevik underground centres were organized in Ukraine. In Kharkiv province, there were more than 1,000 Party members; in the city of Luhansk 400; in Mykolaiv 200; and in Odessa 800.²⁶ In May 1918, representatives of the Bolshevik underground organizations of Odessa, Kharkiv, Kiev and Iekaterynoslav held a conference to exchange information. A temporary All-Ukrainian Centre of Bolshevik Organizations was created, headed by Maiorov. The centre was instructed to keep in touch with the organizational bureau of the CP(b)U in Moscow.²⁷

On 2–12 July 1918, the First Congress of the CP(b)U was held in Moscow, with 69 delegates present from 43 Party organizations having a total of 4,364 members.²⁸ On the eve of the congress, a formal merger of the Ukrainian Left Social Democrats took place, headed by P. Slynko and Butsenko.²⁹ The agenda included the following questions: (1) the political situation and the tasks of the party; (2) the uprisings in Ukraine; (3) the

relations of Ukraine with Russia; (4) the attitude of the CP(b)U toward other parties; (5) organization and elections; and (6) the Party programme. During the proceedings, a sharp conflict arose between the Iekaterynoslav group, headed by Kviring and Ia. Epshtein together with Artiom-Serheev of Kharkiv, on the one hand, and the Kiev group, headed by Piatakov, Bubnov and Zatonsky, on the other. Even before the Second Congress of Soviets on 17 March 1918, Kviring had proposed a resolution at a meeting of the National Secretariat to call a halt to the struggle against the Ukrainian Central Rada on condition that it would not punish the Bolsheviks. Now, at the First Congress of the CP(b)U, he spoke again in the same vein. The leftists, however, particularly Piatakov and Bubnov, were of the opinion that the revolution in Ukraine would continue. Kviring's resolution that all Ukraine should become a part of the RSFSR won majority support. The Kiev group strongly attacked it, maintaining that it failed to grasp the Ukrainian question and by-passed it. As to connections with other parties, the congress rejected all collaboration. The resolution adopted earlier by the Tahanrih conference, which had stated that the CP(b)U was to be independent of the Russian Communist Party, was cancelled. Following the adoption of Kviring's resolution, the CP(b)U was an integral, although autonomous, part of the Russian Communist Party, and accordingly adopted its programme. The congress elected a Central Committee of thirteen persons, of whom a majority were members of the Iekaterynoslav bloc.³⁰

In the course of the congress, the two blocs—the Kiev and the Iekaterynoslav—took definite form. The Kiev bloc was farther to the left than the Iekaterynoslav bloc in regard to all problems. It stood for revolutionary and partisan warfare in Ukraine, whereas the members of the Iekaterynoslav group advised waiting until Russia should recover and be in a position to help the Bolsheviks in Ukraine. On the nationalities question, there was no unity in the Kiev group. Piatakov often took the position known as "Luxemburgism," in which he belittled the strength and importance of the Ukrainian movement, while other members, particularly Zatonsky, developed a concept not yet quite clear even to themselves: a Ukrainian Bolshevism which, being national in form, would appeal to the Ukrainian masses. This line did not win the upper hand until 1919. The Iekaterynoslav group went so far as to declare for collaboration with the Ukrainian movement on the question of nationalism, but, on the other hand, supported and merged with the Kharkiv and Donbas Bolsheviks, who stood for separation of the Kharkiv, Donbas and Kryvyi Rih areas from Right-Bank Ukraine and their establishment as independent republics.

Second and Third Congresses of the CP(b)U

Under pressure from the Kiev bloc, the First Congress had adopted a resolution providing for preparation of an insurrection in Ukraine against the Germans and the Hetman. In July and August 1918, such an uprising, centred in the region of Chernihiv, occurred, but was quickly suppressed. This further compromised the Kiev group. Generally, the new course, led by the rightists, "consisted in preparing the way for the movement of a Russian Soviet Army into Ukraine," says Popov in his history of the Party.³¹ On 8 September 1918, a plenary meeting of the Party's Central Committee, held in Orel, admitted the failure of the uprising, condemned the Kiev bloc and called for a change in tactics from revolt to propaganda among the masses.³²

On 17–22 October 1918, the Party held its Second Congress, in Moscow, attended by 114 delegates from 110 organizations comprising 5,014 members. Kamenev made a speech on behalf of the Central Committee of the Russian Communist Party. The congress adopted by majority vote a resolution proposed by Epshtein, which stated that the Party's main task was the "unification of Ukraine with Russia." The meeting condemned the policy behind the Chernihiv uprising and placed its hopes in mass agitation. In regard to all questions raised at the congress, the views of the Iekaterynoslav group prevailed. A new Central Committee was elected consisting of thirteen persons, with practically no members of the Kiev group. One of them was Stalin, who at the time headed a delegation from the RSFSR which was about to open negotiations with the hetman regarding the purchase of grain in Ukraine.³³

In November 1918, a Revolutionary Military Council for the Ukrainian Front was set up, with Stalin as chairman and Piatakov and Zatonsky as members. The council directed military movements in the Chernihiv, Kharkiv and Donbas areas after the retreat of the Germans from Ukraine. Until the middle of January 1919, the northern and eastern parts of Left-Bank Ukraine were occupied by the Bolsheviks.³⁴

On 1–6 March 1919, the Third Congress of the CP(b)U was held in Kharkiv, with 199 delegates representing 16,363 Party members. The congress was held publicly and was attended by many new persons not belonging to the old blocs. These supported the Kiev group, which took control of the congress. A resolution submitted by the Kiev group, which condemned the policy of the previous central committee, was adopted by a majority vote. The congress adopted the economic programme known as War Communism. It also declared itself against collaboration with the Ukrainian Left Social-Revolutionaries or Borotbists. In the course of debates on the basic statutes of Ukraine, one delegate, Khmelnytsky, submitted the draft of a separate constitution for the Ukrainian SSR quite

different from that of the RSFSR. At the request of Sverdlov, the representative of the Russian Communist Party, the congress rejected the proposed draft and adopted a compromise resolution providing that the Ukrainian SSR should enter the RSFSR as an autonomous republic. This was somewhat at variance with the resolutions passed by the two previous congresses, which had called for a complete merger of Ukraine with Russia.³⁵

On matters of organization, the congress heard a speech by Sverdlov urging the CP(b)U to avoid isolating itself from the Russian Communist Party. On orders from the latter, the congress liquidated the regional committees of the Party Central Committee and declared the CP(b)U itself a regional organization of the Russian Communist Party, although with a Central Committee of its own. The highest level of authority in the CP(b)U from then on was to be a conference, rather than a congress, and for this reason the Third Congress itself is designated in official literature as the Third Conference of the CP(b)U.³⁶ The congress elected a new Central Committee consisting of fourteen members, with the Kiev group in control. Piatakov, Taras Kharechko and Akimov made up the organizational bureau, and Piatakov, Kviring, Rakovsky, Meshcheriakov and Bubnov the Politburo.³⁷

The changes in the organization and the reduction of the CP(b)U to the status of a regional organization of the Russian Communist Party were confirmed by the Eighth Congress of the Russian Communist Party, meeting in Moscow on 18–23 March 1919, which adopted the following resolution:

At the present time, Ukraine, Latvia, Lithuania and Belorussia exist as separate Soviet republics. Such is the present solution of the problem of the form of governmental organization.

This, however, does not mean that the Russian Communist Party should, in turn, be organized on the basis of a federation of independent Communist parties.

The Eighth Congress of the Russian Communist Party resolves: It is essential that there should exist one centralized Communist Party with a single Central Committee directing all the work of the Party in all parts of the RSFSR. All resolutions of the Russian Communist Party and its directing institutions are unconditionally binding on all sections of the Party, independently of their national composition. The central committees of the Ukrainian, Latvian and Lithuanian Communists will exercise the rights of regional committees of the Party and be completely subordinate to the Central Committee of the Russian Communist Party.³⁸

By May 1919, the CP(b)U numbered 36,000 members. The largest number of Party organizations—216—was in the Kharkiv region, but the main membership was concentrated in the working class of the Donbas, where there were 10,000 members. In order to strengthen the CP(b)U, the Russian Communist Party sent into Ukraine in the course of April and May more than 150 experienced administrators, all Russians.³⁹

In the spring of 1919, the CP(b)U led a bitter struggle against the newly-created Social-Democrat Party of Independents of Ukraine, which had broken away from the left wing of the Ukrainian Social Democrats. A resolution adopted by the Central Committee of the CP(b)U on 30 April 1919, ordered the arrest of the “independents” and the closing down of their press.⁴⁰

The isolationist and separatist policy of the CP(b)U in relation to the left-wing Ukrainian parties led to its complete isolation from the masses. Within the Party itself, the struggle between the Iekaterynoslav and Kiev groups again flared up. In order to smooth over the difficulties, the Russian Communist Party sent to Ukraine a delegation consisting of Trotsky, Kamenev and Ioffe. On 19 May 1919, a plenary meeting of the CP(b)U Central Committee, attended by a delegation from the Russian Communist Party, issued an order forbidding internal party quarrels. The meeting also adopted a resolution providing for unification of the Russian and Ukrainian armies under the command of Trotsky, and for merging the administration of the transportation and war industries of Ukrainian and Russian Soviet Republics. These steps had the immediate aim of strengthening military operations against Denikin, but they became permanently embedded in relations between Ukrainian and Russian Soviet Republics and were embodied in a special intergovernmental treaty.⁴¹

The rapid advance of Denikin from the south as well as the progress of the army of the Ukrainian People's Republic in Right-Bank Ukraine and the activities of the anti-Bolshevik Ukrainian partisans weakened the still feeble Ukrainian SSR and the CP(b)U. On 28 July 1919, after taking refuge in Russia, the Central Committee of the CP(b)U appointed three of its members—Kosior, Drobnis and Rafail-Farbman—as a Rearguard Bureau to direct the underground, but it, too, remained on the Soviet side of the front. In view of the organizational anarchy in the CP(b)U and the impotence of its Central Committee, the Russian Communist Party assigned full powers to the Rearguard Bureau.⁴² The CP(b)U had thus suffered a complete defeat, clearly as a result of its non-Ukrainian, anti-national character at a time when Ukraine was in the throes of a national revolution.

Fourth Conference (Congress) of the CP(b)U

The breakdown of the CP(b)U, its inability to organize an effective resistance and the dissolution by Moscow of its Central Committee produced a violent reaction on the part of the Ukrainian Bolsheviks and the members of the CP(b)U who happened to be working at the time in Russia. In November 1919, the leading members of the CP(b)U held a secret meeting in Gomel, in spite of the fact that the meeting had been forbidden by the Russian Communist Party. Two groups were present: the federalists, led by Lapchynsky and a group led by Dmytro Manuilsky. Lapchynsky proposed that the CP(b)U break away from the Russian Communist Party and, as an independent party, follow a Ukrainian policy. He expressed it as his belief that the defeat of the CP(b)U had resulted from the fact that the Russian Communist Party did not understand the Ukrainian national question and had consequently made it impossible for the CP(b)U to maintain contact with the Ukrainian masses.⁴³ He also expressed his belief that the dissolution of the CP(b)U Central Committee by the Russian Communist Party had had the effect of liquidating the entire CP(b)U. (He later repeated this charge in his memoirs, although in fact the CP(b)U had not been formally dissolved.)⁴⁴

Manuilsky took a neutral stand at the Gomel conference, but his presence there had a certain degree of influence on the future development of events in the CP(b)U. The conference came to an end without having accomplished anything concrete, except for the definite formulation of Lapchynsky's views. The federalists became an opposition within the Party and in May 1920 were excluded for "nationalist deviation." The Lapchynsky group included Kryvorotchenko, Iersky, Ladosha, Petro Slynko and Pavlo Popov.⁴⁵

The Gomel conference, however, influenced the CP(b)U by drawing attention to the central problem—that of Ukrainian nationalism. On 15 December 1919, the Party leaders met again, in Moscow, but this time without the federalists. The meeting, attended by Manuilsky, H. Petrovsky, Zatonsky, and other Ukrainian Bolsheviks, was held with the consent of Lenin, but in face of opposition from the Central Committee of the Russian Communist Party. Supported by Lenin, the meeting declared that the previous nationalities policy of the Party in Ukraine had been wrong; that the Party had failed to establish contact with the Ukrainian masses, and that it was necessary in future to acknowledge clearly the existence of the Ukrainian nation, the Ukrainian language and Ukrainian culture, and to attempt to establish a bond with the Ukrainian peasants. The meeting decided that another congress of the CP(b)U should be summoned, and appointed from its participants a Party Centre composed of Rakovsky, Zatonsky, Kosior, Manuilsky and Petrovsky. The powers granted to the Rearguard Bureau were withdrawn.⁴⁶

The CP(b)U Party Centre opened negotiations in Moscow with the Ukrainian Communist Party of Borotbists, which had been formed within the left wing of the Ukrainian Social Revolutionaries. As the revolution had taken an increasingly radical course, the Borotbists had come to exercise an increasing degree of influence over the Ukrainian peasantry and to a lesser extent over the Ukrainian petty bourgeoisie during the years 1918–19. Their influence had, in fact, become so great that before the retreat from Ukraine in May 1919 the Bolsheviks had decided to include them in the cabinet of the Ukrainian SSR.⁴⁷ The coalition later broke down, but because the Borotbists had gained a strong foothold among the Ukrainian masses and had resisted Denikin much more successfully than the Bolsheviks, the CP(b)U Party Centre now decided to renew collaboration with them. On 17 December 1919, a declaration providing for collaboration between the two parties was signed in Moscow.⁴⁸

The Gomel conference and Lapchynsky's opposition, the power and influence of the Borotbists, the good judgment of Lenin and the tactics of the Ukrainian members of the Party Centre—Manuilsky and Petrovsky—all led to a change in the policy by the Russian Communist Party and the CP(b)U. The Eighth All-Russian Conference of the Russian Communist Party, which took place in Moscow on 2–4 December 1919, ordered its Central Committee to draft a special resolution on the Ukrainian question. This resolution, prepared with the collaboration of the Ukrainian Bolsheviks, read as follows:

On the question of the attitude toward the working people of Ukraine, now liberating themselves from temporary occupation by the Denikin bands, the Central Committee of the Russian Communist Party decides:

1. Undeviatingly following the principle of self-determination of nations, the Central Committee considers it essential to confirm once more that it is the policy of the Russian Communist Party to grant independence to the Ukrainian SSR.
2. Considering it to be indisputable by any Communist and any socially-conscious worker that a close union of all the Soviet republics is essential in their struggle with the dangerous powers of world imperialism, it is the policy of the Russian Communist Party that definition of the form of such a union be finally decided by the Ukrainian workers and working peasants themselves.
3. At the present time, the relations between the Ukrainian SSR and the

RSFSR are determined by a federal connection on the basis of the resolution of the All-Union Central Executive Committee of 1 April 1919, and the Central Executive Committee of Ukraine of 18 May 1919.

4. Taking into consideration that Ukrainian culture (language, education, etc.) has been for centuries suppressed by tsarism and the exploiting classes of Russia, the Central Committee of the Russian Communist Party charges every Party member to act with all means available against any obstacles to the free development of the Ukrainian language and culture. Since, as a result of many centuries of suppression, there are, among the less socially-conscious sections of the Ukrainian people, nationalist tendencies, the members of the Russian Communist Party are under obligation to treat them with great patience and thoughtfulness, counteracting nationalist tendencies by a friendly word of comradely explanation regarding the identity of interests of the working masses of Ukraine and Russia. The members of the Russian Communist Party on the territory of Ukraine must show by deeds their recognition of the right of the working masses to study and converse in their native tongue, resisting by all means in their power efforts to relegate the Ukrainian language by artificial methods to a secondary position and striving rather to convert the Ukrainian language into an instrument for the Communist education of the working masses. Measures must be taken immediately to ensure that all government offices possess a sufficient number of Ukrainian-speaking personnel and that in future all personnel have some grasp of the Ukrainian language.⁴⁹

On 19 February 1920, the Central Committee of the Russian Communist Party ordered the re-establishment of the Central Committee of the CP(b)U. Its membership was made up of the members of the former CP(b)U Party Centre plus Voroshilov, Piatakov, Sosnovsky, Bubnov, Ivanov and Rafail-Farbman.⁵⁰

On 16–23 March 1920, the Fourth Conference of the CP(b)U took place in Moscow. It met with the powers of a congress, and was attended by 260 delegates representing the party's 25,247 full members and 8,233 candidate members.⁵¹ A few days before, the Second Congress of the Ukrainian Communist Party of Borotbists had adopted a resolution providing for dissolution of their party and a merger with the CP(b)U.⁵² In the course of its Fourth Conference, the CP(b)U decided to accept the Borotbists with the consent of the Comintern.⁵³

Stalin delivered the report for the Central Committee of the Russian Communist Party. His speech was mainly concerned with economic questions, including development of an economy based on War Communism and increased application of *prodrazverstka*. There was strong opposition to Stalin by the "Kharkiv group," headed by Saprionov, whose supporters were

later known as “Democratic Centralists” and also as the “Workers’ Opposition.” In opposing War Communism, this group called for a democratization of the economic system and the transfer of enterprises to decentralized administration by trade unions and workers’ committees. During the discussion, they defeated Stalin’s resolution on economic questions by a vote of 118 to 86.⁵⁴

The newly-elected Central Committee of the CP(b)U included a few of Sapronov’s group. However, on his return to Moscow, Stalin persuaded the Central Committee of the Russian Communist Party to dissolve the Central Committee of the CP(b)U and replace it, on 7 April 1920, with a new committee from which Sapronov’s supporters were excluded.⁵⁵ The majority of the Sapronov group, which included such active Bolsheviks in Ukraine as Taras Kharechko, Hanzei, F. Pylypenko, Kuznetsov, Antonov, Kosior, Livshyts, Perepechko and M. Penko, were excluded from the Party in 1920 and 1927.⁵⁶

Fifth Conference (Congress) of the CP(b)U

The December 1919 resolutions of the Russian Communist Party on the Ukrainian question were merely a tactical manoeuvre intended to assist the Bolsheviks after their return to Ukraine. Only the Borotbists and a few of the Ukrainian Bolshevik Centrists took them seriously, the former for reasons of ideology, the latter as a good move to make a revolution. The CP(b)U remained a pro-Moscow party, the majority of its members being Russian. The new members who joined were by origin either Russified workers or Russified bourgeois. These latter were bitterly opposed by the Borotbist members of the Party’s Central Committee—V. Blakytny and O. Shumsky. The Borotbists had entered the CP(b)U to gain control of the Party from within, in order to change it into a really national Ukrainian Communist Party fighting for a Soviet Ukrainian government on an equal footing with that of Russia. Blakytny and Shumsky finally won the consent of the Central Committee of the Russian Communist Party for a purge of petty bourgeois elements in the CP(b)U. The purge was conducted by Blakytny, Zatonsky and Feliks Kon.⁵⁷

Nothing came of the efforts of the Borotbists. In spite of the purge, the Party was flooded by a wave of Russified petty bourgeois. The Party had no contact with the Ukrainian masses. The Borotbists, whose main field of activity was the rural areas, did succeed in introducing a small Ukrainian element, but were far from being able to gain control.

This became particularly clear during the Party’s Fifth Conference, which took place in Kharkiv on 17–20 November 1920. The conference was attended by 342 delegates representing 31,065 members and 10,983 candidate members from 1,207 Party organizations.⁵⁸ According to

M. M. Popov, the Soviet historian of the CP(b)U, the majority of the delegates were Red Army soldiers from units of the RSFSR scattered throughout Ukraine, who had just finished the war with Poland and were engaged in fighting with Wrangel.⁵⁹ This was the same situation as had existed at earlier congresses of the Party: the prospects for the Borotbists were indeed hopeless.

The Russian Communist Party was represented at the conference by Zinoviev, who pressed the point of view of the Russian chauvinists in regard to the nationalities question by proposing to permit use of the Ukrainian language only in the rural areas and to count on the possibility that in the final analysis the “more highly cultured Russian language” would gain the upper hand. Vigorous opposition came from the Borotbists. The conference adopted an ambiguous resolution rejecting the views of Zinoviev and admitting that “the nationalities question in Ukraine is most important and most difficult.”⁶⁰

The conference devoted its main attention to economic questions. Ukraine was lying in ruins. Vlas Chubar, who was in charge of reconstruction of the Donbas, painted a desperate picture of the coal crisis. The conference decided to dispatch 10 per cent of its delegates to the Donbas at once in order to aid in reconstruction. Some activity was displayed by Saprnov’s Workers’ Opposition. When the workers in a locomotive building plant in Kharkiv rioted, the Opposition pointed to the riot as an example of the failure of the policy of War Communism. In general, however, their success at this conference was less than at the preceding one.⁶¹

The conference elected Molotov, who had been sent down from Moscow, as first secretary of the Party’s Central Committee. He was assigned responsibility for reviving Ukraine from its state of economic ruin, and held this position until February 1921.⁶²

Sixth Conference (Congress) of the CP(b)U

At the beginning of May 1921, an All-Ukrainian Party meeting was held in Kharkiv. The following items were on the agenda: (1) the policy of the Party on the changeover to the New Economic Policy (NEP); (2) peasant policy; and (3) the nationalities question. The meeting took official note of the adoption of NEP by the Russian Communist Party. On the peasant question, it took a position well to the left, calling for the promotion and development of committees of poor peasants and for the kindling of class warfare in the countryside. Dmytro Manuisky spoke on the nationalities question, urging that the conflict between Ukrainian and Russian nationalism now raging outside the Party should not be allowed to penetrate into the Party, since this conflict was of a bourgeois nature and

would do great harm to the unity of the Party and hence to the cause of the revolution.⁶³

The Sixth Conference took place in Kharkiv on 9–13 December 1921, with 339 delegates present representing 68,092 members and candidate members. In spite of the fact that between the Fifth and Sixth Conference 22.5 per cent of the members of the CP(b)U had been purged, the membership as a whole had grown considerably.⁶⁴

The Sixth Conference passed smoothly and quietly. Chubar spoke on the state of the national economy, Manuilsky on the famine and the sowing campaign. Special attention was devoted to the trade unions, in which the influence of the Mensheviks and of the Workers' Opposition was still strong. It was decided that the Party should make efforts to win over the trade unions and place them under its control.⁶⁵ Not a single former Borotbist was elected to the new Central Committee.⁶⁶

Seventh Conference (Congress) of the CP(b)U

In the course of the year and a half between the Sixth and Seventh Conferences, great changes took place in the life of Ukraine and of the USSR. The regime became stabilized; the civil wars and interventions were halted, and the economic blockade and boycott of the USSR came to an end. The NEP was having good effects and the national economy was beginning to revive from the wartime depression. On 30 December 1922, the Union of Soviet Socialist Republics was created, thus bringing to an end the process of federating the elements of the former tsarist empire. In the course of the creation of the Union, the nationalities question had become urgent throughout the entire area. Stalin and the Centrists were in favour of including all Soviet republics in the RSFSR, with a right to autonomy. The National Communists were opposed: led by Skrypnyk they demanded the creation of a confederation of independent Soviet republics. The creation of the Union, which was a federation, although similar to a confederation, was a compromise adopted under pressure from Lenin. It was adopted by the National Communists on condition that there be initiated in the republics without delay a process of "nationalization of the national and Party apparatus," that everywhere the prevailing language of the local population be introduced and that responsible positions be held by members of local groups.

At the Seventh Conference of the CP(b)U, which took place in Kharkiv on 4–10 April 1923, the nationalities question became more acute. The Communist Party of the Soviet Union (CPSU), which had assumed this new name in 1922, was represented by Trotsky, but the main speech was delivered by M. V. Frunze, who demanded that the CP(b)U begin Ukrainianization of the urban proletariat, the government apparatus, the

schools and the party organization itself. Frunze sharply attacked articles and speeches by D. Z. Lebed, who had propounded a theory of the “struggle of the two cultures”—“proletarian Russian” and “peasant Ukrainian”—and had maintained that there was no need for Ukrainianization, since in any case Russian culture would prevail. Frunze called Lebed a Russian imperialist-chauvinist and emphasized that the most dangerous factor in the CP(b)U was this Russian chauvinist tendency. The congress listened to Frunze’s speech in an orderly manner but without enthusiasm. Lebed was not re-elected to the Party Central Committee and the majority of the delegates regarded the idea of Ukrainianization with incredulity and suspicion. The Centrists accepted it as a tactic that would ensure Party contact with the Ukrainian masses. At the time, Ukrainians made up less than 24 per cent of the Party’s membership, although they constituted 50 per cent of the urban proletariat.⁶⁷

Chubar also made an important speech on the state of the national economy of Ukraine, in which he pointed out the marked improvement since the end of the war.⁶⁸

Immediately after the Seventh Congress of the CP(b)U, there took place in Moscow on 17–25 April 1923, the Twelfth Congress of the CPSU, which was of historic importance for the nationalities question in the USSR. The resolution on the nationalities question included the following statement:

The determined struggle with the remnants of Russian imperialist chauvinism is a task of primary importance to our Party. . . .

Since the relics of nationalism are a peculiar form of defence against imperialist Russian chauvinism, a determined struggle with Russian imperialist chauvinism presents the most effective means of defeating the relics of nationalism. . . .

One of the clear expressions of the heritage from the past is the fact that the Union of Republics has been considered by a considerable number of officials at the centre and locally not as a union of state entities with full rights, called upon to protect the free development of the national republics, but as a step toward the abolition of these republics, as the initial stage in the creation of the so-called “One and Indivisible.” . . .

The existence of numerous cadres of old Party workers of Russian origin both in central establishments of the Party and in the organizations of the Communist parties of the republics, ignorant of the rights, customs and languages of the working masses of those republics and therefore not always responsive to their demands, has given birth in the Party to a tendency to underestimate national peculiarities and national languages in the work of the Party, to take a haughtily disdainful attitude to such peculiarities, a tendency in the direction of imperialist Russian chauvinism. Such a tendency is harmful, not only because, by delaying the creation of Communist cadres

from local persons acquainted with the native language, it threatens the Party with isolation from the proletarian masses of the national republics, but especially because, as a tendency toward nationalism, it renders the struggle against nationalism more difficult.⁶⁹

To put the above resolution into effect, the Twelfth Congress of the CPSU resolved that the organs of administration in the various republics be manned with local personnel; that laws be passed providing for use of the native language in all government offices; that national army formations be created, the publication of literature in the national languages expanded and national school systems developed.⁷⁰

Eighth Conference (Congress) of the CP(b)U

The resolutions of the Twelfth Congress of the CPSU on the nationalities question were drafted and tabled by Communists from the national republics. Lenin inspired and defended them, while Stalin and the Centrists in the Moscow apparatus adopted them without enthusiasm and as a matter of tactical necessity.⁷¹ Lenin, who was already sick by this time, died on 12 January 1924. The resolutions were put into effect very slowly, in the face of great obstacles.

In June 1923, the Central Committee of the CPSU held an all-Union conference in Moscow to discuss the nationalities question. Communists from the national republics sharply criticized delays in putting the above resolution into effect. The delegation from the CP(b)U, comprising Skrypnyk, Rakovsky and H. F. Hrynko, succeeded in obtaining the consent of the Central Committee of the CPSU for accelerating Ukrainianization in Ukraine.⁷² From the beginning, however, Ukrainianization had been in the hands of the pro-Russian Centrists, led by Kviring. Moreover, the entire Party was occupied at the time with the struggle against the Trotskyist Leftist Opposition, and regarded implementation of the resolutions of the Twelfth Congress of the CPSU on the nationalities question as of secondary importance.

The Eighth Congress of the CP(b)U took place in Kharkiv on 12–16 May 1924, and was attended by delegates representing 105,000 Party members and candidates. The question of dealing with the Trotskyist opposition occupied the main interest of the Party. The resolutions of the CP(b)U declared that there was no organized Trotskyist opposition in the CP(b)U, and that the CP(b)U unanimously supported the attitude of the CPSU in its struggle with Trotsky. Medvedev spoke on the purging of various elements from the Party and the government apparatus. Chubar dealt with the development of industry and commerce, stressing the necessity of

increasing pressure by the government on private enterprise. Petrovsky made a statement on work in the rural areas, remarking that the efforts made by the Party to retard class strife in the countryside and to liquidate the committees of poor peasants were causing difficulties and were very unpopular among the members of the committees.⁷³

Kviring, first secretary of the Central Committee of the CP(b)U, discussed the question of Ukrainianization. He reported that the number of Ukrainians in the Party had increased to 33 per cent and added that there was considerable talk in the Party to the effect that Ukrainianization was being overdone. He also expressed himself on the need to stop the “forcible Ukrainianization of national minorities in Ukraine” and of the Russian urban proletariat in particular. His speech did not openly oppose the resolutions of the Twelfth Congress of the CPSU, but did not actively support them.⁷⁴

Ninth Congress of the CP(b)U

Between the Eighth and Ninth Congresses, at the end of 1924, the CP(b)U was somewhat enlarged by absorbing another party—the Ukrainian Communist Party, the former left wing of the Ukrainian Social Democratic Labour Party. This independent Ukrainian Communist party had been subject to repression as late as 1919. Its membership was not large: having no opportunity to develop, it followed the example of the Borotbists and merged with the CP(b)U in the hope of being able to work there. The merger was approved by the Comintern.⁷⁵

The slow progress of Ukrainianization was a source of constant anxiety to the Ukrainian Bolsheviks and led them to protest that Russian chauvinists were sabotaging it. Within and around the CP(b)U, there was a constant struggle on the nationalities problem. In view of the fact that this struggle was beginning to have harmful consequences, the CPSU Central Committee removed Kviring in May 1925 from his position as first secretary of the CP(b)U Central Committee and delegated L. M. Kaganovich to replace him. Kaganovich arrived in Ukraine with an assignment to expedite Ukrainianization and smooth over the Russian-Ukrainian conflict. As an outward sign of intensified Ukrainianization, Kaganovich himself mastered the Ukrainian language and made all his speeches and official pronouncements in Ukrainian. With his arrival, Ukrainianization was indeed speeded up: in literature particularly, the Ukrainianization programme may be said to date from May 1925, although in principle it had begun much earlier. It was also more marked at the Ninth Congress of the CP(b)U, which took place in Kharkiv on 6–12 December 1925, and represented 98,000 members and

69,000 candidate members.⁷⁶

The report on behalf of the Central Committee of the CPSU was made by Kalinin, who laid great stress on the question of unemployment, demanding that the trade unions pay more attention to the unemployed. On the nationalities question he remarked that progress had been made. The first report for the CP(b)U Central Committee was made by Kaganovich, who dealt chiefly with the ideological debate with Trotsky and attempted to prove that it was possible to build socialism in one country. With reference to Ukrainianization, he explained it as an attempt on the part of the government of the Ukrainian SSR to make a closer approach to the masses. Speaking of the Ukrainianization of the CP(b)U, he pointed out that since its membership had become 40 per cent Ukrainian, the proportion of Ukrainians in the apparatus of its Central Committee had risen from 6 to 25 per cent. He said that this was still too small and that the Party apparatus should be further Ukrainianized. He also declared that formal Ukrainianization was not enough; in addition to learning the Ukrainian language, it was necessary to adopt Ukrainian culture and customs. He admitted that there existed within the CP(b)U both Russian and Ukrainian national deviationists.⁷⁷

The report on questions of organization was made by Klymenko, who pointed out that 72 per cent of the members of the CP(b)U were workers by origin, and 50 per cent were employed in industry. The government apparatus of the Ukrainian SSR had been 30 per cent Ukrainianized in 1924 and was now 52 per cent.⁷⁸ The congress adopted lengthy resolutions repeating the main points of Kaganovich's statement.⁷⁹

The Ninth Congress of the CP(b)U was officially called a congress and not a conference. This slight formal concession resulted from pressure on the CPSU Central Committee by the national parties. Legally, however, the national Communist parties continued to be mere regional organizations of the CPSU centred in the RSFSR. The RSFSR has never had a Party organization of its own.⁸⁰

First All-Ukrainian Conference of the CP(b)U

The process of Ukrainianization introduced from above as a means of coming into closer touch with the people met with a vigorous national renaissance movement proceeding from below. Awakened by the revolution, the lower classes of the Ukrainian people began to take into their own hands what had been given them by the revolution. Youth streamed from the villages into the cities, flooding schools and offices and penetrating into the working class. A new generation of specialists and cultural workers appeared and naturally claimed a place of equality with

others in society, thus coming into conflict with the older cadres, who in many cases were Russians with traditional Russian upbringing. Based on this spontaneous movement within the national revival, the voice of Ukrainian Communists grew in strength.

The growth of Ukrainian national forces, headed by Ukrainian Communists, could not fail to draw the attention of Moscow. On 26 April 1926, Stalin sent a letter to Kaganovich and the other members of the CP(b)U Central Committee condemning the writings of Mykola Khvylioviy.⁸¹ Stalin realized that "Khvyliovism" would lead to the independence of Ukraine, even if Ukraine should remain Communist. For him, such a development was unthinkable. At the same time, a conflict came to a head within the CP(b)U between Kaganovich and Shumsky, the cause of which is not clear even now. It is possible that it originated in the fact that Shumsky had been opposed to the appointment of Kaganovich as general secretary of the CP(b)U Central Committee, had proposed Chubar for the position and had recommended that Chubar's place as head of the Council of People's Commissars of the Ukrainian SSR be taken by the Borotbist, Hrynko. A second possibility is that Stalin, as in the case of Khvylioviy, had issued orders that all Communists working for the independence of Ukraine be suppressed. Whatever the reason, in May 1926 Kaganovich attacked Shumsky in a speech accusing him of nationalist deviationism and classing him with Khvylioviy. Shumsky put up a spirited defence. He disassociated himself from Khvylioviy, declaring that he did not share the latter's extreme views, but continued to demand de-Russification of the Ukrainian urban proletariat and a further strengthening of Ukrainianization, to stress the need for greater toleration of Ukrainian culture by the Russians, and so on.⁸²

The position taken by Khvylioviy and Shumsky split the Ukrainian Communists. The majority, led by Skrypnyk, Chubar, Khvyliia and Hirchak, opposed the position taken by Khvylioviy and Shumsky, which they feared would lead to separation of the Ukrainian SSR from the USSR. They believed that a separate Ukraine, once out of the Soviet Union, would not have sufficient strength to resist its environment, would be unable to develop economically, and under these circumstances would undergo a restoration of capitalism. They believed that in spite of some temporary difficulties, the USSR would eventually become an ideal union of nations with equal rights and that within such a union Ukraine would be guaranteed an opportunity for general development. They were convinced that the resolutions of the Twelfth Congress of the CPSU on the nationalities question would never be violated, that the Party would combat not only Ukrainian but Russian nationalism as well, that Ukrainianization would be continued and that the Russification of Ukraine was an impossibility. On the strength of these convictions, Skrypnyk and

his fellow Ukrainian Bolsheviks opposed Khvyliovy and Shumsky, and joined Kaganovich and Stalin. Thus Khvyliovy and Shumsky found little support in the party.⁸³

In June 1926, a joint plenary session of the Central Committee and the Central Control Commission of the CP(b)U took place. The meeting adopted a set of "Theses on the Results of Ukrainianization," which pointed out that the proportion of Ukrainians in the Party had risen in the last year from 37 to 47 per cent, and in the Komsomol from 50 to 60 per cent. Nevertheless, the meeting found that Ukrainianization had not yet reached its final goal, and decided that this goal must be pursued even more energetically in the future. It recognized the need for a general and progressive Ukrainianization of workers, the creation of Bolshevik cadres to be employed in cultural and educational work, an increase in the publication of Ukrainian literature, special attention to winning over youth and to strengthening the influence of the Party among youth, a stubborn struggle against all attempts to violate the constitution by governmental bodies and other central authorities, and continued efforts toward unification with the Ukrainian SSR of the neighbouring areas inhabited by Ukrainians. It resolved that Russian chauvinism must still be considered the chief danger for Ukraine and must be combated by all means, while Ukrainian nationalism, with its orientation toward capitalist Europe, must also be resisted. The meeting condemned the activities of Khvyliovy and Shumsky and compelled them to confess their errors.⁸⁴

In the heat of the struggle against the movement led by Khvyliovy and Shumsky, the CP(b)U paid little attention to the bitter struggle then raging in Russia against the Trotskyist leftist opposition. The Trotskyists were unable to offer organized opposition within the CP(b)U, although it was apparent that Khvyliovy and Shumsky sympathized with them. On 12 October 1926, following reports by Kaganovich and Petrovsky, a joint session of the Central Committee and the Central Control Commission adopted a resolution entitled "On the Situation Within the Party and the Disruptive Activity of the Opposition." This condemned the oppositional activity of Trotsky, Zinoviev, Piatakov, Smilga, Evdokimov, Shliapnikov and other Trotskyists and recommended that the Central Committee of the CPSU remove them from the Party, since they had refused to recant.⁸⁵

A few days after the plenary session, the First All-Ukrainian Party Conference took place in Kharkiv on 17–21 October 1926. Present were 145 delegates with full voting powers and 217 with only consultative voting rights. The agenda included reports by Kaganovich on the main tasks of Party work, Chubar on the economic situation and Radchenko on conditions in the trade unions. Kaganovich sharply attacked the Trotskyists, as did Petrovsky. The conference adopted a resolution condemning the Trotskyists' opposition. After Chubar's speech, the

conference recorded the industrial progress achieved in Ukraine as a result of the NEP, approved the project for constructing the Dnieper hydro-electric station and declared itself in support of the continued gradual nationalization of small-scale industry and trade.⁸⁶

Shumskyism constituted a problem for the CP(b)U throughout the remainder of 1926 and the entire year 1927, in spite of the fact that the founders of the movement had, whether sincerely or not, confessed their errors to the Party. At the beginning of 1927, the problem became more acute when the entire Communist Party of Western Ukraine declared itself to be for Shumsky and deplored the attacks of the CP(b)U upon an honest Ukrainian Communist. Karlo Maksymovych, a member of the Politburo of the Central Committee of the Communist Party of Western Ukraine, declared to the Central Committee of the CP(b)U that the question of Shumsky could not be solved by the CP(b)U alone, and Turiansky, a member of the Central Committee of the Communist Party of Western Ukraine, carried the question to the forum of the Comintern.⁸⁷ This conflict proved extremely troublesome for the CP(b)U, and required considerable attention.⁸⁸ In the end, however, the intervention of the Communist Party of Western Ukraine on behalf of Shumsky was to no avail. The CP(b)U did not withdraw its condemnation of Shumsky and moved him from Ukraine to Moscow, where he was assigned work in a teachers' trade union. On 7 June 1927, following a speech by Skrypnyk on "National Deviation in the Ukraine," a plenary meeting of the CP(b)U Central Committee condemned Maksymovych, Turiansky and the entire Central Committee of the Communist Party of Western Ukraine for their Shumskyism.⁸⁹

At approximately the same time, shortly before the Tenth Congress, there appeared within the CP(b)U a very small Trotskyist opposition, headed by Drobnis, Aussem and Dashkovsky. The group declared its solidarity with the platform of Trotsky and Zinoviev and protested against the expulsion of the leaders of the opposition from the CPSU. Kaganovich immediately removed Drobnis and Dashkovsky from the CP(b)U.⁹⁰ Later, in December 1927, the Fifteenth Congress of the CPSU confirmed their expulsion from the Party. Among other Trotskyists excluded from the Party at this congress were such Bolsheviks as A. Aleksandrov, Aussem, Zalutsky, Piatakov, Rakovsky and Rafail-Farbman, who had also been active at one time in the CP(b)U.⁹¹ All had, however, for a number of years worked outside Ukraine and were no longer members of the CP(b)U.

The Tenth Congress of the CP(b)U took place in Kharkiv on 20–9 November 1927. There were 736 delegates present with full voting powers and 209 with consultative voting rights, representing 145,623 Party members and 58,026 candidate members. Of the delegates, 43.7 per cent were Ukrainians, 35.5 per cent Russians and 11.7 per cent Jews. Workers

made up 74.2 per cent, peasants 8 per cent and employees 17 per cent. Former members of other parties constituted 14.3 per cent.⁹²

Rykov reported for the Central Committee of the CPSU. He devoted particular attention to criticizing the left-wing opposition of Trotsky and Zinoviev. He argued the correctness of the CPSU Central Committee's resolution on the expulsion of the opposition for violation of law, illegal meetings, anti-government agitation, threats of terrorism and so on. The congress interrupted Rykov with both applause and outbursts of anger. In its resolution on his report, the congress approved the CPSU's resolution "with especial satisfaction." Aussem attempted to reply to Rykov but was shouted down from the platform.⁹³

The opening report for the Central Committee of the CP(b)U was made by Kaganovich, who drew attention to the interest in Ukraine manifested abroad and attacked the activity of the Ukrainian emigration. With reference to Ukrainianization, he pointed out that Zinoviev as well as the Trotskyists Larin and Vaganian had publicly attacked Ukrainianization and implied that this alone would have made co-operation between the Ukrainian Bolsheviks and the left-wing opposition out of the question. As to the economic development of Ukraine, he emphasized the fact that construction of the Dnieper project had already begun. With reference to agriculture, he successfully defended the programme of permitting hired labour and the leasing of land. Concerning the organization of the CP(b)U, he called attention to the fact that during the discussion on the Trotskyist opposition programme approximately 100,000 members had voted for the general Party line, only 446 had voted for the Trotskyist programme and 247 had abstained.⁹⁴

The report on future economic construction was given by Chubar. Petrovsky spoke on the work of the Party in the rural areas. During the debate on economic questions, speakers emphasized the difficulties encountered in attempting to accumulate the capital necessary for industrialization. Skrypnyk spoke on the tasks of cultural development. He again demanded the inclusion in the Ukrainian SSR of the territories of the RSFSR inhabited by Ukrainians and devoted great attention to efforts to develop the school system, pointing out that in 80.7 per cent of the schools Ukrainian was the language of instruction. He stressed the need for the Party to promote the development of Ukrainian culture, since "only in its own Ukrainian form can culture develop in Ukraine."⁹⁵

One of the delegates at the Tenth Congress of the CP(b)U was Nikita Khrushchev, who represented the Party organization in Stalino. In a speech delivered in Russian, he occupied himself mainly with matters concerning the organization of the Party apparatus.⁹⁶

At the beginning of 1928, the CP(b)U was faced with a new problem, that of Volobuievism. The February and March issues of *Bilshovyk*

Ukrainy, the central organ of the CP(b)U, carried an article by Mykhailo Volobuiev entitled "On the Problem of the Ukrainian Economy," in which he declared that Ukraine was still a Russian colony and that it was being exploited economically by Russia. He called for the independent development of Ukraine and its entry as an independent unit into an international socialist economic system.⁹⁷ Volobuiev found few supporters in the CP(b)U. He was opposed in speeches by Skrypnyk, Richytsky, Hirchak and other Ukrainian Bolsheviks, who called for Ukrainian development within the Soviet Union and believed in the success of such a course.⁹⁸ They charged Volobuiev with providing a theoretical economic basis for Shumskyism-Khvyliovism and thus creating a complete and integral concept of an independent Ukrainian SSR capable of leaving the USSR. Shumsky had conceived the concept on the political side, Khvyliovy on the cultural side, and Volobuiev on the economic side. The theory, however, they said, had found sympathizers mainly outside the Party, among the intelligentsia and youth.

During 1927, which in Ukraine was a year of bad harvest, serious imbalances developed in the economy of the USSR. There was a lack of capital to complete construction of industrial plants on which work had begun. Plans for grain collection were breaking down, as the peasants were unwilling to sell grain to the government at low prices. As a result of a shortage of grain export, funds were lacking to purchase machinery abroad. The situation demanded a change in the Union's agrarian policy. At the July 1928 plenary session of the CPSU Central Committee, Stalin called for an increase in the pressure exerted through rural taxes to squeeze out grain, and then, in April 1929, proposed the principle of collectivization in order to gain the necessary capital for industrialization. This swing to the left in the policy of the Party aroused the opposition of Bukharin. The second half of 1928 and the entire year 1929 were spent in a struggle with the Bukharinists, who sought to protect the peasants and the NEP.

On 9 April 1929, on the eve of the opening of the Second All-Ukrainian Party Conference, a joint plenary session of the Central Committee and the Central Control Commission of the CP(b)U heard a speech by Kosior, who had replaced Kaganovich as first secretary, on the state of affairs within the CPSU, in which he explained the aims of the struggle against the right-wing opposition.⁹⁹

The Second All-Ukrainian Party Conference took place in Kharkiv on 9–14 April 1929. In his opening speech, Petrovsky set forth the new Stalin theory that "as the building of socialism proceeds, the opposition of hostile elements increases and the class struggle becomes more acute." Petrovsky attacked the Trotskyists, and then went on to proclaim the necessity of combating the Bukharin right-wing opposition. He declared that the Party

was preparing for a purge of the rightists.¹⁰⁰

Ordzhonikidze and Kaganovich spoke for the Central Committee of the CPSU. The main report on the tasks of the Party and the new situation was made by Kosior, who explained the theory of the CPSU Central Committee regarding the low productivity of small-scale agriculture and the superiority of large-scale collective agriculture, and declared the necessity of a campaign against the rich peasants who were interfering with trade in grain. In a resolution in response to Kosior's speech, the conference condemned the right-wing deviation of Bukharin, Rykov and Tomsky, and stressed the urgency of launching a campaign against the rich peasants. The conference also approved the final variation of the First Five-Year Plan (1928–32) for the development of the Ukrainian economy, including a high rate of industrialization.¹⁰¹

Two weeks later, the Sixteenth Conference of the CPSU met in Moscow. This also censured the right-wing opposition, approved the new leftward course of the Party, ratified the First Five-Year Plan for the USSR, with its ambitious plans for development, and approved the general theory regarding collectivization of agriculture. While it did not go so far as to consider forced collectivization, it did state the principle that collective agriculture would result in greater productivity and was more advanced a form than individual small farms.

The ideological basis of collectivization had thus been laid and collectivization had become a Party programme to be put into effect. The first formal decision on the acceleration of collectivization was adopted by a plenary session of the CPSU Central Committee on 17 November 1929, which approved a resolution entitled "On the Agriculture of Ukraine and on Work in the Countryside," in which it ordered that the Ukrainian steppe be fully collectivized within two or three years. In no other instance had such specific requirements been laid down. The final rate of collectivization was decided upon by a resolution of the CPSU Central Committee dated 5 January 1930, and entitled "On the Pace of Collectivization and Government Measures for Assisting Kolkhoz Construction." Here it was stated:

Collectivization of such highly important grain regions as the Lower Volga, the Middle Volga and the Northern Caucasus can be basically accomplished by the fall of 1930, or in any case, by the spring of 1931; the collectivization of other grain regions can be, in the main, accomplished by the autumn of 1931 or, in any case, by the spring of 1932.¹⁰²

Eleventh Congress of the CP(b)U

Toward the end of 1929, the USSR began to undergo a new and profound social revolution. This was the collectivization of agriculture, of which Stalin later said: "The uniqueness of this revolution lay in the fact that it was executed from the top, on the initiative of the state authority. . . ." ¹⁰³

By 1 October 1929, 10.4 per cent of the farms in Ukraine had been collectivized; by 1 January 1930, the proportion had already risen to 16.4 per cent, and by 10 February 1930, to as much as 42.6 per cent. ¹⁰⁴

In order to complete collectivization at this rate, the CP(b)U needed large numbers of workers, who were assembled with great difficulty. In 1930, it had 50,600 Party members and 140,000 Komsomol members in rural areas. These constituted 4.2 per cent of the able-bodied kolkhoz members. More than 30 per cent of the members of the kolkhoz administrations were Party members. ¹⁰⁵ In the course of January and February 1930, the Party mobilized for continuous work in the villages 10,500 industrial workers from the so-called "Twenty-Five Thousand." Such workers were to be found on 29.4 per cent of all kolkhozy. ¹⁰⁶

Such a rapid pace of collectivization frightened Stalin himself. The peasants offered stubborn resistance, destroyed their cattle and horses, broke their machinery. In many cases kolkhozy existed on paper only. Accordingly, on 2 March 1930, Stalin published an article entitled "Dizziness from Success," in which he criticized over-eager collectivizers. On 14 March 1930, the CPSU Central Committee passed a resolution entitled "On the Campaign Against Deviation from the Party Line in the Collectivization Movement," in which it admitted that the principle of voluntary collectivization had been violated and issued instructions that farmers be allowed to leave the kolkhozy. There now began a mass exodus from the kolkhozy. For the USSR as a whole, the percentage of kolkhozy dropped from 58 as of 10 March 1930, to 21 in September 1930. ¹⁰⁷ Stalin again took fright. In May 1930, he issued an order to halt the breaking-up of kolkhozy, at least in the grain regions, and also to begin to restore the kolkhozy that had been broken up. By May 1930 collectivization in Ukraine had again been brought up to 38.2 per cent. ¹⁰⁸

On 5–15 June 1930, at the beginning of the second and final wave of collectivization, the Eleventh Congress of the CP(b)U met in Kharkiv. The congress represented 270,098 members and candidate members, of whom 52.6 per cent were Ukrainians and 51.7 per cent industrial workers. Rudzutak spoke for the CPSU Central Committee. In addition to the Central Committee's reports, the proceedings included resolutions on such matters as the fulfillment of the five-year plan for industrialization of Ukraine, the collectivization movement and the growth of agriculture in Ukraine, and the tasks of the trade unions during the period of

reconstruction. Subjects connected with the economic situation predominated. Chubar, speaking on industrialization, called for control by the Ukrainian government over Union enterprises on its territory.¹⁰⁹

In regard to collectivization, Petrovsky and Liubchenko declared that the initial errors had been committed by persons at the lower levels without the knowledge of the Central Committee. Liubchenko sharply attacked the right-wing opposition of Bukharin, Rykov and Tomsy for its opposition to collectivization.¹¹⁰

Kosior dealt at length with the nationalities question. He reported considerable success in the development of Ukrainian culture, stating that Ukrainianization of the school system had been carried out rapidly, the Ukrainian press and literature had grown, and the proletarian influence in cultural life had become stronger. The process of Ukrainianizing the working class had made itself evident: between 1926 and 1929, the proportion of Ukrainians among workers and officials in the national economy had grown from 50 to 57 per cent, and among industrial workers from 41 to 48 per cent. In the apparatus of the CP(b)U Central Committee, Ukrainians made up 43 per cent, but in the Party's regional organizations the number of Ukrainians had somewhat decreased. The Communist Party of Western Ukraine was recovering from Shumskyism; Khylyiovy and Iavorsky had confessed their errors and repressive measures against them were no longer necessary. The trial of the SVU (Union for the Liberation of Ukraine) did not indicate any error in the Party's nationalities policy since those tried, said Kosior, had been members of old nationalist groups. The Party should continue Ukrainianization.¹¹¹

The most important feature of the congress was the report by Rudzutak and the resolutions adopted concerning it. Rudzutak presented the new line of the CPSU Central Committee regarding the rich peasants: this consisted of liquidating them as a class by means of forcible collectivization, instead of merely curbing their activities. He also spoke of the increased threat of war in Europe and the need to develop the defences of the USSR. The congress acclaimed the general line of the CPSU, and emphasized in its resolutions the necessity of fighting the right-wing deviation, intensifying collectivization, speeding up industrialization and fulfilling the five-year plan in four years.¹¹²

The Eleventh Congress of the CP(b)U took place before the Sixteenth Congress of the CPSU, which issued directives to maintain the speed of collectivization as planned by the Central Committee of the CPSU on 5 January 1930. The latter congress thus put an end to the temporary wavering of the Party line in the spring of 1930. A joint plenary session of the Central Committee and the Central Control Commission of the CPSU on 19 December 1930, set definite targets for forcible collectivization. The steppe areas of Ukraine were to be 80 per cent collectivized and the rest of

Ukraine 50 per cent in the course of 1931.¹¹³

On the basis of the directive of the CPSU Central Committee, a plenary session of the CP(b)U Central Committee on 26 December 1930, laid an obligation on all Party organizations in Ukraine to complete collectivization of the steppe area in the spring of 1931 and of all the other regions of Ukraine in the course of 1932. Following this resolution, by the beginning of June 1931, 80 per cent of the farms in the steppe area and 50 per cent of those elsewhere in Ukraine had been collectivized.¹¹⁴ This campaign was accompanied by anti-kulak measures and deportation to Siberia of farmers considered members of the class of rich peasants.

Third All-Ukrainian Conference of the CP(b)U

Collectivization and removal of the kulaks were no easy tasks for the CP(b)U. At first there was no resistance among Party members, and there was practically no organized Bukharin opposition. Party members accepted in a disciplined manner the liquidation of the rich peasants as a class and the uniting of the farmers in kolkhozy as inevitable steps toward industrialization and the building of socialism in one country. They had no doubts as to the economic superiority of a kolkhoz over a small individual farm and believed in the mechanization of agriculture. Real difficulties began for the CP(b)U in the second half of 1931, when Moscow imposed on Ukraine a plan for grain collections, to be exacted by Party members from the kolkhozy. When, however, famine broke out in Ukraine as a result of grain collections, mass protests broke out at all levels among Party members. During 1931 and the first half of 1932, 80 per cent of the Party's raion secretaries alone were replaced as a result of their inability to execute the tasks imposed by the Party.¹¹⁵

In 1931, Moscow set a target of 7,025,300 metric tons of grain to be collected from that year's crop in Ukraine (apart from the sovkhozy)—the highest quantity hitherto demanded. Particularly heavy demands were imposed on uncollectivized villages, to force them to join the less heavily-burdened kolkhozy. The peasants then poured into the kolkhozy, as a result of which the grain collection plan was met at a very slow rate. The party thereupon shifted the main pressure of grain collections to the kolkhozy, which, however, having just been created, were poorly organized and incapable of harvesting the crops. As much as 40 per cent of the 1931 crop was lost in harvesting. Moscow, however, refused to make any concessions. By the spring of 1932, officials of the CP(b)U did, with great difficulty, succeed in collecting 5,978,700 metric tons from the villages, in many cases taking even the seed grain. The result was a famine in the spring of 1932.¹¹⁶

Serious difficulties also developed in 1931–2 in connection with industrialization. During the First Five-Year Plan, the total industrial output of Ukraine increased 130 per cent, indicating clearly the rapid pace of industrialization, but the strain proved too heavy. The Donbas began to underfulfill the plan, resulting in a shortage of fuel. Difficulties also arose in the mining and metallurgical industries of Ukraine.¹¹⁷

Moscow was seriously dissatisfied by the economic situation in Ukraine, and particularly by the failure to fulfill the 1931–2 plan for grain collections. Chubar, Kosior, Skrypnyk and Petrovsky determined to appeal to Moscow to reduce the grain collection target and slow down the pace of collectivization. In the preparation for the Third All-Ukrainian Party Conference, which was expected to provide a good opportunity for exerting pressure on Moscow, they collected a large supply of factual material on the state of agriculture in Ukraine, on the method of conducting grain collections, and on the enforcement of collectivization. In order to gain first-hand impressions, they toured areas particularly affected by the famine, and, thus armed, proceeded to the conference.¹¹⁸

The Third All-Ukrainian Conference of the CP(b)U took place in Kharkiv on 6–9 July 1932. It was attended by 253 delegates with full voting powers and 359 with consultative voting rights. Molotov and Kaganovich attended as representatives of the Central Committee of the CPSU.¹¹⁹ The chief item was a report by Kosior on the “Results of the Spring Sowing Campaign, the Collectivization and Grain Collection Campaign and the Task of Strengthening the Organization and Administration of the Kolkhozy.” He cited extensive data aimed at convincing the representatives of the CPSU that Ukraine’s rural economy was in a bad state and that the pressure must be relaxed. He stated that in the course of the spring sowing campaign of 1932 great difficulties had arisen in Ukraine: the area sown had decreased by 4.5 per cent from 1931, and the grain collection plan had not been fulfilled. A number of raions “took the line of least resistance and transferred to the kolkhozy the quotas for individual farms.” Collective farms were “guilty of great losses in harvesting.” As a result, “with a comparatively good harvest” many raions were “seriously short of food.”¹²⁰ Liubchenko and Skrypnyk spoke along the same lines. Skrypnyk told how, while touring the famine raions, he had heard from peasants that “we had everything taken from us but the broom.”¹²¹ Chubar and Shlikhter argued that the reasons for the failure were objective; both the method and the pace of collectivization were unrealistic, and the grain collection plan was too ambitious.¹²²

The representatives of the CPSU proved unyielding. Molotov emphasized that the 1933 grain collection target for Ukraine, exclusive of the sovkhhozy, had been set at only 5,831,280 metric tons, which was 1,310,400 metric tons less than the year before, and that this was the

maximum concession which the Bolsheviks in Ukraine could expect from Moscow. For the failure of the past year and for the famine, Moscow placed the entire blame on the leaders of the CP(b)U:

The plans for the [1932] sowing campaign here have not been fulfilled, and in many raions, as a result of errors committed during the time of the grain collection, a difficult food situation has arisen. On a considerable number of kolkhozy in these raions, this situation has still not been improved. . . . We must recognize that the Bolsheviks of Ukraine have not coped with their tasks. . . . An attempt is now being made to gloss over the shortcomings of work in the agriculture of Ukraine, by throwing the blame for all the unpleasant facts of the last grain collection campaign in Ukraine on "external" reasons—i.e., the size of the grain collection plan. Such anti-Bolshevik attempts must be resisted.¹²³

After so clear an ultimatum, the conference could only record in resolutions the desperate state of agriculture, assume the blame and promise to fulfill the new grain collection plan. The conference resolution pointed out that:

. . . many raions in Ukraine which did not by any means have a bad harvest found themselves in a very critical food situation, and the economy of some of the kolkhozy in such raions was ruined. . . . In the spring before sowing, seed grain was taken from members of kolkhozy who had fulfilled and overfulfilled their grain collection plans, in order to fulfill so-called supplementary plans. . . . All these errors and shortcomings in the work of the Party organization of Ukraine occurred as a result of unsatisfactory practical leadership by the Central Committee of the CP(b)U in the recent past. . . . The conference undertakes unconditionally to fulfill the grain collection target fixed for Ukraine [for 1932–3] at 356 million poods [5,831,280 metric tons] for the peasant sector. In spite of insufficient grain and other difficulties, Ukraine has every chance of fulfilling successfully the plan for grain collection.¹²⁴

After the conference, the Bolsheviks of Ukraine set about carrying out the new grain plan. The harvest of 1932 was gathered no better than that of 1931. Losses in harvesting were great, since there was a lack of animals and manpower, as everywhere there was famine and death from lack of food. The Central Committee began for the first time to apply terror to its own personnel who failed to perform the tasks assigned. A plenary meeting of the Central Committee declared in a resolution of 12 October 1932: "The Plenum of the Central Committee of the CP(b)U considers the situation concerning the [fall] sowing campaign, the fulfillment of the

grain collection, and the gathering of sugar beets to be ominous, which demands from the Party organization of Ukraine immediate extraordinary measures. [It is vital] to destroy the right-opportunistic attitudes of those who are endangering the fulfillment of the plan." Then, in accordance with decisions of 18 November 1932, 21 December 1932, and 6 January 1933, the CP(b)U Central Committee began to publish lists of Party members, directors of sovkhozy, heads of kolkhozy and grain collection officials who had been expelled from the Party and tried for failing to fulfill collection plans. But even terror was of little avail. By the end of 1932, only 72 per cent of the plan for grain collections from the new harvest had been met in Ukraine.¹²⁵ The famine became increasingly severe and death from starvation assumed massive proportions.

Twelfth Congress of the CP(b)U

During this period, the CP(b)U found itself in a dilemma. Party discipline required that orders from Moscow be carried out in spite of the fact that Ukrainian peasants were starving. Caught between the tragedy of Ukrainian farmers and orders from Moscow, many Bolsheviks collapsed. After the secretary of the Kharkiv oblast committee, R. Ia. Terekhov, took the responsibility for changing the plan for grain deliveries for Kharkiv oblast, he was immediately removed from his post and later liquidated. Andrii Richytsky collapsed and was shot. Chubar, head of the government of the Ukrainian SSR, appealed to Moscow for a reduction in grain deliveries from Ukraine; he was removed from his post and replaced by the more subservient P. P. Liubchenko. Skrypnyk and Khvyliovy committed suicide, largely in reaction to the famine.¹²⁶

Nevertheless, Moscow did not give in. Resolutions of the CPSU Central Committee dated 14 December 1932, and 24 January 1933, censured the Central Committee of the CP(b)U for having failed to fulfill the grain plan in Ukraine and for having caused the crisis in the countryside. Stalin went farther. The resolution of the CPSU Central Committee dated 24 January 1933, also accused the Central Committee of the CP(b)U of error in regard to the nationalities question.¹²⁷ Thus the extent of the blows dealt Ukraine was broadened.

On the strength of the resolution of 14 January 1933, Stalin dispatched Postyshev to Ukraine to fill the positions of second secretary of the Central Committee of the CP(b)U, under Kosior, and first secretary of the Kharkiv oblast party committee. Postyshev was accompanied by "thousands of members of political sections,"¹²⁸ i.e., members of the political sections of machine and tractor stations, and some 15,000 other Party petty officials, whom Postyshev allocated even to raion Party

committees.¹²⁹ Postyshev himself held full authority as dictator of Ukraine. He was in constant touch with Stalin by telephone and was feared by all the other Bolsheviks, including Kosior, Petrovsky and Liubchenko.¹³⁰

Postyshev's primary assignment was to extract from the Ukrainian countryside the entire supply of grain, regardless of the famine, if possible collecting even the seed. A combined plenary session of the Central Committee and the Central Control Commission of the CP(b)U, which met on his orders on 7 February 1933, adopted the following resolution:

The plenum holds that Ukraine had every opportunity of fulfilling not only the present plan, which has been reduced three times and still is not fulfilled, but also the initially adopted plan for grain collections. The plenum wholeheartedly approves the resolution of the CPSU Central Committee of 24 January, welcomes the strengthening of the leadership of the main oblasts of Ukraine and the appointment of Comrade P. Postyshev as second secretary of the Central Committee of the CP(b)U.¹³¹

Postyshev was also assigned another mission by Stalin, who stated in November 1933:

Only now can we fully estimate the immense importance which the decision of the CPSU Central Committee of 24 January 1933, had, has, and will have for the CP(b)U. The decision of the Central Committee of the CPSU of 24 January 1933, will go down in the history of the CP(b)U as a turning point opening up a new era in the victorious struggle of the Bolsheviks of Ukraine.¹³²

There are reasons to believe that this secret resolution authorized Postyshev to halt the process of Ukrainianization and instead launch mass terror against the intelligentsia and against the Bolsheviks. This assumption is based on events following the adoption of the resolution. Indeed, only subsequent events make it possible to understand why Postyshev spoke of the resolution as a turning point in the history of the CP(b)U. The plenum of the CP(b)U Central Committee met before the harvest, on 10 June 1933. Postyshev delivered a speech entitled "We are Mobilizing the Masses to Deliver Grain to the Government on Schedule." He did not utter one word about the famine in the spring of 1933, but pointed out instead that the fate of socialism depended on the prompt delivery of grain, and that in the past year the collection of grain had been in the hands of enemies holding positions in rural areas and in the lower Party apparatus. His speech resounded with threats: he demanded the

fulfillment of the grain delivery plan for the year at all costs.

Postyshev's speech was not, however, limited to the question of grain deliveries. He suddenly changed over to the question of Ukrainianization and cultural development, and declared that so far Ukrainianization had been conducted by Petliurists and that cultural and educational offices were held by enemies, who were implanting a nationalist culture. He accused Skrypnyk, who was present, of having protected the nationalists and declared that the People's Commissariat of Education was filled with enemies.¹³³

On 7 July 1933, Skrypnyk shot himself. His death brought to an end the entire movement of the national Ukrainian Bolsheviks, who sincerely believed in Leninism, in internationalism, in the equality of all nations, and in the Union of Soviet Socialist Republics as an ideal. The movement had been crushed by Great-Russian bureaucratic chauvinism, which had made great inroads into Ukraine in the person of Postyshev and throughout the entire USSR thanks to the members of Stalin's centralist apparatus. The terror directed against Ukrainian cultural and educational activities, against Ukrainian Communists, intelligentsia, technicians and military personnel, had gained renewed strength with the arrival of Postyshev in January 1933. In May arrests of writers began, and on 13 May, Khvylioviy shot himself.

At the same time, Postyshev's men, equipped with large numbers of tractors and other machines, were gathering the great harvest of 1933. The plan for grain deliveries, considerably reduced in comparison with that for 1931–2, was successfully met as early as August. The famine tapered off, and Postyshev emerged as victor over the agricultural crisis.

The Central Committee and the Central Control Commission of the CP(b)U met in plenary session on 18–22 November 1933. Postyshev delivered a report on "the results of the 1933 agricultural year and the imminent tasks of the CP(b)U." He related in triumph that a victory had been won in agriculture, and reported that the grain delivery plan had been fulfilled, the deficit liquidated and members of kolkhozy paid an average of 4–6 kilogrammes of grain per work-day unit. The victory, he declared, had been made possible because "the kolkhozy had been made Bolshevik," i.e., they had been aided by the political sections of the machine and tractor stations and the raion Party organizations. Referring to the recent past, he said: "The errors and mistakes made by the CP(b)U in carrying out the nationalities policy of the Party were one of the main reasons for the crisis of the years 1931–2 in the agriculture of Ukraine."¹³⁴ The unexpected combination of agriculture and the nationalities question was by no means surprising in Postyshev's logic: he was guided by the secret resolution of the CPSU Central Committee of 24 January 1933, which, perhaps, had also combined the two matters. For Stalin evidently

placed the blame for the failure to realize the grain deliveries of 1931–2 upon the leaders of the CP(b)U and the Ukrainian SSR, as a national group, i.e., as persons guided by the interests of their own people and defending them against the centre in Moscow.

The second item on the agenda of the November meeting was a report by Kosior entitled “Results of the Nationalities Policy in Ukraine and the Tasks Ahead.” This report had undoubtedly been written on instructions from Postyshev and Stalin, and perhaps reflects the nature of the decision of the CPSU Central Committee of 24 January 1933. The resolution on the report adopted by the plenum indeed became a turning point in the history of the Party’s policy in Ukraine. The resolution declared that:

1. the colonial backwardness of Ukraine as compared to Russia had, thanks to industrialization, collectivization and the five-year plans, been finally liquidated;
2. the Ukrainian Soviet state had been adequately consolidated, so that further efforts in this direction were unnecessary;
3. Ukrainianization had been completely successful and there was no need for its further development;
4. in connection with collectivization, the class struggle had become intensified, the enemy had become more active, the nationalists had lifted their heads in Ukraine and Galicia and had taken over important posts in government offices and in the Party;
5. the CP(b)U had allowed “counter-revolutionaries with Party cards in their pockets” to carry on diversionary work and had permitted Skrypnyk’s nationalist deviation;
6. hitherto, Russian chauvinism had been considered the principle danger in Ukraine; as far as the USSR as a whole was concerned, it was so still, while in Ukraine the chief threat was now local nationalism.¹³⁵

After the plenum of November 1933, the terror gained impetus. The accused included Shumsky, Iavorsky, Academician M. Hrushevsky and many other well-known figures. Postyshev and the GPU “discovered” such underground organizations as an “All-Ukrainian Social-Revolutionary Centre,” a “Ukrainian Military Organization” and an “All-Ukrainian Borotbist Centre.” Everyone disliked by Postyshev was assigned to

membership of one of these organizations by the GPU and arrested.¹³⁶

With pogroms, persecutions and terror as a background, the Twelfth Congress of the CP(b)U took place in Kharkiv on 18–23 January 1934. As of 1 October 1933, there were 468,793 members and candidate members in the CP(b)U, of whom 60 per cent were Ukrainians and 23 per cent Russians; the number of industrial workers had decreased to 41 per cent.¹³⁷ Kosior's report on behalf of the CP(b)U Central Committee bore the title "The Battle for the Victory of Socialism." The report reflected the growth of the cult of Stalin, whose name was repeated ad nauseam. The principal theme was "the growth of socialism in the USSR," together with the claim that the USSR had become a "land of advanced socialist industry." At the same time Kosior observed: "Clearly, the struggle for socialism in our country has never before been fought under conditions of acute class conflict as in this period." In other words, not even during the revolution and the civil war had the country known such strain, such terror, as at present! Further, he indulged in self-criticism, admitting that prior to the arrival of Postyshev the CP(b)U had tolerated, and thus had failed to lay bare promptly, the nationalist deviation of Skrypnyk. He also repeated the thesis of the past November plenum, that Ukrainian nationalism was now regarded as the main danger in Ukraine, while Russian chauvinism was a problem for the USSR as a whole.¹³⁸

Postyshev delivered a speech entitled "Soviet Ukraine in a New Upsurge." He criticized Russian chauvinism in a few words, but devoted the major part of his speech to Ukrainian nationalism, including references to Skrypnyk and to fictitious underground organizations which he reported to have sprung up in Ukraine and demands for increased vigilance. During the discussions, Party officials lauded the success of industrialization, collectivization and grain deliveries. One said, "It feels as though Stalin were here among us."¹³⁹

The Twelfth Congress, as if indeed feeling the ubiquitous presence of Stalin, elected Stalin, Kaganovich and Molotov as members of the CP(b)U Central Committee. Among the seventy-five members elected at the Eleventh Congress, only thirty-eight were re-elected. Some former members such as Skrypnyk, V. A. Stroganov, B. N. Poloz, P. P. Iakubenko and N. P. Holod were no longer alive, while many other supporters of Skrypnyk were in prison. The newly-elected Central Committee was considerably larger than its predecessor: of its 115 members, seventy-eight were new.¹⁴⁰

Thirteenth Congress of the CP(b)U

The Thirteenth Congress of the CPSU, which took place in January and February 1934, called itself "The Congress of the Victors." The first difficulties in industrialization had been overcome, the collectivization of the country was almost complete, and all opposition within and without the Party had been destroyed. Stalin and his supporters were absolute masters.

Stalin, however, was not satisfied. In his secret speech at the Twentieth Congress of the CPSU, Khrushchev declared that as early as the Seventeenth Congress Stalin's mind was already abnormal: he suspected everyone and everything, saw enemies everywhere, and was consumed with a desire to destroy them physically. Being an absolute dictator, he was able to introduce a programme of mass terror.¹⁴¹

On 1 December 1934, the Old Bolshevik S. M. Kirov was killed in mysterious circumstances. (In 1956 Khrushchev hinted that Kirov had been killed on orders from Stalin.)¹⁴² Throughout the entire country a great wave of terror began. Stalin ordered the arrest of all members of the Trotsky-Zinoviev left-wing opposition, although they had long since recanted and retired from political life. On 2 December 1934, a large group of outstanding Ukrainian writers, scholars and persons prominent in cultural life were arrested. Postyshev and the GPU claimed that they belonged to a "Ukrainian centre of White—guard terrorists." On 13–15 December thirty-seven members of this fictitious centre were tried in Kiev; twenty-eight were sentenced to be shot and nine to be deported. Among the accused were such Ukrainian writers as H. Kosynka, K. Burevy, D. Falkivsky, V. Mysyk, O. Vlyzko, A. Krushelnytsky, L. Kovaliv, V. Levytsky and R. Shevchenko.¹⁴³ In the course of 1935, Postyshev "discovered" and destroyed five more fictitious underground organizations: the "Nationalist Terrorist Centre"; the "All-Ukrainian Borotbist Centre"; the "Nationalist Terrorist Group" of Professor M. Zerov; the "Bloc of Ukrainian Nationalist Groups" (including the Ukrainian Communist Party, the Ukrainian Communist Party of Bolsheviks and the Ukrainian Social-Democrat Workers' Party); and the "Trotskyite Nationalist Terrorist Bloc" (composed of Nyrchuk, Davydenko, Shabliovsky, Ivchenko and others). In 1936 there was "discovered" and destroyed the "Ukrainian Trotskyite Centre" (composed of Iurii Kotsiubynsky, who had just been appointed to the CP(b)U Central Committee, M. Holubenko, also a member of the CP(b)U Central Committee, Lohinov, Naumov and Darin-Rapoport).¹⁴⁴

On 24 January 1936, there was a plenary meeting of the CP(b)U Central Committee, at which Postyshev made a speech on "The Results of the Check of Party Documents." He reported on the great purge of the Party which was just then coming to an end. Almost all the former

Borotbists and members of the Ukrainian Communist and other parties who had joined the CP(b)U had been arrested for alleged membership in “nationalist organizations” and removed from the Party. He listed the “underground organizations” discovered and destroyed. He also gave an account of the mass purge of the Ukrainian state administration, especially the cultural and educational departments, the Academy of Sciences and the universities. He issued a warning that the purge was not yet complete.¹⁴⁵

The culmination point of the mass purges, arrests and shootings carried out over the entire Union was the Moscow trials against the former members of the left- and right-wing opposition movements. There had been no opposition within the CPSU from at least 1934 on—i.e., from the time of the “Congress of Victors.” Nevertheless, Stalin found it necessary not only to destroy his opponents politically and to force them into silence, but also to destroy them physically and to compromise them ideologically as spies of foreign nations and enemies of the people.

The first Moscow trial took place on 19–24 August 1936. The defendant was the “Trotskyite-Zinovievite Terrorist Centre” headed by the Old Bolsheviks Zinoviev and Kamenev. The second trial took place on 23–30 January 1937, and involved the “Anti-Soviet Trotskyite Centre” headed by Piatakov and Radek. Piatakov and Iakiv Drobnis, both Bolsheviks active in the early history of the CP(b)U, were sentenced to be shot. The third trial took place on 2–13 March 1938, and involved the “Anti-Soviet Bloc of Rightists and Trotskyites” headed by Bukharin and Rykov. The prominent Ukrainian Borotbist Hrynko was sentenced to be shot, and Rakovsky, another person active in the early period of the CP(b)U and one-time head of the government of the Ukrainian SSR, was sentenced to long-term imprisonment and later to death.¹⁴⁶

After dealing with the harmless and defeated former members of the left- and right-wing opposition movements, the Stalinist terror moved on to the Centrists, who were sincere and devoted Stalinists. One of the first to fall was none other than Postyshev. In the middle of January 1937, the CPSU Central Committee adopted a resolution dealing with the Trotskyists in the Kiev oblast committee of the CP(b)U. The resolution removed Postyshev from the posts of secretary of the Kiev oblast committee and second secretary of the CP(b)U Central Committee and recalled him to Moscow. As nearly as can be gathered from speeches at the Thirteenth Congress of the CP(b)U, a woman named Nikolaenko had claimed to have uncovered two Trotskyists in the Kiev oblast committee and denounced them in a letter to Kosior. Postyshev had intercepted the denunciation, had taken steps to defend the alleged Trotskyists and had arrested Nikolaenko. Nikolaenko, through influential friends in the NKVD, secured the intervention of Moscow and the recall of Postyshev.

Khrushchev, in his secret speech of 1956, stated that Postyshev, in a speech at the February-March plenum of the CPSU Central Committee, had voiced doubts as to the legitimacy of the Stalin terror against the Centrists and the Trotskyists.¹⁴⁷ In any case, Postyshev disappeared from sight following his recall to Moscow.

At the height of the Stalin terror, after the first two Moscow trials, the Thirteenth Congress of the CP(b)U met in Kiev on 27 May-3 June 1937. Present were 445 members and 130 candidate members.¹⁴⁸ The main address was delivered by Kosior on the subject of "the CP(b)U in its struggle for a socialist Ukraine." Probably somewhat relieved by the absence of Postyshev, Kosior spoke in a moderate vein. He declared that although during the three years since the Twelfth Congress the difficulties had been great and the enemies many, the position of the Ukrainian state had nevertheless grown even stronger and its personnel even more closely connected with the native population of the republic, having become Ukrainian in language and in national make-up. Ukrainians were already in a majority among the working class, the students and the urban population. He no longer stormed at the Ukrainian nationalists but limited himself to the remark, "Even now we must not forget the danger of nationalism." He did, however, mention the instance of the Trotskyists in the Kiev oblast committee and appealed for vigilance in connection with the January resolution of the CPSU Central Committee regarding Postyshev. Presumably bearing in mind the results of the terror, he stated that 35 per cent of the members of the Party committees at the lowest level had been replaced, and that of the members of Party oblast committees as many as 50 per cent were new. Evidently condemning the use of terror, Kosior spoke of "the necessity of a more restrained attitude toward Party cadres," and warned his audience against "demagogic criticism" and "indiscriminate censure of economic personnel," evidently having in mind the flood of denunciation, slander and terror.¹⁴⁹

The delegates did not share Kosior's views. During the discussions there was heated criticism and self-criticism. The speakers accused each other of political shortsightedness and of negligence in uncovering harmful elements. Especially sharp criticism was directed at Sarkisov and Kholokholenko, secretaries of the Donets oblast committee, for the backwardness of the coal industry. Factory directors complained of the liquidation and dispersal of their personnel and of weak discipline, all undoubtedly referring to the results of the purges and terror. Many spoke against Postyshev. The general impression was that the delegates were somewhat at sea and did not share Kosior's view that all the difficulties had disappeared with the passing of Postyshev. Uncertainty and fear were apparent both in the resolutions of the congress and in its greetings to Stalin. The members considered it best to assure Stalin that they

themselves bore the chief guilt, even if it was not clear in what their guilt consisted. The message of greeting declared: "It is with all the greater keenness that we Bolsheviks of Ukraine feel and understand what a weight of guilt falls on us for failing to carry out your instructions, Comrade Stalin, in the struggle with the enemy under the new circumstances, in the face of his new tactics of camouflage and duplicity."¹⁵⁰

Of the 115 members of the CP(b)U Central Committee elected at the last congress, three and a half years before, only thirty-six were left. Apart from Postyshev himself, those who had disappeared during this period of terror included such prominent Communists as Chubar, People's Commissar for the NKVD of the Ukrainian SSR V. Balytsky and such persons high up in the Party machine as Demchenko, Chuvyrin, Ilin, Nalimov, Poliakov and Rekis. The majority were Centrists who had not belonged to any opposition movement.¹⁵¹ The Central Committee elected by the Thirteenth Congress was smaller than its predecessor, comprising only sixty-two members.

Fourteenth Congress of the CP(b)U

After the Thirteenth Congress of the CP(b)U, the terror continued with unabated force. Toward the end of 1937, two Army officers, I. N. Dubovy and I. I. Iakir, two prominent Centrist members of the Central Committee, Andrii Khvyliia and V. I. Poraiko, and Hryhorii Hrynko were arrested, the latter in Moscow. Panas Liubchenko, head of the government of the Ukrainian SSR, shot himself to forestall arrest. The NKVD constructed out of this a new fictitious organization, the "National Fascist Organization of Ukraine."¹⁵² In addition to these well-known cases, thousands of nameless victims were devoured by the terror.

Soon after came the turn of the Centrist, Stanyslav Kosior, for many years first secretary of the Central Committee of the CP(b)U. After the Second World War, Alexandre Ouralov, an émigré from the USSR, stated in his memoirs, which are not fully reliable and in some cases definitely misleading, that Kosior was arrested in Moscow in the spring of 1937, after being summoned together with the entire Politburo of the CP(b)U to account to Stalin for having failed to relinquish his position as first secretary of the CP(b)U Central Committee to the newly-appointed Nikita Khrushchev.¹⁵³

Khrushchev was officially appointed to Ukraine in January 1938. The plenum of the CPSU Central Committee held in that month officially removed Postyshev from his position as candidate member of the Politburo and replaced him with Khrushchev, then secretary of the Moscow oblast committee.¹⁵⁴ Soon afterward, on 27 January, a plenary session of the

Central Committee of the CP(b)U replaced Kosior as first secretary and member of the Politburo by Khrushchev on an acting basis. M. A. Burmystenko was appointed as acting second secretary.¹⁵⁵

That Khrushchev was initially appointed only as acting first secretary, that he was accompanied from Moscow by a large group of Party functionaries including Burmystenko, Korotchenko, Uspensky (head of the NKVD) and others, and finally that on 29 March 1938, the Central Committee of the CPSU adopted a resolution on the conducting of elections to leading Party organs in the national republics¹⁵⁶ might substantiate Ouralov's view that the Central Committee and the Politburo of the CP(b)U were unwilling to accept Khrushchev, accused Stalin of violating the statutes, and in general offered resistance which was dramatically suppressed by the NKVD.

The January 1938 plenum of the CPSU Central Committee also adopted a resolution with the lengthy title, "On the Errors of Party Organizations in Excluding Communists from the Party, on the Formal and Bureaucratic Attitude to Appeals by Those Excluded from the CPSU and on Measures to Correct these Shortcomings."¹⁵⁷ The resolution appeared to put a halt to the purges, to condemn denunciations and even to promise some rehabilitation to innocent victims of the terror. Stalin replaced the terrorist Ezhov as People's Commissar for the NKVD by Beria. These events are generally taken to mark the end of the terror of the thirties. However, many years later, at the Twentieth Congress of the CPSU, Khrushchev reported that although the resolutions of the January 1938 plenum of the Central Committee of the CPSU had somewhat improved the Party organization, extensive repression had continued throughout that year.¹⁵⁸

Khrushchev arrived in Ukraine convinced that the Stalinist terror was justified and that on every hand there were hidden enemies who could not be trusted "regardless of applause, welcomes or unanimous votes," as he expressed it in his first published speech at the Fourth Kiev oblast conference in May 1938. Another indication of Khrushchev's attitude was that immediately after his arrival, together with A. I. Uspensky, People's Commissar for the NKVD of the Ukrainian SSR, he toured all the western borders of Ukraine to check their defence against spies.¹⁵⁹

On 13–18 June 1938, there met in Kiev the Fourteenth Congress of the CP(b)U, representing 306,527 members and candidate members.¹⁶⁰ No statistics on Party membership had been announced at the Thirteenth Congress the year before, but comparison with membership at the time of the Twelfth Congress, held in October 1933, indicates a loss of more than 162,000 in four and a half years, or a drop of 35 per cent as a result of purges and terror.

In his address, Khrushchev stated, "The Bolsheviks of Ukraine mobilized all their forces to carry out the resolutions of the February-March [1937] plenum of the Central Committee of the CPSU and the instructions of Comrade Stalin on increasing efficiency, rooting out and annihilating enemies of the people; improving Party political work and creating new cadres." He explained that purges and terror had been necessary in order to remove all potential enemies in the event of war and to prevent the Fascists from finding support within the USSR. He declared that Germany intended to separate Ukraine from the USSR and that the USSR must prepare for war, strengthen her defences and energetically train her army. As for the nationalities question, Khrushchev spoke like an avowed Russian chauvinist. He did not once mention the danger of Russian chauvinism, but directed the whole weight of his thrusts against "Ukrainian bourgeois nationalism." The war was now being conducted not on two fronts in action, as in the time of Skrypnyk, nor on two fronts verbally, as in the time of Postyshev, but on one front only—against "Ukrainian bourgeois nationalism." He declared, "The strength of the Ukrainian people lies in its close unity with all the peoples of the Soviet Union and, above all, with the great Russian people. We shall constantly strengthen that union." His first suggestion, or rather order, in this regard was that teaching of the Russian language be expanded at once in all Ukrainian schools. The congress then adopted a resolution entitled, "To Liquidate the Consequences of Sabotage in the Teaching of Russian in Seven-Year Schools and Also in Universities."¹⁶¹

In the discussions there was a distinct lack of originality and variety. Each speaker merely repeated what Khrushchev had said. The same is true of the resolutions adopted, which, *inter alia*, declared:

The Bolsheviks of Ukraine, led by the Central Committee of the CPSU and especially by Comrade Stalin, have in recent months achieved considerable success in the discovery, eradication and annihilation of nests of Trotskyite-Bukharinite and bourgeois-nationalist agents of Polish-German and Japanese Fascism. . . . The Fourteenth Congress of the CP(b)U particularly emphasizes that a large part in the attainment by the CP(b)U of all the above-mentioned successes was played by the fact that the Central Committee of the CPSU sent to Ukraine the strong Bolshevik and Stalinist, Comrade N. S. Khrushchev.¹⁶²

The reference to the recent successes following the arrival of Khrushchev was well borne out. Of the sixty-two members of the Party Central Committee elected the year before, only one was re-elected; of the forty candidate members elected in 1937, only two remained; and of the

nine members of the Auditing Commission, not a single one remained. Of the eleven members and five candidate members of the Politburo and the eight members and two candidate members of the Orgburo of the Central Committee of the CP(b)U elected in 1937 and June 1938, there disappeared such leading Bolsheviks as Kosior, Petrovsky, Zatonsky, M. M. Popov, K. V. Sukhomlyn, I. S. Shelekhes, M. M. Khataievich, S. A. Sarkisov, Y. I. Veher, V. I. Cherniavsky, O. H. Shlikhter, H. M. Zavytsky, D. M. Ievtushenko, I. I. Kulyk, K. F. Kviatek, A. A. Khvyliia, Komsomol secretary S. I. Andreiev and the economist O. M. Asatkin.¹⁶³

The majority were Stalinist-Centrists who had not been eliminated by Postyshev, because Postyshev himself had been removed from Ukraine in January 1937, nor by Kosior, who had not persecuted persons of the political views concerned and who in any case was himself among those liquidated. Since Khrushchev had not arrived in Ukraine until January 1938, he cannot be held responsible for the fate of many of the above, and, generally speaking, the NKVD was certainly more powerful than he at that time. Nevertheless, a contemporary editorial in the journal *Bilshovyk Ukrainy* reports, "The merciless destruction of enemies—Trotskyites, Bukharinites, bourgeois nationalists, and other spying scum—began only after the Central Committee of the CPSU sent into Ukraine the valorous Bolshevik-Stalinist Nikita Sergeevich Khrushchev to lead the Central Committee of the CP(b)U."¹⁶⁴ Although this is an exaggeration, since there had been terror in Ukraine before the arrival of Khrushchev, it contains a grain of truth.

Fifteenth Congress of the CP(b)U

Following the Fourteenth Party Congress, there was a slackening of mass terror in Ukraine and toward the end of 1938 an almost complete cessation. Meanwhile, it had escaped notice that in the course of the past seven years Ukraine had become a highly developed industrial country with an economic potential rivalling that of some of the Western European countries. Ukrainianization under Skrypnyk had made considerable progress. In spite of famine and collectivization, the peasants were gradually moving into the traditionally Russian cities and the working class, previously almost entirely Russian, was gradually becoming Ukrainian. Thus, while Ukraine as a nation had suffered heavily, it had not been destroyed. It had healed its wounds, adapted itself to the new system, and continued to develop peacefully.

It is against this background that the history of the CP(b)U should be considered. Like the CPSU, the CP(b)U had unconsciously become a

party of managerial bureaucrats. After 1937, the custom of recording the social origin and previous occupations of members ceased, since the number of industrial workers had fallen off drastically. As a result of industrialization, most of the members were now white-collar workers—chiefly managers and technicians. Publication of the length of membership was also discontinued, since the Old Bolsheviks had disappeared and most members had joined since the revolution. In spite of the purges, the proportion of Ukrainians in the Party had gradually increased and that of Russians had decreased. The Russian minority, however, held the leading posts in the Party and government, while Ukrainians were to be found in the lower ranks, which nevertheless were slowly but surely climbing the rungs of the Party ladder.

Following the purges the Party began to assume a monolithic character. Elections were dull; everyone expressed the opinions of his senior; no one dared to differ with the majority. Fresh and original thought, individual views of politics or ideology, were entirely lacking. Party congresses discussed only administrative, economic and technical questions. The political enthusiasm, ideological discussions and fiery arguments of the revolutionaries of the early congresses had disappeared without a trace. The only “revolutionaries” left were the NKVD members and secretaries of Party committees.

The Fourteenth Congress of the CP(b)U was followed by a regular plenary meeting of the Central Committee, held on 25 and 26 December 1938. Khrushchev spoke on preparations for the spring sowing campaign. Also discussed was the question of Party propaganda, in connection with the recently published *Short Course in the History of the Communist Party of Bolsheviks*. The next Central Committee plenum, held on 13–15 June 1939, considered (1) the frittering away of kolkhoz land and reduction of individual plots of kolkhozniki; (2) the unification of small farms into villages; (3) the harvest and compulsory grain deliveries; and (4) the preparations for the All-Union Agricultural Exposition. Khrushchev spoke on almost every subject.¹⁶⁵

When the Soviet army invaded Western Ukraine and Western Belorussia on 17 September 1939, the leaders of the CP(b)U, led by Khrushchev, moved into Galicia in the wake of the army. On 9 December 1939, the Central Committee of the CP(b)U ratified the appointments of personnel for senior party and government organs in all six oblasts of Western Ukraine. Each oblast was assigned five Party committee secretaries, a chief of the oblast executive committee, a newspaper editor, a Komsomol secretary and an NKVD chief. More than half of the appointees were Ukrainians.¹⁶⁶

On 13–14 December 1939, another Central Committee plenum met which was devoted to the question of admitting new members to rebuild

the Party after the purges. Burmystenko pointed out that “instead of individual selection there is in many cases general, mass application for admission.” He enjoined the need for discrimination, with priority for persons of important professions, technicians and specialists.¹⁶⁷

The CP(b)U held its Fifteenth Congress in Kiev, on 13–17 May 1940. Present were 570 delegates with full voting rights and 142 with a consultative vote, representing 379,630 Party members and 257,284 candidate members. Since the previous congress the Party membership had doubled.¹⁶⁸

Khrushchev devoted much of his main speech to Stalin, declaring that “literally in every respect” he was being guided by the latter’s personal instructions. To a certain extent his assurances sound like self-justification, for in a later passage, somewhat like that made years later at the Twentieth Congress of the CPSU, he made the following admission:

Great work has been accomplished in purging the ranks of the Party of enemies—Trotskyites, Bukharinites, bourgeois nationalists. Constant effort must be made to maintain the purity of the Party. A merciless struggle must be carried on against every deviation from the general Party line. But, comrades, there have been certain comrades in the Party who suffered unnecessarily, and that is a fact. There have been such, and we have now rehabilitated some of them. Enemies made denunciations against certain people and achieved their hostile purpose. In the last period we have led a vigorous struggle against denunciators.¹⁶⁹

Here Khrushchev probably had in mind the purge of the Ukrainian NKVD in October and November 1939. People’s Commissar of the NKVD of Ukraine, Uspensky, who had accompanied Khrushchev to Ukraine, was arrested and replaced by I. A. Serov, who in 1956 was to be chairman of the Committee of State Security of the USSR and a close collaborator of Khrushchev. During his stay in Ukraine, Serov openly acted independently of Khrushchev. Speaking at the Fifteenth Congress of the CP(b)U, he spoke only of the “help” given by Khrushchev to the NKVD, and, unlike others, did not grovel before him. He said,

The Chekists of Ukraine, having purged their ranks of hostile elements, with the help of the CP(b)U and its leader Comrade N. Khrushchev, [must] secure the discovery, eradication and annihilation of all enemies and spies of foreign intelligence services sent to our country.¹⁷⁰

On the whole, the congress was quiet and bureaucratic. There was no conflict of views. Economic successes and production achievements were pointed out. Khrushchev added that Ukrainians should be grateful to Stalin and the USSR for having effected the unification of all Ukrainian territory under a single Ukrainian government.¹⁷¹

Half of the members of the Central Committee now elected had been members at the time of the preceding congress. Khrushchev stated that 63.1 per cent of the members were now Ukrainians, 19.1 per cent Russians, 13.4 per cent Jews and 4.4 per cent of other nationalities.¹⁷² In the Central Committee, however, only 40 per cent of the members were Ukrainians.

Between the Fifteenth Congress and the beginning of the Second World War, the CP(b)U was occupied by two main problems: economic preparation for war and the conquest of Western Ukraine. A Central Committee plenum, which met on 15–17 June 1940, had discussed the collection and delivery of the grain harvest and the economic crisis in the Donbas, where on account of exorbitant planning targets the coal economy had suffered, labour productivity had begun to fall and the mines were recording heavy losses. The plenum went on record regarding the low level of Party propaganda among the workers of the Donbas.¹⁷³

The regular Central Committee plenum, meeting on 28–30 November 1940, considered two questions: (1) the work of the Lviv and Rivne oblast executive committees and (2) the management of industry in Dnipropetrovsk and Kharkiv. The plenum reported that in Western Ukraine the tax on agriculture was being collected in kind, that political propaganda among the population was unsatisfactory, and that the village soviets were not working well. It resolved to initiate extraordinary measures in Western Ukraine, including intensified propaganda in favour of creating collective farms, purging schools and universities of nationalists, and encouraging the promotion of local cadres to positions in government service. On the second question, the plenum noted that industry was not fulfilling production plans in Dnipropetrovsk and Kharkiv and that control should be tightened.¹⁷⁴

Between the Fifteenth and Sixteenth Congresses

When war broke out on 22 June 1941, the USSR, in spite of years of military preparation, was quite unable to defend itself. The purges of the thirties had wrought havoc with Soviet military, administrative and economic cadres, and even more with the morale of the population and therefore of the members of the army. As a result of the vigour and lightning speed of the German attack, defeatism and inefficiency in

command and supply administration, in five months all of Ukraine and much of the western USSR were under German occupation.

The war was a serious test for the CP(b)U. The social structure of the Party and its political function in society were vividly exposed. Panic fear, helplessness and lack of organization took toll of the great mass of the Party members, including its entire bureaucratic and bourgeois section, who, having come from beyond the republic's borders, felt themselves to be foreigners in Ukraine and had no bond with the Ukrainian population. Before the enemy's rapid approach, the majority of the members fled eastward. A certain number, but certainly no more than 40 per cent, were conscripted into the army. To man the underground movement and the partisans only 14,875 members and candidate members were left, and of these many were probably partisans taken into the Party at the outbreak of the war.¹⁷⁵ This was only 2 per cent of the prewar membership of 650,000 (including candidate members). Approximately an equal number of members were on occupied territory, where they hid among the population or surrendered to the Germans. The remainder were evacuated eastward. A true picture of the helplessness of the CP(b)U at the beginning of the war can be found in the first edition of *The Young Guard*, by the Soviet Russian writer, A. Fadeev.¹⁷⁶

With the advance of the Soviet army, the CP(b)U created an administrative apparatus in its wake from among members evacuated eastward. An attempt was made to return officials to the same localities as before the war. The team thus made up followed close behind the front and arrived at their destinations within a week after the arrival of the Soviet army.

Stalin's "scorched earth" policy, together with the fighting and the German occupation, brought terrible losses to Ukraine. Over six million persons, or 15 per cent of the prewar population, disappeared.¹⁷⁷ As a result of destruction and plundering by hostile forces, the national economy and the civil population, according to Soviet official data, lost property worth the colossal sum of 285 billion rubles,¹⁷⁸ or 40 per cent of the national wealth of Ukraine. In view of this situation, the CP(b)U was faced with two main tasks: (1) rapid growth of the population of Ukraine, and (2) reconstruction of the Ukrainian economy.

The first Central Committee plenum since before the war was held in Kiev on 24–6 May 1944, immediately after the Sixth Session of the Supreme Soviet of the Ukrainian SSR, which adopted a law providing for a broadening of the constitutional rights of the republic, including the right to establish relations with foreign countries and to create a national army, and in connection with these rights, to create Ukrainian Ministries for Foreign Affairs and Defence. The meeting thanked the Russian people for their help in liberating Ukraine from the German occupation. The agenda

included: (1) results of the spring sowing, and preparing and harvesting the 1944 crop; (2) preparations for compulsory deliveries of agricultural products; and (3) party mass work in the Stalino and Kharkiv oblasts. The plenum resolved to mobilize CP(b)U personnel for immediate action in restoring the ruined kolkhoz system, and declared it necessary to intensify political activity among that section of the population that had lived under the German occupation, and to carry out more vigorous propaganda among members of the working class in order to gain more support and enthusiasm for the task of re-establishing the Soviet regime.¹⁷⁹

The next plenum, which took place in Kiev on 22–4 November 1944, concerned itself with problems connected with Western Ukraine. Reports were delivered on the “shortcomings of political work among the population of the western oblasts of the Ukrainian SSR” by Profatilov, Slon and Zeleniuk, the secretaries of the Volhynia, Stanislav and Chernivtsi oblast Party executive committees. The plenum called for an immediate stepping up of the struggle against the nationalist underground and an intensification of mass propaganda, with special stress on the importance of unifying all Ukrainian areas under a single Ukrainian government. The plenum also resolved that the Party and governmental system should be strengthened—not, however, by drawing on the local population. Khrushchev spoke at length on all these questions.¹⁸⁰

On 5–8 June 1945, the regular Central Committee plenum heard reports on two subjects: (1) the results of the spring sowing campaign, the gathering of the harvest and compulsory deliveries of agricultural produce and (2) the rehabilitation of the urban economy and the construction of living accommodation, workshops and centres of cultural and social life in town and country. The plenum ordered the Party apparatus to intensify its control of the reconstruction of ruined towns and villages. Again, Khrushchev spoke on all these questions.¹⁸¹

The nationalities question was not a vital problem within the CP(b)U at the time, and was therefore rarely touched upon at Party meetings. Outside the Party, however, the CP(b)U had to carry out vigorous political propaganda on this question. On 24 May 1945, at a Kremlin banquet for officers, Stalin proposed his historic toast in honour of the Russian people, which he called the “outstanding nation in the USSR,” which had a “clear mind” and a “steadfast character,” and which had not betrayed the government in its darkest moment.¹⁸² Thereafter, until Stalin’s death, Russian chauvinism in the USSR was at its peak. In Ukraine, Khrushchev and the CP(b)U were obliged to develop this new line. At a meeting of Party and government officials in Kiev on 28 October 1945, Khrushchev repeated Stalin’s toast to the Russians, spoke at length of the necessity of maintaining friendship with the Russian people and attacked Ukrainian nationalists. He said:

When retreating under the blows of the Red Army, the Germans left Ukrainian-German nationals in Ukraine as their agents.... Vile traitors of their Fatherland, they helped the German Fascists to oppress our nation, and when the Germans were thrown out, the Ukrainian-German nationalists attempted to resist the reconstruction of the national economy. They gabbled about what they called an "independent" Ukraine, attempting by this nonsense to cover up their connection with the Germans. But everyone knows that Ukraine is a free Soviet state, where everything has been put at the service of the Ukrainian people.¹⁸³

This speech clearly reflects the new postwar stand of the Party on the nationality question in Ukraine, which sought to associate the nationalists with the highly unpopular German occupying forces and proclaimed that everything demanded by the nationalists existed already, that the Ukrainian SSR was a free government of and by the Ukrainian people, and so on. As compared with prewar times, this Party line was involved in much deeper and more complex contradictions with reality: its propaganda was so false that it was increasingly necessary to take action to prove that it was true. Hence the sudden appearance of the Ukrainian SSR in the international arena; hence its own Communist emblem, its anthem, flag and so on, which one after the other appeared after the war. Russian chauvinism naturally evoked in the Ukrainian people a heightened self-consciousness and self-respect, a sense of national honour, which had already been stimulated by the experience of life under the German occupation, the entry of Western Ukrainians into the Ukrainian SSR, and the extension of culture and education among the masses of the population. These factors also influenced the policy of the CP(b)U, making it more self-contradictory and ineffective.

The regular plenary meeting of the Central Committee held on 12–14 December 1945, dealt with grain deliveries from the 1945 harvest and mass political propaganda in connection with the elections to the Supreme Soviet of the USSR. As to the former, the plenum stated that the grain collection target for Ukraine had not been met and that the eastern provinces were even farther behind than the western. It ordered intensified pressure on kolkhozy and fulfillment of the plans. It might be said at this point that in all probability the plenum's resolutions on grain deliveries were to some extent responsible for the fact that in 1946, when there was a terrible drought, there were no stocks of grain left in Ukraine from the previous year's harvest so that the nation again suffered a famine. On the question of preparing the nation for the elections, the Central Committee's secretary for propaganda, K. Lytvyn, remarked that political propaganda among the population was on a very low level at a time when the population had been increased by the return of one million former slave

labourers from Germany, who had lived for a long time outside the USSR. There were also those who had come from Poland and had merged with the local population. The presence of these persons required a vitalizing of propaganda to counteract their stories. In closing the plenum, Khrushchev demanded that the Party, at whatever price, achieve participation of the entire population in the elections. It is possible that this demand was a reaction to agitation by the Ukrainian underground to boycott the elections of 1946. Lytvyn and Khrushchev stated that pre-election propaganda was in a particularly deplorable state in Western Ukraine.¹⁸⁴

The question of the harvest formed the chief point on the agenda of the next Central Committee plenum, held on 9 July 1946, at a time when Ukraine was again undergoing a severe drought. The plenum summed up the situation, and probably reported on it to Moscow. Questions concerning organization were also discussed, and the plenum confirmed the following membership for the Orgburo: Khrushchev, D. Korotchenko, D. Manuilsky, O. Iepishev, K. Lytvyn and M. Spivak, with Z. Serdiuk and L. Kolybanov as candidate members. The Secretariat was given the following members: first secretary, Khrushchev; second secretary, Korotchenko; third secretary, Lytvyn; secretary of the personnel section, Iepishev; and secretary for propaganda, I. Nazarenko.¹⁸⁵

The plenum, upon request, also reported to the Central Committee of the CPSU on the state of the Party organization in Ukraine. This report stated that the CP(b)U had experienced in the course of the past year and a half a certain "fluctuation of personnel": about 50 per cent of the leading workers in the oblast committees and the Central Committee apparatus had been replaced, 38 per cent of the secretaries of raion committees, 64 per cent of the heads of executive committees of raion soviets, and 66 per cent of the machine and tractor station directors.¹⁸⁶ There are grounds for believing that this "fluctuation of personnel" actually represented a fairly extensive purge of Party members who in one way or another had proved to be unreliable during the war and the occupation.

On 15–17 August 1946, Khrushchev read at an extraordinary plenum of the Central Committee a severely-worded resolution of the Central Committee of the CPSU dated 26 July 1946, on the state of the Party organization in Ukraine. Khrushchev said:

The Central Committee of the CPSU has examined the work done in training, selecting and distributing leading Party and government personnel in the Party organizations of Ukraine and has heard the report of the Central Committee of the CP(b)U on this matter. In its resolution, the Central Committee of the CPSU has stated that the training, selection and allocation of leading cadres assigned to the Central Committee and oblast

committees of the CP(b)U is unsatisfactory, and pointed to the presence of serious shortcomings and errors in this matter.¹⁸⁷

This criticism of the work of Khrushchev and the CP(b)U carried a threat of serious unpleasantness. From the press report, however, it is not clear whether the Central Committee of the CPSU considered that the purge implied by the expression "fluctuation of personnel" had not been carried far enough or whether it considered that it had been carried too far. The intensification of the attack upon the CP(b)U in the national question indicates, however, that the former was the case. Khrushchev continued:

The Central Committee of the CP(b)U has underestimated the special importance of ideological work and has failed to devote proper attention to the selection and ideological-political education of cadres in the field of science, literature and art and to organize in the press wide criticism of the hostile bourgeois-nationalist ideology. As a result, certain books, periodicals and newspaper articles and the speeches of certain Ukrainian historians and writers contain ideological errors and inaccuracies and attempts to reinstate the bourgeois-nationalist concept of Hrushevsky and his school.

The *Outline History of Ukrainian Literature* published by the Institute of Language and Literature of the Academy of Sciences of the Ukrainian SSR contained "bourgeois-nationalist views on the history of the Ukrainian nation and its culture." "Serious errors of a nationalist character" had also been allowed in the first volume of the *History of the Ukraine*, published by the Institute of History. Certain writers were idealizing the past and admitting errors of a nationalist character.¹⁸⁸

Such accusations directed against the Central Committee of the CP(b)U were naturally passed down to the organizations at lower levels. A plenum of the CP(b)U Central Committee ruled: "The Party organization of Ukraine will quickly remedy all errors and shortcomings."¹⁸⁹ Following the plenum, in the course of August, September and October 1946, the Central Committee issued five important resolutions thundering against the "bourgeois-nationalist deviations" of Ukrainian scholars, writers, poets, dramatists and artists.¹⁹⁰ These resolutions bore the following titles: (1) "On Transgressions and Errors in Presenting the History of Ukrainian Literature in the *Outline History of Ukrainian Literature*";¹⁹¹ (2) "On the Humorous and Satirical Periodical *Perets*"; (3) "On the Periodical *Vitchyzna*";¹⁹² (4) "On the Amateur Repertoire of Cultural-Educational Authorities";¹⁹³ and (5) "On the Repertoire of Dramatic and Operatic Theatres of the Ukrainian SSR and Measures for its Improvement."¹⁹⁴

Simultaneously, a press campaign was launched calling for "criticism and self-criticism." Altogether, the resolutions and the press gave the names of some one hundred Ukrainians prominent in science and culture who were accused of "bourgeois-nationalist" deviation.

These events were occurring against the background of a very poor harvest and famine in the rural areas. This combination of circumstances and the political atmosphere itself were reminiscent of the year 1933 and led to fear, tension, and a readiness to submit to the brute force of the regime. Things did not, however, go as far as in 1933. The criticism in the press was not followed by mass arrest and terror, and the famine did not reach threatening proportions.

The serious state of agriculture, the difficulties in reconstructing industry, and the dissatisfaction in Moscow with the political work of the CP(b)U indicated that Khrushchev had not performed the tasks assigned to him. Probably as a result, at the end of February 1947 the Central Committee of the CPSU ordered him to resign his post as first secretary of the Central Committee and retain only that of head of the government of the Ukrainian SSR, an additional post, which he had assumed in 1943. On 4 March 1947, by appointment from Moscow, L. M. Kaganovich became first secretary of the CP(b)U Central Committee. He remained, however, for only a short time: after introducing order in the reconstruction of industry, he returned to Moscow on 26 December 1947. Khrushchev resumed his post as first secretary and appointed Korotchenko as head of the government.

Sixteenth Congress of the CP(b)U

In January 1948, a jubilee session of the Supreme Soviet of the Ukrainian SSR met, devoted to the thirtieth anniversary of the founding of the Ukrainian SSR. Molotov came from Moscow to deliver a speech, which must have brought relief to many Ukrainian Bolsheviks. He said:

The great difficulties and trials of our war for the Fatherland were a test of strength of the moral and political unity of the Ukrainian nation and of its devotion to the Soviet regime and to the Bolshevik ideology of Ukrainian Communists. Now we know that the Ukrainian people and its advance guard, the Bolsheviks of Ukraine, passed all these tests with honour.¹⁹⁵

These words, regarded as a vote of confidence by Moscow in the CP(b)U, were followed by loud applause. Molotov also threw several compliments in the direction of the Ukrainians, whom he rated second only

to the Russians. He declared, "Following the Russian nation, the Ukrainian nation was the first to take this [socialist] path.... The Ukrainian people has at last attained the realization of its centuries-old dream, having created a national Ukrainian state of its own.... From the time when the Soviet Union grew strong and saw the possibility of giving to the Ukrainian people the right to create a Soviet government for all Ukrainians, the Ukrainian dream of national unity became a reality."

Khrushchev expressed gratitude to Molotov, stressed "friendship with the great Russian people," and declared, "Anyone who struggles against friendship between the Russian and Ukrainian peoples is struggling against the building of Communism, is struggling for the restoration of capitalism in Ukraine, for the restoration of capitalist oppression and exploitation."¹⁹⁶ The views thus expressed by Molotov and Khrushchev thenceforth formed the basis for the policy of the CP(b)U as far as the nationalities question in Ukraine was concerned.

The sixteenth regular congress of the CP(b)U met in Kiev on 25–9 January 1949, almost nine years after its predecessor. It was attended by 649 delegates with full voting powers and 85 with a consultative vote, representing 572,950 members and 11,325 candidate members. Membership of the Party had risen since before the war by 31.3 per cent, and as a result of the war its composition had changed considerably. More than two thirds had joined after being demobilized from the army, while 94,898 members and 84,434 candidate members had been admitted since the war. Their social origin and social status were no longer published, but in the course of the congress it became known that, for example, of the newly-admitted members in the Dnipropetrovsk oblast 17.2 per cent were workers, 9.6 per cent members of *kolkhozy* and 73.2 per cent employees. As to place of employment, 35 per cent of the total Party membership was engaged in industry, transport and construction, 19 per cent in agriculture, and the largest number—46 per cent—in government positions, in the army or in cultural or educational offices. Over 35 per cent had completed higher or middle school.¹⁹⁷

In welcoming the congress in the name of the Central Committee of the CP(b)U, Khrushchev devoted considerable time to reporting that during the war the Ukrainian Party had successfully carried out its assigned tasks. As proof, he repeated the statement by Molotov in 1948, already cited. He also quoted German documents to indicate that the people of Ukraine were pro-Soviet and had been hoping for a return of the Bolsheviks, and drew the conclusion that the CP(b)U was at one with the nation. Turning to the problem of the postwar period, he pointed to the great success achieved in the reconstruction of war-ruined industry. In regard to agriculture, he noted achievements in collectivization of Western Ukraine, where this programme was just getting under way. As to culture, he attacked

Ukrainian scholars and writers who advocated Ukrainian connections with the West, a trend which he called "nationalist" and which he said should be replaced by efforts toward links with Russian culture.

On the subject of conditions within the Party, Khrushchev raised the problem of the allocation of personnel. He declared that the resolution of the CPSU Central Committee of 26 July 1946, had not yet been put into full effect, that the important posts were being held by unreliable persons, and that it was consequently necessary to make frequent changes, with a resulting great personnel turnover. He also noted that ideological education in the Party was at a low level. In order to strengthen mass political and ideological propaganda, much literature had been published recently in the Ukrainian language, such as the works of Lenin and Stalin and the classics of Marxism.¹⁹⁸

Delegates who spoke at the congress merely repeated what Khrushchev had said. With no differences of opinion, there was no real discussion. All resolutions were unanimously adopted. Of the 119 members and candidate members of the Central Committee elected by the prewar congress in 1940, less than 22—or 18 per cent of the 77 members and 46 candidate members—were re-elected. A like change had probably taken place in the membership of the CP(b)U as a whole.¹⁹⁹

Seventeenth Congress of the CP(b)U

Nevertheless, the Sixteenth Congress proved to have engaged in too much jubilation and self-praise. It is true that in 1949 the reconstruction of industry of Ukraine had gone so far that production had reached prewar level. But outside industry, especially heavy industry, the economy was much below the prewar level.

On 9 March 1949, the regular plenum of the Central Committee studied the problem of the reconstruction of cities and villages. It was admitted that housing construction in particular was lagging behind requirements. Lack of accommodation had become a serious obstacle to the flow of labour from the villages to the cities and was thus delaying the pace of industrial reconstruction.²⁰⁰

On 27–8 June 1949, the regular Central Committee plenary meeting discussed a report by D. Korotchenko on the results of the spring sowing campaign and preparations for harvesting. The session noted that kolkhozy were beginning to experience a shortage of labour, and therefore decided to enrol all those capable of work for harvesting.²⁰¹

Generally speaking, however, Moscow was satisfied with the work of the CP(b)U and on 18 December 1949, promoted Khrushchev to secretary of the Moscow oblast committee. He was replaced as first secretary of the

Central Committee of the CP(b)U by the second secretary, L. G. Melnikov, who before the war had been secretary of the oblast committee in Stalino. Melnikov was a Russian, originally from Moscow oblast. Since his entire stay in Ukraine was spent in Stalino, he evidently did not understand Ukrainian conditions, and perhaps, as a Russian chauvinist, did not wish to.

Melnikov's first act as new head of the CP(b)U was to tour Western Ukraine. In the first half of January 1950, accompanied by D. Manuilsky, I. Senin and I. Nazarenko, he visited all the oblast committees there and in several cities purged the Party apparatus. In speeches at plenary meetings of oblast committees, he sharply criticized the low state of mass propaganda and the inadequacy of ideological work among the intelligentsia and in the higher schools, and called for strengthening the kolkhozy.²⁰² It is possible that he also ordered intensified Russification of Western Ukrainian schools and universities, a step of which he was accused three years later.

The plenary meeting of the CP(b)U Central Committee, which took place on 13–15 April 1950, examined the question of strengthening the political, administrative and economic activity of the kolkhozy in Western Ukraine. Collectivization of Western Ukrainian agriculture was nearing completion, but the newly-created kolkhozy were poorly organized, and the newly-subjugated peasants were not working well. Melnikov ordered the application of stronger Party pressure in rural areas to correct these weaknesses.²⁰³

During 1950 and 1951, the Party devoted its main attention to expanding the kolkhoz system and establishing organized control over the kolkhozy. At the time of the Sixteenth Party Congress in 1949, there had been Party centres in more than 13,000 kolkhozy and Party members headed more than 17,000 kolkhozy, giving the Party direct control of only half of the total of 33,000. By enlarging individual kolkhozy, the total had been reduced by the end of 1951 to 16,000, so that it was now possible for each kolkhoz to be headed by a Party member.²⁰⁴

On 2 July 1951, *Pravda* suddenly attacked the CP(b)U Central Committee for negligence because of the existence in Ukrainian literature and drama of "bourgeois-nationalist" compositions such as Volodymyr Sosiura's poem *Liubit Ukrainu* (Love Ukraine) and the libretto of the opera *Bohdan Khmelnytsky*, by O. Korniiichuk and V. Vasylevska. In fact, as such Soviet journals as *Kommunist* later admitted, these writings were not at all nationalist,²⁰⁵ but to the Russian chauvinists even the Soviet Ukrainian patriotism of Sosiura was unbearable. Korniiichuk's libretto showed too little subservience to the Russian tsar and boyars.

At the direction of Melnikov, the plenary session of the CP(b)U Central Committee held in November 1951 took action to step up propaganda

against Ukrainian bourgeois nationalism in literature and art, following the example set by *Pravda's* attack on Sosiura, Korniichuk and Vasylevska. The meeting also devoted great attention to the political education of Party members and to mass propaganda.²⁰⁶

Two problems were on the agenda of the Central Committee plenum which met on 27–9 May 1952—the state of agriculture and means of improving the training, employment and allocation of leading Party and government personnel. N. T. Kalchenko spoke on the first question and Central Committee secretary Kyrychenko on the second. The decisions on the second question were not published, but a reading of the press of that time indicates that the personnel turnover was approaching the extent of 1946. In the course of 1951, as many as 33 per cent of the raion committee secretaries in some oblasts were replaced. Many secretaries of Party oblast committees and persons holding responsible positions in the education and propaganda sections of the Party Central Committee were also removed. There was also probably a small-scale purge of Party members.²⁰⁷

After the November plenum of 1951 and the May plenum of 1952, all of Ukraine was flooded by a wave of mass propaganda. The newspaper *Radianska Ukraina* carried the following typical editorial:

All ideological work is to concentrate on the education of all the workers of the republic in a spirit of infinite love to the Fatherland, of devotion to the great party of Lenin and Stalin and of faithfulness to the indestructible Lenin-Stalin friendship among the peoples, which is the source of the flourishing of Soviet Ukraine—an integral and indispensable part of the great Soviet Union. The ultimate point of all ideological work is to be the speediest removal of the relics of bourgeois ideology, a decisive struggle against signs of Ukrainian bourgeois nationalism and cosmopolitanism, materialism and non-political attitudes. All ideological work by the Party organizations of the CP(b)U should be constructed toward this end.²⁰⁸

Acting in this spirit, the Party organizations made thousands of speeches at the lowest levels—in factories, mines and kolkhozy, and to tractor brigades. These speeches were heard by eight million persons, an indication that the nationalities question in Ukraine had penetrated to the very depths of the nation, and had long since ceased to be a problem confined to the intelligentsia and bureaucrats. Simultaneously, a vigorous propaganda campaign of Russian chauvinism was launched in the press, in the spirit of Stalin's toast of 1945.²⁰⁹

Against this background, the Seventeenth Congress of the CP(b)U met in Kiev on 23–5 September 1952. The congress represented 676,190

members and 101,642 candidate members, of whom 36.9 per cent were employed in industry, transport and construction; 17.7 per cent in agriculture; 9.1 per cent in education and culture; and 36.3 per cent in the government, Party and army apparatus. Present at the congress were 887 delegates.²¹⁰

In his opening report, Melnikov analyzed the strengths and weaknesses of the Ukrainian economy, stated that the population of Ukraine was growing at the rapid rate of 80,000 a year and called attention to the theft of state property by officials of state enterprises. Since Ukraine in 1951–5 did not have a separate five-year plan, but operated under a central plan set up in Moscow, Melnikov discussed the Ukrainian economy within the framework of the five-year plan for the USSR. As to cultural, literary and artistic activity, he declared that there still existed relics of bourgeois nationalism and that there was stagnation in art, literature and science. No new works of value were being produced, and insufficient attention was being given to the merging of the Ukrainian and Russian cultures and to increasing the influence of Russian culture in Ukraine. As to Party organization, he cited statistics showing that since the last congress 22,000 members and candidate members had been dropped from the Party rolls. Of the 160 Central Committee members and candidate members elected at the congress, approximately 58 per cent were Ukrainians, 32 per cent were Russians and 10 per cent of the other nationalities; of the thirteen members and candidate members of the Politburo, nine were Ukrainian and four Russians.²¹¹

The Death of Stalin

After the Seventeenth Congress the pressure on the ideological front continued in full force, and mass propaganda reached ever-widening circles. The main theme of the campaign was friendship among the peoples of the Soviet Union and the struggle against Ukrainian bourgeois nationalism.

The regular Central Committee plenum, which met on 23–6 December 1952, considered three items: (1) study of the resolutions of the Nineteenth Congress of the CPSU, Stalin's "masterly work" *Economic Problems of Socialism in the USSR* and attempts to improve ideological activity of the Party organization in Ukraine; (2) the state of agriculture in the republic; and (3) intensification of the struggle for protecting government and communal property and improving the admission, selection and education of cadres in commercial, co-operative and other organizations. Speaking on the first item, Melnikov worked into the economic content of Stalin's book propaganda for Russian chauvinism and the struggle against Ukrainian

nationalism. In response to his speech, the plenum resolved "to strive to see to it that in every enterprise, on every kolkhoz, MTS and sovkhos, no fewer than two lectures or reports be presented per month." Besides propagandizing Stalin's book, these lectures or reports were to stress "the leading role of the Russian people in the fraternal family of peoples of the USSR" and to emphasize particularly the struggle against "Ukrainian bourgeois nationalists and rootless cosmopolitans."²¹²

The next plenum, on 27–8 February 1953, had as first item on its agenda a report on measures to improve ideological work in the Kiev city party organization.²¹³ It was a time when a campaign of Russian chauvinist propaganda was being waged throughout Ukraine. The arrests of "base, degenerate Ukrainian bourgeois nationalists" were being reported in the press. Simultaneously, in Moscow, a group of Jewish doctors who allegedly had intended to kill Stalin were being arrested. A campaign was being launched against "Zionists" and "Jewish bourgeois nationalism." In Ukraine, this campaign was combined with the struggle against "Ukrainian nationalism," for anti-Semitism, anti-Ukrainianism and Russian chauvinism were all on the increase. The press carried the names of many Jews and Ukrainians accused of Jewish and Ukrainian nationalism. The propaganda apparatus maintained that Ukrainian nationalists had always worked with Jewish nationalists, that the UPA (Ukrainian Insurgent Army) had connections with the Zionists, and so on.²¹⁴ This campaign, which was almost on the same scale as the mass terror of 1937, suddenly came to a stop on 4 March 1953, when notices of Stalin's illness appeared in the press. He died on 5 March 1953.

In the last two weeks of March, the campaign of anti-Semitism and anti-Ukrainianism was revived, but on 5 April 1953, the press reported the release of the Jewish doctors and the arrest of the judges concerned and admitted that the entire case had been fabricated.²¹⁵

In the beginning of 1953 a counterattack was made, announced in the Soviet press as follows:

Recently a plenum of the Central Committee of the Communist Party of Ukraine was held. The plenum deliberated the question of shortcomings in political work and in the leadership of economic and cultural construction. The plenum pronounced unsatisfactory the leadership by the Council of Ministers of the Ukrainian SSR in the western oblasts of the Ukraine. The plenum noted that the Bureau of the Central Committee and Secretary of the Central Committee of the Communist Party of Ukraine Comrade Melnikov, in their practical work, were guilty of deviations from the Lenin-Stalin policy of our Party, which deviations found expression in the erroneous practice of giving preference when filling responsible Party and government positions in the western oblasts of Ukraine to workers from other

regions of the Ukrainian SSR, and also in a virtual changeover to lecturing in universities in the Russian language. The plenum discovered serious errors in the economic and administrative consolidation of kolkhozy in the western oblasts of Ukraine. The plenum of the Central Committee of the Communist Party of Ukraine announced practical measures for the intensification of political work, the consistent execution of the Lenin-Stalin nationalities policy, and the removal of shortcomings in the leadership of economic and cultural construction. The plenum of the Central Committee of the Communist Party of Ukraine adopted resolutions on organization. The plenum released from the post of first secretary and removed from the Bureau of the Central Committee of the Communist Party of Ukraine Comrade L. G. Melnikov, on charges of having failed to secure leadership and of having committed grave errors in the selection of cadres and in the implementation of the Party's nationalities policy. The plenum appointed as first secretary of the Party Central Committee Comrade O. I. Kyrychenko, who was released from his post as second secretary of the Central Committee of the Communist Party of Ukraine. The plenum elected as member of the Bureau of the Central Committee of the Ukrainian Communist Party first vice-chairman of the Council of Ministers of the Ukrainian SSR Comrade O. E. Korniichuk.²¹⁶

Thus, for the first time in history, the CP(b)U was headed by a Ukrainian, Oleksii Ilarionovych Kyrychenko, an undistinguished Odessa Bolshevik, who had come to hold prominent Party posts only after the Second World War. It is believed that he came originally from a village in the Pervomaisk or Kryve Ozero Raion, in the vicinity of Odessa, and that he had made himself known by his work for the Party in Odessa at the time of its defence against the Germans in 1941. After the war he was secretary of the Odessa oblast Party committee, until his appointment as second secretary of the Party Central Committee in Ukraine.²¹⁷

With the departure of Melnikov, the assault of Russian chauvinism in Ukraine was somewhat weakened. Under Kyrychenko, the number of Ukrainians in leading posts in the CP(b)U as well as in the government of the Ukrainian SSR increased noticeably, and Ukrainian Party functionaries, in the opinion of some, exercised a definite political influence in the USSR tending toward decentralization of the government of the Union and some expansion of the areas of competence of the governments of the union republics.²¹⁸

The trend of events in the CP(b)U after 1953, particularly the effects of the death of Stalin, including the anti-Stalinist campaign of the "collective leadership," are still too recent to be classed as history.

* * *

In a rapid chronological survey, such as the foregoing, of the history of the CP(b)U from 1917 to 1953, certain characteristic features emerge. From the very beginning, the CP(b)U was, in the national sense, alien to the Ukrainian people. It attained power only with the aid of Russian armed forces in a manner reminiscent of the "people's democracies" in Eastern Europe after the Second World War. At first, it found support only among the Russian and the Russified workers, particularly the bourgeoisie.

Once in power, the CP(b)U continually strove to establish a bond with the masses of Ukraine, but without success. It absorbed Ukrainian communist and socialist parties—the left wing of the Ukrainian Communist Party of Borotbists and the "independent" wing of the Ukrainian Social Democratic Worker's Party—and in the twenties took the path of Ukrainianization during the NEP period, it came closer to the Ukrainian masses than at any other time in its entire history. This bond, however, broke again during the process of forcible collectivization, famine and terror in the thirties, when the CP(b)U was again ruled by Russian chauvinists opposed to Ukrainianization. Simultaneously, in the process of industrialization and collectivization, the social composition of the Party changed and it became a Party of right-wing bureaucrats. Accordingly, before the war, the CP(b)U was estranged from the Ukrainian people by three factors: (1) terror and oppression; (2) an anti-Ukrainian national policy, and (3) its own social composition. After the Second World War and to the end of the period covered by this account, the first and second factors lost some of their force, while the third became more effective. As a result of the great increase in the number of Ukrainians engaged in industry in the last few decades, Ukrainian elements quite naturally and peacefully flowed into the Party until they finally became the deciding force in it, despite purges and pogroms. However, although the CP(b)U at last became a preponderantly Ukrainian party, its bonds with the masses of the Ukrainian people did not greatly improve, the Party in the meantime having become socially cut off from the masses, while there was little change for the better in either terror or anti-Ukrainianism. Thus, the Party's chief problem, that of establishing a link with the nation, of recruiting support among the masses, is still unsolved.

On the other hand, the CP(b)U has always been and still is an extension of the Russian Communist Party and its successors the All-Union Communist Party of Bolsheviks and the Communist Party of the Soviet Union. It has never been an independent political organization, a party in the real meaning of the word, but rather a regional division of a party, enjoying, like the parties in the other national republics, the same status as that of an oblast Party organization in the RSFSR.²¹⁹ To this day, there is no separate RSFSR Communist Party in the CPSU, no

national Russian Communist Party: the place of such a party is taken by the CPSU as a whole. This feature demonstrates well the real nature of centralization in the USSR. The creation of a union of republics meant a certain degree of decentralization and was a concession to the national demands of the non-Russian peoples forced upon the Russian Communist Party. The RCP itself, however, never became decentralized to accord with the decentralization of government: it remained what in 1919–22 it had wished its government to be—not a Union of Soviet Socialist Republics but a single and indivisible Russian Soviet Federative Socialist Republic—a wish, however, that could not be realized.

The fact that the CP(b)U has been a regional organization deprived of independence has been the main reason for its failure to establish a close relationship with the masses of the Ukrainian people. On questions of nationality policy and in the imposition of terror, the CP(b)U was forced by its statutes to obey orders from Moscow. Rigid Bolshevik Party discipline required its members to regard every order of the Central Committee of the CPSU as correct and infallible, to be carried out without question. Had the CP(b)U been an independent party, it could, though with difficulty, have argued with Moscow over the correctness of its political line in Ukraine and could have sought to modify it. The independent foreign Communist parties do argue with Moscow to some extent, and in the last analysis could have acted as did the Yugoslav Communist Party in 1948. But this the CP(b)U could never afford to do.

The provincial status of the CP(b)U also had an appreciable effect upon its social composition and the political orientation of its cadres. At congresses in the beginning of the thirties, when the bureaucracy had become all-powerful, problems of international policy or ideology were completely ignored. Party congresses were meetings of provincial bureaucrats, held to discuss local administrative and economic affairs only, such as how to rear pigs or when to destroy bird pests. International political problems, problems of the revolutionary movement, never arose. The only ideological problem—one which did make a frequent appearance—was the nationalities question.

Throughout its history the nationalities question has been one of the main problems facing the CP(b)U. It arose from the conflict between the CP(b)U and the Ukrainian people or, in its broader aspect, between the Russian Communist Party and Ukraine. In the whole history of the CP(b)U, the most important deviations on the part of its members sprang from the nationalities question; there was no other serious opposition.

Within the CP(b)U, Ukrainian national Communism has experienced three main trends. (It is characteristic that these trends appeared within the Party and were not trends of the Party as a whole, a large part of the CP(b)U membership having always consisted of non-Ukrainians.) One

such trend was that of the Ukrainian Communist separatists, led by Shumsky, Khvyliovy and Volobuiev, who relied on the Borotbist and UKP elements in the CP(b)U. This bloc, in the final analysis, stood for an independent Ukrainian SSR, a socialist or Communist Ukrainian state which could leave the USSR and develop independently. Still earlier, during the revolution, this trend had been represented by the opposition led by such Ukrainian Communists as Vasyl Shakhrai, or the "Federalist" Lapchynsky.

The second trend was that of the centrists, headed by Skrypnyk, who were true Leninist internationalists, believing in the possibility of an independent development for Ukraine within the structure of the USSR. They were actively engaged in fighting on two fronts: against Russian chauvinism and against Ukrainian chauvinism, both of which they considered harmful to the cause of the world proletarian revolution.

The third national trend resulted from the terror of the thirties and is now taking final shape. It is represented by the present Ukrainian bureaucracy within the Party. It, too, is sharply centrist, convinced that it is advantageous for Ukraine to remain within the USSR. Unlike Skrypnyk, however, this bloc regards such a status as advantageous to itself as a social group. This Ukrainian bureaucracy has its own interests as a social group, which coincide with its national separatism. It stands, quite naturally, for an expansion of its own rights, for an extension of the power of the government of the Ukrainian SSR. Thus it is a decentralizing force in the USSR. At the same time, however, it is disciplined in the spirit of a bureaucracy and submissive to the chiefs in Moscow. Past terror has taught it to adapt itself and to contradict the centre as little as possible.²²⁰ In this it is quite unlike the centrists led by Skrypnyk, who actively fought against Russian suppression of Ukrainian rights.

1927 (January)	154,500	51.9	...	...	...	...	...	...	...
1927 (July)	177,427	52.0	...	...	...	42.6	...	...	...
1927 (October)	203,649	51.8	...	...	...	...	...	...	...
1929 (January)	231,095	...	...	...	...	...	...	...	...
1930 (January)	250,835	52.9	...	...	...	...	...	...	...
1930 (Summer)	270,098	52.9	...	43.0	...	...	...	...	...
1931 (January)	345,017	...	...	...	...	...	...	...	...
1933 (October)	468,793	60.0	23.0	17.0	...	41.1	...	...	...
1938 (June)	306,527	...	...	...	...	...	...	...	...
1940 (May)	636,914	63.1	19.1	17.8	40.0	...	...	...	...
1949 (January)	684,275	...	...	...	...	...	35.0 ¹	19.0 ¹	46.0 ¹
1952 (September)	777,830	...	...	...	...	...	37.0 ¹	19.0 ¹	46.0 ¹
1954 (March)	833,777	...	...	...	62.0 ²	...	...	...	...
1956 (January)	838,336	74.2	25.0	0.8	68.8	...	...	...	...

¹ Each figure includes all those employed in industry, agriculture or administration, as the case may be.

² Author's estimate.

... No data available.

TABLE 2 Membership of the All-Union Communist Party (VKP[b]-CPSU) 1905-56

	Members and Candidate Members	Members of the CP(b)U (per cent)
1905 (Beginning)	8,400	...
1917 (April)	40,000	...
1917 (August)	200,000	...
1918 (Beginning)	115,000	3.7
1919 (March)	313,766	5.2
1920 (March)	611,978	5.4
1921 (March)	730,000	...
1922 (Beginning)	514,800	10.4
1923 (Beginning)	485,600	...
1924 (Beginning)	472,000	12.1
1925 (Beginning)	798,804	12.7
1926 (Beginning)	1,078,185	14.1
1927 (Beginning)	1,147,074	13.4
1928 (Beginning)	1,304,471	...
1929 (Beginning)	1,532,362	15.0
1930 (Beginning)	1,674,910	14.9
1931 (March)	2,066,400	16.6
1932 (March)	3,172,215	...
1934 (March)	2,809,786	16.6
1939 (March)	2,476,966	...
1940 (March)	3,399,975	18.7
1941 (Beginning)	3,600,000	...
1945 (Beginning)	5,760,369	...
1947 (September)	6,300,000	...
1952 (October)	6,888,145	...
1956 (February)	7,215,505	11.6

SOURCE: *Bolshaia sovetskaia entsiklopediia*, 1st ed. (Moscow, 1930), 11: col. 531; V. Feliks, "VKP(b) v pisliavoiennomu periodi," *Vpered* no. 1-2 (1951). *Pravda*, 6 October 1952, and 15 February 1956.

Notes

1. *Istoriia KP(b)U* 1 (Kiev, 1933); M. Iavorsky, "K istorii KP(b)U," in *Oktiabrskaiia revoliutsiia—pervoe piatiletie* (Kharkiv, 1922), 93; and I. Kulyk, *Ohliad revoliutsii v Ukraini* (Kharkiv, 1921), 1: 15–16.
2. Iavorsky, "K istorii," 94.
3. *Istoriia KP(b)U*, 1: 403.
4. *Ibid.*, 388.
5. *Ibid.*, 2: 43.
6. *Ibid.*, 83.
7. *Ibid.*, 111.
8. *Ibid.*, 125–6.
9. Iavorsky, "K istorii," 95.
10. *KPSS v rezoliutsiakh i resheniakh siezdov, konferentsii i plenumov TsK*, 7th ed. (Moscow, 1953), 1: 384.
11. N. F. Kuzmin, *Kommunisticheskaia partiia—vdokhnovitel i organizator borby ukrainskogo naroda za sozdanie i ukreplenie Ukrainskogo Sovetskogo gosudarstva* (Moscow, 1954), 6; and R. Pipes, *The Formation of the Soviet Union: Communism and Nationalism, 1917–23* (Cambridge, Mass., 1954), 59–60.
12. Iavorsky, "K istorii," 95. See also V. Holub, "Rozhrom vlady Kerenskoho v Kiievi v 1917 rotsi," *Vpered* (Munich) (May 1954): 5ff.
13. S. Posse, B. Prokofiev and S. Shteyn, *Partiia v borotbi z pravymy ukhylamy, 1917–28* (Kiev, 1929), 56.
14. Iavorsky, "K istorii," 97; Kulyk, *Ohliad revoliutsii*, 28.
15. Kulyk, *Ohliad revoliutsii*, 29–32; *Istoriia KP(b)U*, 2: 258–64.
16. E. Bosh, *God borby* (Moscow, 1925), 3: 138.
17. *Ibid.*
18. V. Holub, "Mykola Skrypnyk i sprava sobornosti Ukrainy," *Vpered*, no. 5–6 (1952): 11–12.
19. Bosh, *God borby*, 177; Kulyk, *Ohliad revoliutsii*, 38–9.
20. M. Tardov, *Sovetskaia Ukraina* (Moscow, 1940), 26.
21. Kulyk, *Ohliad revoliutsii*, 40.
22. *Istoriia KP(b)U*, 2: 283; *God borby*, 217–22; Iavorsky, "K istorii," 98.
23. *Istoriia KP(b)U*, 2: 285.
24. Iavorsky, "K istorii," 99.
25. *Istoriia KP(b)U*, 2: 289.
26. Kuzmin, *Kommunisticheskaia partiia*, 13–14.
27. Iavorsky, "K istorii," 99.
28. *Ibid.*, 100.
29. *Istoriia KP(b)U*, 2: 285.
30. Iavorsky, "K istorii," 100, 103–4; *Istoriia KP(b)U*, 2: 356–7.
31. N. N. Popov, *Ocherk istorii Kommunisticheskoi partii (bolshevikov)*

- Ukrainy*, 2d ed. (Kharkiv, 1929), 179–80.
32. Iavorsky, "K istorii," 105.
 33. *Ibid.*, 106–7.
 34. V. A. Antonov-Ovseenko, *Zapiski o grazhdanskoi voine* (Moscow, 1924), 3: 12–14.
 35. Iavorsky, "K istorii," 110–11; M. Ravich-Cherkassky, *Istoriia Kommunisticheskoi partii Ukrainy* (Kharkiv, 1923), 116.
 36. Iavorsky, "K istorii," 113; *Istoriia KP(b)U*, 2: 331.
 37. Iavorsky, "K istorii," 114.
 38. *KPSS v rezoliutsiiakh*, 1: 443.
 39. *Istoriia KP(b)U*, 2: 417.
 40. *Ibid.*, 464–5.
 41. Iavorsky, "K istorii," 114.
 42. *Ibid.*, 116.
 43. Ravich-Cherkassky, *Istoriia KPU*, 136–7.
 44. I. Majstrenko, *Borot'bism: A Chapter in the History of Ukrainian Communism* (New York, 1954), 148, 160.
 45. *Istoriia KP(b)U*, 2: 634; Ravich-Cherkassky, *Istoriia KPU*, 149.
 46. Iavorsky, "K istorii," 117–18.
 47. Majstrenko, *Borot'bism*, 126.
 48. *Ibid.*, 172–3.
 49. *KPSS v rezoliutsiiakh*, 1: 459.
 50. Iavorsky, "K istorii," 120.
 51. *Ibid.*
 52. Majstrenko, *Borot'bism*, 189.
 53. Iavorsky, "K istorii," 120.
 54. *Ibid.*, 120–1.
 55. *Ibid.*, 122–3.
 56. *Istoriia KP(b)U*, 2: 562; *KPSS v rezoliutsiiakh*, 2: 370.
 57. Majstrenko, *Borot'bism*, 215.
 58. Iavorsky, "K istorii," 124–5.
 59. Popov, *Ocherk istorii*, 246.
 60. *Ibid.*, 251, 255–6.
 61. *Ibid.*, 247, 262–3.
 62. *Ibid.*, 266.
 63. *Ibid.*, 270–3.
 64. Iavorsky, "K istorii," 129–30.
 65. Popov, *Ocherk istorii*, 277–80.
 66. Majstrenko, *Borot'bism*, 216.
 67. Popov, *Ocherk istorii*, 291–5.
 68. *Ibid.*, 291.
 69. *KPSS v rezoliutsiiakh*, 1: 713, 715, 717.
 70. *Ibid.*, 716, 718.

71. *Kommunist* (Moscow), no. 9 (1956); *Kommunist Ukrainy* (Kiev), no. 7 (1956).
72. Popov, *Ocherk istorii*, 293.
73. *Ibid.*, 301–7.
74. *Ibid.*, 307.
75. *Ibid.*, 296–7.
76. *Ibid.*, 315.
77. *Pravda*, 8 and 10 December 1925.
78. *Ibid.*, 10 December 1925.
79. *Ibid.*, 12 December 1925.
80. *KPSS v rezoliutsiiakh*, 2: 126–7.
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II

Studies on Regional Economics in the USSR

3. Spatial Efficiency in the Soviet Economy*

The Scope of Spatial Economic Analysis

Economic analysis of Soviet spatial resource allocation has been rather neglected by Western Sovietology.* To be sure, there are a few largely descriptive studies concerned mainly with economic geography, the distribution of some natural resources and specific industries, and territorial administrative reforms,¹ as well as studies of the economies of some Soviet republics and regions.² Mention should also be made here of several attempts to clarify the economic aspects of the problem of Soviet nationalities.³ The existing studies of Soviet capital⁴ and transportation

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policies⁵ as well as of Soviet economic rationality⁶ have some but usually only indirect bearing on the subject. Although specific theorizing about Soviet spatial economic decision-making has been attempted, it is still only exploratory, fragmentary and sporadic.⁷ A truly relevant and comprehensive study of this subject is not available.

Yet the significance of such an analysis must be very clear. Not only is every production decision also a location decision; so is every distribution and consumption decision. Basic economic analysis, whether in the USSR or elsewhere, is required to answer the following four basic questions:

1. Why produce and distribute these goods and services and not others?
2. Why make these goods and services in this manner and by these means?
3. Why do this there and not somewhere else?
4. Why do this now and not later?

Since all these questions must, in principle, be answered together and simultaneously, not separately, they can also be reduced to one single question: Why allocate resources for that purpose, in that way, there, and then, and not for another purpose, in some other way, in another place, and at some other time? The answer is also one and only one: because the purpose of economic analysis is to achieve maximum economic ends by minimum economic means in the shortest possible time.

Thus formulated, all these questions sound like decision-making questions. But they can also be reformulated in the past tense and will thereby rationalize the accomplished facts. *Ex post* data can be used to build up models and theories, which then can be used for the *ex ante* decisions.

All this is elementary, no doubt. But the spatial aspect of economic analysis, question 3, must not be taken for granted just because it is part of one single, general economic problem. It has its own peculiarities. (It may be worth mentioning that such terms as "spatial economics," "locational theory," or "regional science" are essentially synonymous or at least completely overlapping at their core.) Allocation of resources in space, i.e., location per se, whether it is taken as a point in space (*Standort, pôle de croissance*) or a smaller or larger space as such (economic base, agglomeration, industrial complex, economic region, or simply a "market" bound by some limits), necessarily implies (1) at least relative factors' immobility, (2) therefore, their at least temporarily

“natural” monopoly state, (3) their specialization, which leads to (4) their integration in the process of exchange with other specialized spaces. Specialization, as well as integration, implies a dialectical process of growth, development and change over time. On the one hand, specialization of location means separation of spaces, while on the other integration means their unification, but unification again into separate though larger spaces. Location and spaces around them are defined, for example, by distances, and hence by costs of transportation, distribution, and economic and social infrastructure. But spaces grow and decline over time relative to each other; distances also involve time (incidentally, this is often forgotten), and this is additional cost or gain. Hence, in ideal, purely mathematical terms, spatial location costs and/or gains must be ultimately measured in a time-space continuum, not within linear or even curvilinear rectangular planes but within a sphere, within a system of spherical, polar (right-hand, or positive) co-ordinates, with $n - 1$ cost (gain) radii vectors of the $r = \sqrt{x^2 + y^2 + z^2}$ type and distances, $d = \sqrt{(r_2 - r_1) \cdot (r_2 + r_1)}$, with the appropriate constraint angles measured in terms of the arccoses and arctans. Spherical frame of reference is suggested because it alone takes into account all of the $n - 1$ possible determinant variables. This also means, by the way, that one single determinate criterion for the solution of spatial problems is possible. Of this more below.

In addition to the cost (gain) distances, location and spaces can be defined more practically by various input-output matrices and flow accounts involving the calculation of equilibrium balances. Even in territorial spaces that have no political or administrative frontiers, economic regions form themselves as a result of specialization and integration, with distance costs (price vectors) playing essentially the same limiting role as do import and export taxes in foreign trade of various “common markets” and similar politico-administrative units. Since prices in spatial economic analysis must be taken on the c.i.f. basis (i.e. inclusive of cost, insurance and freight), transportation tariffs are not essentially different from import duties. Persistent imbalances in the inter-regional transfer or flow of resources might imply the presence of disequilibrating forces involving monopolistic discrimination and economic exploitation,⁸ differentiation in the levels of economic development and growth, inefficiency in both the welfare and the productivity senses and so forth.

Importance of Regional Economics in the Soviet Context

It is now necessary to clarify the significance and the necessity of the study of Soviet spatial economics. This will be undertaken from the standpoint of efficiency, growth and welfare analysis in the Soviet

economy. Efficiency can be measured either by resource productivity and therefore by growth or by welfare.⁹ Certainly welfare must be growing too if the economy is to be considered efficient. Hence, the counter-opposing of productive and welfare efficiency criteria, though methodologically still unavoidable in static analysis, is rather meaningless in a dynamic context. Similarly, for the assessment of efficiency of the productive potential, the evaluation of the endowment with and the increments in the fixed capital (i.e., capital formation) is appropriate. However, for the analysis of efficiency of resource allocation with respect to welfare, incremental investment flows seem to be more feasible, for they can better reflect differential costs, profits, rents and interests than can fixed capital.

Even though the Soviet economy had been found to be growing (until recently very fast), it seems to be now accepted that its global resource allocations have not been maximally efficient.¹⁰ Measurements of its global efficiency with respect to the GNP have been disaggregated and imputed to the productive factors (capital, labour and land) and to the farm and non-farm sectors.¹¹ A tentative appraisal of comparative inefficiency of the whole industry has also been proposed. Against that background the necessary next step is analysis of the efficiency of the inter-industry inputs and outputs;¹² an inter-industry comparison of productivities has already been made for some industries.¹³ However, by itself an inter-industry or intersectoral evaluation of productive efficiencies will not tell the whole story, because every industry is located in space and is therefore affected by divergent local conditions (differential costs and rents) and by the time factor. Thus it might be established that inter-industry resource allocation was relatively inefficient while the inter-regional was efficient or vice versa; should, however, both inter-industry and inter-regional efficiency indicators (reduced to the same life-span) be found below maximum, then the whole system of allocation is likely to be even more inefficient. I. S. Koropecykyj's original study of both inter-industry and inter-republic capital and labour productivities suggests that they were not maximized between 1959 and 1965.¹⁴ This finding is very suggestive, even though the author seems uncertain whether the total output should have been maximized in the first place.

The rapid average rate of growth of Soviet output has been partly explained by the rapid expansion of labour and capital inputs, but there remains a considerable "unexplained residual" in the co-efficients of correlation. The rate of growth of production is, of course, a measure of productive efficiency of resource uses. However, it was already noted in the mid-1950s that the rate of growth of the Soviet economy had displayed a tendency toward retardation both before and after the Second World War; calculations of the average rates of growth inadvertently seemed to conceal interesting growth cycles as well as the tendency toward a slowdown.¹⁵

Recent studies confirm the slowdown for the postwar period on the basis of both Soviet statistics and Western recalculated data.¹⁶ In these studies the elimination of labour and capital input correlations from the trend regressions leaves a large “unexplained residual” not only in the postwar but also in the prewar period, when it was even larger. A whole range of explanations of this “residual” is offered for the postwar period. Aside from “explained” reasons involving labour and capital supply, the retardation is attributed to the possible inefficiency of over-investment in non-consumption, particularly defence;¹⁷ to intersectoral disproportions, particularly the lag of agriculture;¹⁸ to technological backwardness¹⁹ and insufficient rates of depreciation;²⁰ to lagging quality of education;²¹ to organizational and managerial inefficiencies;²² and to “other factors.”²³ However, among these “other factors” spatial allocation of resources has been almost completely overlooked. The present author suggested earlier that the dissipation and tying up of investments in the construction of widely spread “pyramids of Communism” such as hydro-electric projects, canals and similar “reconstructions of nature” could significantly contribute to economic slowdown.²⁴ Indeed, Soviet literature later confirmed that the “sinking of funds” in the “eastern parts” of the country was “wasteful” and constituted one of the “major” reasons for the observed slowdown of general economic growth.²⁵ Further and more systematic analysis of inter-regional resource allocation will undoubtedly substantiate this conclusion.

The observed fluctuations and cycles in the Soviet rates of growth also require an explanation. Some of them were undoubtedly due to exogenous and non-economic causes, such as the collectivization turmoil and the Korean War. However, inter-regional resource allocations with their differentiated time lags might also have something to do with them. In a preliminary investigation of the correlation between the incremental investment rates and the rates of growth of national income in the non-Soviet world, it has been found that it is incorrect to assume a priori that the marginal capital productivity is higher in the underdeveloped than in the developed economies.²⁶ By analogy, this suggested that investments in Siberia and similar underdeveloped areas should not be expected to be efficient a priori. On the contrary, a theoretical investigation (data were not yet available) of the relations between the respective growth rates and mutual proportions of two parts of a whole on the one hand and its relationship to the rate of growth of a whole on the other (in the context of a two-sector or two-region model) suggests the inevitable cyclical growth of the whole. Periods of acceleration and retardation become functions of time, of the rates of growth of the two parts, and of their respective proportions to each other; the long-range trend of growth converges in probability to zero.²⁷ Since these pairs can be differentiated, this “law” is

describable, in the ultimate form, by the spherical Bessel functions (in the right-handed co-ordinate system) that seem to fit the observed phenomenon.

The welfare aspect of the efficiency of Soviet spatial economics is broad and complicated. Inter-regional resource transfers supposedly aim to maximize and equalize the people's welfare, the employment of labour, and social and cultural advancement. Soviet theory and criteria of inter-regional welfare in these respects have already been widely discussed.²⁸ Actual practices with respect to inter-republic income distribution, pattern of private consumption, savings, disposable income and the levels of living have been analysed to the extent permitted by official data.²⁹ In general, it has been found that, at least since the 1930s, Soviet theory has not been practiced consistently. At least one investigator actually argues that welfare criteria are logically inapplicable to Soviet realities.³⁰ In any case, it has been established empirically that inter-republic inequalities in the levels of economic development, as measured by gross industrial output per capita and in terms of per capita electrical power output in physical units, have considerably increased in 1965 as compared to both 1913 and 1940.³¹ Inter-republic private income, saving and consumption inequalities have also been found to be quite large for 1940–65 and later years.³² These welfare inequalities seem to have been decreasing lately, but very slowly and intermittently.³³

Disequilibrating capital and labour transfers due to Soviet government policies are widely suggested to be the reasons for the observed welfare inequalities. Economically unjustifiable capital transfers—identical to exploitation—have been definitely identified by both Soviet and Western economists as a regular pattern since the pre-1913 days in the case of Ukraine.³⁴ Specific estimates may still benefit from further refinements; however, it is obvious that the Moscow government consistently absorbs for the benefit of “the rest of the Union” a portion of republican taxes as well as the net earnings from Ukraine's foreign trade surpluses. Soviet fiscal law explicitly permits such inter-republic transfers of financial resources.³⁵ However, while federal financial practices include such appropriations of funds into the centralized investment and subsidy plans for the USSR economy, there is no provision for equal revenue-sharing or the equalization of the tax burden.³⁶ Similarly, transfers of skilled and unskilled labour, especially young graduates of the higher educational establishments, are also planned, a practice creating a lot of problems.³⁷ In addition to excessive and wasteful labour turnover (which some Russian chauvinists openly justify as a means of assimilation or “Russification” of the non-Russian nationalities),³⁸ the practice gives rise to ethnic and racial animosities,³⁹ discrimination in employment against local non-Russian workers (particularly in the Turkic republics),⁴⁰ and at least covert

discrimination in higher education.⁴¹ That all-out discrimination against the indigenous Siberian minorities (quite similar to that against American Indians on reservations) did exist quite recently with respect to employment, schooling, medical aid and consumer goods supply, was openly acknowledged by a party resolution calling for a stop to such ugly practices.⁴²

Regional Data and the Current State of Research

Since Soviet spatial economics is a still largely untapped mine of information for the analysis of the entire Soviet economy, a few words must be said about the availability, accessibility and nature of the sources. A great wealth of relevant statistical and other empirical information has been made public in the USSR,⁴³ and most of these sources are available in the West. For the period 1956–69 only, M. Kaser identified 650 official statistical handbooks, of which 544 are regional in scope, while the rest, the federal handbooks, also contained regional information.⁴⁴ At least as much was published before the Second World War. The Ukrainian Statistical Administration alone published more than 200 surveys and censuses⁴⁵ during the 1920s. Other statistical offices, particularly those of Belorussia, the Caucasian republics and some autonomous republics of the RSFSR, were also very prolific in the twenties.

Since 1956 output of regional and local statistics has increased, and included data are now also disaggregated for the oblast and *krai* levels; some larger cities even publish their own statistical abstracts. For purposes of economic analysis, these local (below the republic level) statistics are so far of only limited usefulness, but they usually contain at least the following series: industrial and agricultural production indexes and some output data in physical measures, structures of fixed capital, capital investments and construction statistics, freight transportation, labour statistics, retail trade data including some local price indexes, profits and costs data (in recent issues), bank savings, and government budget statistics. National incomes and social product data are available only for the union republics. The autonomous data are available only for the union republics. The autonomous republics and large economic regions also provide some useful aggregate statistics.

As to the reliability of regional statistics, of course, everything applies that has been said in the West about the federal USSR data. However, it must be kept in mind that, especially during the twenties and to some extent also during the thirties, there were some significant methodological differences among the data published by various republic statistical agencies, for in those days these agencies were still very much independent

of each other. In the postwar period statistical methodology has been largely unified, particularly as far as the Central Statistical Administrations are concerned. On the other hand, data published by the republic Gosplans and ministries and, of course, research data of various academies of sciences are still often methodologically different. It has been noted, for example, that statistics on the mineral deposits and other natural resources of Ukraine as recently published by the Ukrainian and Moscow authorities were significantly different.⁴⁶ It is conceivable that there are more significant inter-regional differences in the methodology of Soviet statistics than is now known, for no one has as yet made such a comparative study even in the Soviet Union.

Also, not all republics progress at the same rate in the compilation and publication of their statistics. This may be due to the shortage of personnel, among other reasons. The Ukrainians have so far been the most productive of all. They seem to have been the first in the world to calculate and publish, in 1927, a regional intersectoral input-output table and national product accounts for their republic.⁴⁷

The Ukrainians were also the first in the Soviet Union to calculate and publish, in 1963, the first full-scale monograph on their republic's national income. Covering the years 1959–61, it provides a wealth of otherwise unavailable information.⁴⁸ Now they have just published a republic inter-industry input-output table for the year 1966, furnishing, among other things, "full cost" co-efficients for forty-seven industrial aggregates.⁴⁹ Methodologically this input-output table is essentially identical with that for the whole USSR, the first (1959) issue of which has been deciphered by V. Treml.⁵⁰ An empirical framework and co-efficients of a unique eleven-equation econometric model of the Ukrainian republic, based on the 1959–68 returns and extrapolated to 1975, has also been published by the Ukrainian branch of the USSR Gosplan's Institute of Planning and Norms.⁵¹

Monographic literature and economic periodicals of Union and autonomous republics also contain a lot of important information, which is not available in the official statistical abstracts. There is, however, one obvious difficulty: many of these sources are published in the native non-Russian languages. This obstacle must be overcome; it is worth the while. One example may be quite instructive. It was noted earlier⁵² that the economy, which before the revolution produced the highest per capita output in the whole Russian empire, was now in trouble because of its overspecialization in the oil industry, which is now depleting. Recently a monograph published by the Azerbaidzhan Academy of Sciences revealed that, while in 1959 the per-capita national income in the republic was 18 per cent below the USSR average, by 1963 it was 37 per cent below. Moreover, between 1961 and 1963 fixed ("productive") capital formation

in the republic, in constant prices, declined by 10 per cent, while there was at the same time a big increase (37 per cent) in inventories. Construction, trade and agricultural production also declined, and as a result of all this national income stopped growing between 1962 and 1963.⁵³ This looks like a classic recession, and it puts a big question mark after the well-advertised "law of uninterrupted growth" of a Soviet-type centrally planned economy.

The Political Economy of Regional Policy

In the last decade problems of spatial resource allocation have become a very hot issue in the Soviet Union. Lately the debate has acquired clearly political overtones. A brief—all too brief—review of this politicking is found in an article by W. C. Wilde.⁵⁴ This generally overlooked problem requires further discussion.

One recalls how the Stalinists stunned world economists in 1930 with their arbitrary decision to build the Ural-Kuznetsk Combine within Stalin's personal "time horizon" of fifteen years, in which he promised the investments would produce results. Yet even today it is not certain whether those investments were really worth the effort.⁵⁵ Today the Ural iron ore is near exhaustion,⁵⁶ even non-ferrous ores must be brought from afar,⁵⁷ and, in general, the role of the Ural in the development of the east is expected to decline.⁵⁸ Direct costs of construction of the Ural-Kuznetsk Combine were "only" 4 billion rubles. Now, however, the party has decided⁵⁹ to invest in just one "West Siberian Complex" some 30-32 billion rubles between 1971 and 1980,⁶⁰ or 36 billion if counted from 1964, and the time horizon for its completion date is estimated officially to run from thirty to forty years.⁶¹ Stalin is dwarfed by such scales! Yet it is not difficult to calculate that these 36 billion rubles would be approximately equal to about 10 to 12 per cent of the entire expected increment in the national income of the USSR between 1965 and 1980. And then, will nothing really change in the next thirty to forty years, so that a particular complex would still be necessary there and then, especially in view of the fact that the West Siberian resources "are still far from known"?⁶²

This only illustrates a part of the problem, however, for the present party line calls⁶³ in addition for simultaneous development of a whole "Angara-Yenisey Industrial Belt," consisting of three "complexes" in southern Siberia and four "combines" in its north, among others. How much all this would cost has not yet been officially estimated, but by analogy with western Siberia it can be assumed that at least one-third of the total 1980 national income would be required plus a recoupment period of at least fifty years.

Hence it is not surprising that many sober minds are worried about these utopian and probably wasteful, if not simply reckless, projects. No one denies that, in general, Siberia is worth developing; but at what rate, and to what extent as compared to the European parts of the USSR, is the crux of the problem. The Soviet debate came into the open around 1960–2, but it has in fact a continuous history dating back to 1930. The prewar history of this Russian *Drang nach Osten* may be skipped here, although it deserves a thorough study.⁶⁴ A sketch of its postwar history is directly relevant to today's problems.

The first “pyramids of Communism,” called “reconstruction of nature”—i.e., huge afforestation programmes in the arid steppe regions—were decided upon in October 1948.⁶⁵ By now there would be beautiful forest belts crossing the country, had they not for the most part perished. In the spring of 1949, possibly because of Soviet failure to establish trade and financial relations on its own terms with the West,⁶⁶ and as the cold war became hot in Korea, Stalin's eyes turned to the east. At the USSR Academy of Sciences work was started on complex research in regional economic development,⁶⁷ and academician V. S. Nemchinov was appointed head of the Academy's Council for the Study of Productive Resources (SOPS in the Russian abbreviation),⁶⁸ where he stayed until 1964.⁶⁹ It seems almost certain that SOPS's work was also concerned with the subsequent “pyramids.” In any case, on 17 June 1949, the CC CPSU adopted a fateful directive concerning the preparation of a “Ten-Year Plan for the Electrification of the USSR” for the years 1951–60.⁷⁰ The plan was never made public, but a series of decrees⁷¹ in 1950 ordered construction of the Kuibyshev and Stalingrad hydro-electric stations (HES), to be completed in 1955 and 1956 respectively, as well as a ten-times-smaller Kakhovka HES on the Dnieper River, to be completed in 1956. The decrees also foresaw the construction of the Volga-Don canal and a series of irrigation networks on the Lower Volga and the Lower Dnieper.

It became clear only later that these projects had not been well planned. The Kuibyshev HES became operational only in 1958, the Stalingrad HES only in 1961. This means that resources were tied up that long from other uses, and also that time was wasted. The small Kakhovka station became operational on time; but, in addition to having flooded very large tracts of valuable fertile land (as did the other HES), the cost of which was not taken into account, the irrigation canals branching off from the reservoir have by now so decreased the level of the Dnieper waters that the full capacity of the station will never again be attained.⁷² The Volga-Don canal has been a waste, too, for it handles very insignificant traffic. The Volga-Caspian and the Ukrainian-Crimean irrigation systems were not completed even by 1965, and, since they lacked collector and drainage networks, they have diminished the fertility of the irrigated fields.⁷³

But, as noted, all this did not become clear until too late, and even now those who need to be convinced or concerned do not seem to be. The construction of "pyramids" has continued and on an ever-larger scale. The unpublished draft of the Fifth Five-Year Plan (1951–5) was ordered redrawn in January 1952,⁷⁴ apparently because in the meantime a new, even more fateful decision had been made in secret to build a whole series of new HES in the east. On 10 October 1952, the Nineteenth Party Congress was presented by Malenkov with a directive to order the construction of eight such new stations on the Volga, Kama and Irtysh rivers and on small rivers in the Urals and the Caucasus, plus "several others" unnamed, possibly the same stations on the Dnieper River. The start of preparatory work on the Anagar River was also ordered. Overall, the total HES capacity during the five-year period was to triple while that of the thermo-electric stations (TES) was to double.⁷⁵ Incidentally, the directives for the fifth plan omitted, for the first time, any subdivision into separate plans for the republics. Also, unlike the preceding plans, the text of the fifth plan was never published in any form.

In the hustle and bustle of Khrushchev's agricultural campaigns and later, de-Stalinization, it escaped most observers' notice that the July 1955 CC Plenum, which was mainly concerned with the needs for technological modernization of industry, also condemned some unnamed ministries for not carrying out the Nineteenth Party Congress' directives concerning the "accelerated development of industries in the eastern parts of the country."⁷⁶ Such a statement about "industries" in general and the specific assertion that they were supposed to be developed "faster" in the east than in the west were novel and surprising. There is nothing explicit to this effect in the Nineteenth Congress' directives.

Then, in his report to the Twentieth Party Congress in February 1956, Khrushchev declared for the first time that, according to his information, production of coal and electric power in the east was from one and a half to two times cheaper than in the European parts of the USSR. Note that he spoke of production costs and of nothing else. He also announced that construction of the colossal Bratsk HES on the Angara River had already started, and directed that by 1966 "we must transform Siberia into the Soviet Union's largest base" of production of coal, electric power, aluminum, magnesium, and titanium and of electrometallurgy and organic chemistry. There were also to be built there "new big machine-building centres," and by 1966–71 the third iron and steel base of the USSR was to be completed there.⁷⁷ The Twentieth Congress resolved to adopt this programme,⁷⁸ but added to it an instruction to start building one additional HES—the largest in the world—at Krasnoiarsk on the Yenisei River plus two smaller HES on the Ob River and three on the Volga River, and to begin experimenting with the transmission of power at long distances in

very high voltage grids.⁷⁹ The congress also took note for the first time that there was a shortage of fuel and energy in the European parts of the country, but avoiding the problem, it ordered limitations on the construction of new fuel-intensive industries there.⁸⁰ This decision, of course, aggravated the spatial misallocation of resources in the country as a whole.

From then on the *Drang nach Osten* started in earnest. Directives for the Sixth Five-Year Plan (1956–60), adopted by the Twentieth Party Congress, called in particular for the transfer of labour to the east by means of “organized mobilization” (*orgnabor*) and “resettlement,”⁸¹ while a concomitant call on the Komsomol to send young people there revealed that “almost one-half” of all the capital investments in the country were assigned to the east.⁸²

When the sixth plan was scrapped a year later because of the 1957 administrative decentralization and, in particular, the “practical impossibility”⁸³ of managing more than 100,000 construction sites from one centre, the CC instructions for the preparation of the new Seven-Year Plan (1959–65) specified explicitly that the plan should “foresee on a larger scale” (*v boleiie krupnykh masshtabakh*) the development of the east.⁸⁴ It was not clear, however, whether the scale was to be larger compared to the west or compared to the sixth plan, or to both.

With the Seven-Year Plan Khrushchev introduced an interesting innovation. On 14 November 1958, the press published the CC CPSU’s “draft theses” of the plan for public discussion. According to Khrushchev, more than 300,000 discussion proposals from the public were published⁸⁵ before the CC took the final draft of its directives to the extraordinary Twenty-first Party Congress. This public discussion included various local demands and expressions of interest in the spatial resource allocation,⁸⁶ although a serious high-level debate of this spatial problem was to come only later.

Just prior to and probably during the Twenty-first Party Congress there must have developed the first big fight between the proponents of further heavy investment in Siberia and those who advocated an emphasis on the European parts of the USSR. This fight is clearly reflected in the resolutions of the congress, even though it is also clear that the “easterners” won the upper hand because the “westerners” were not quite prepared to substantiate their viewpoint. First of all, the congress resolved that, in the spatial allocation of resources, “those regions must be favoured, where invested resources would produce the highest economic effect.” This can be construed as a theoretical victory of the “westerners” because never before did the party take such a clear-cut stand on this issue (even though the period of the “effect” was not specified). But the “westerners” probably did not come with enough empirical proof that investments would be more productive in the west, for, even though the congress did mention that

attention must be paid to the "opportunities" for the development of the European parts of the country, it came out very specifically in favour of "special attention" to the eastern parts and explicitly allotted to them "more than 40 per cent" of all capital investments.⁸⁷ That the "westerners" came to the congress unprepared can be deduced from another resolution, which states that the "reconstruction, expansion, and technical modernization of the existing plants" in the old developed regions should be favoured only in "some" manufacturing industries, while new construction in mining and energy must be given priority in new eastern regions.⁸⁸ (This, incidentally, resulted in further aggravation of the fuel and energy crisis in the European USSR in the sixties.)

The second point that the "westerners" almost won, but not quite, concerned power stations. It seems that the congress had sufficient evidence by then to resolve that from now on investments on TES should be given priority over HES, for otherwise either the total power capacity planned would not be attained on time or some additional twenty billion rubles would have to be spent on HES.⁸⁹ Yet, even though investments in HES were ordered to be curtailed, the congress resolved that the construction of huge Siberian and Volga HES should continue and that of "several new HES" should "begin."⁹⁰ Also, construction of high-voltage grids was to be tripled, the electrification of railroads was to be pushed, and major new railroads were to be built, in addition to numerous new plants in Siberia.⁹¹ (Hence again the switch to TES was insufficient and too late to forestall the oncoming power crisis in the west, while available power was diverted away.)

Although serious criticism of the Siberian adventure started immediately after the Twenty-first Party Congress, it did not really get under way until 1962 and after. In the meantime, in October 1961 the Twenty-second regular Party Congress, while condemning the "localistic practice of dissipating monetary means and material, technical and labour resources" and demanding a "sharp increase in the efficiency of capital investments," resolved nevertheless that "special attention should continue to be given to economic development of the eastern regions."⁹² The Twenty-first Congress was not specifically concerned with resource allocation, however; it was dizzy with the new party programme it was adopting. The programme stated in black and white that by 1970 the USSR "will surpass the USA in production per head of population" and by 50 per cent in the volume of industrial output, while by 1980 "a Communist society will in the main be built in the USSR."⁹³ Most ironically, however, the programme declared that, "to gain time" in attaining Communism, "priority will be given to developing...the industry to the east of the Urals...in Siberia and Kazakhstan...in the next twenty years."⁸⁴

When Khrushchev was ousted neither the programme nor the policy of pushing development of the east was changed. Brezhnev blamed Khrushchev's administrative decentralization for creating conditions favouring "localism" (*mestnichestvo*), under which "some republics" (meaning western republics and especially Ukraine) "disrupted supplies to other republics" (meaning Siberia).⁹⁵ He condemned "disproportions," "dissipation of resources," and the "growing number of unfinished construction projects," which make resources "dead for long periods of time,"⁹⁶ although all that was not due to the Siberian push. He also noted later the general "slowdown in the rate of growth" of the Soviet economy, but attributed it only to bad harvests and a heavy defence burden.⁹⁷ Finally, he declared that the "further development of...Siberia and the Far East" "has become a problem of great economic and *political* significance";⁹⁸ the added emphasis shows where the issues stand today.

Efficiency in the Postwar Development of Siberia

This short history of the question of how the CPSU became committed to pushing the development of Siberia at all costs seems to cast doubt on the current popular explanation: that this was done for defence, first against the West and then against China. Such an argument is not convincing because, first, the eastward push got under way in earnest when the West already possessed the means of delivery of nuclear weapons capable of hitting any place in the Soviet territory, and second, most probably China has neither the design nor the capability of occupying and annexing Siberia or Kazakhstan, while she most certainly is capable of destroying Soviet Asian communication lines and industries, and the more they are developed the greater would be the losses.

More plausible and easier to substantiate is the simple explanation that the CPSU has been misled, that it has made a long-term error in foresight, an error of such nature and proportions that, once started, it could not be stopped. The CPSU has been capable of such errors; witness its programme to surpass the U.S. by 1970. That gross miscalculations have been made in the spatial allocation of resources is clearly evident from the debate that began after the Twenty-first Party Congress.

It appears that the debate started in October 1959 at an "enlarged conference" of the Scientific Council of the Institute of Economics of the USSR Academy of Sciences,⁹⁹ and that it was probably an outgrowth of the struggle that had taken place at the party congress. Immediately following this conference, the USSR Academy's SOPS was transferred to the jurisdiction of the USSR Gosplan, where it remains today, while at the academy there remained a Section on the Location of Industries, headed

by Dr. I. G. Feigin,¹⁰⁰ who, with his followers at the academy and in Ukraine (Gosplan and SOPS), became at least for a while the focal point of critical opposition to the USSR Gosplan's methods and policies. Lately, Feigin's influence seems to have declined, and he and his group have also come under criticism from the rising younger generation, which is much more sophisticated in economic analysis than he or his opponent, A. E. Probst, have ever been. At the USSR Academy, in the meantime, an interdepartmental Commission for the Study of Productive Forces and Natural Resources came into being, headed by the Academician N. V. Melnikov, a mining specialist and a member of the SOPS of the USSR Gosplan. This probably explains why most recent publications on locational methods have appeared under the joint sponsorship of the academy, the Gosplan and the SOPS.

The debate still continues today. So far, two broad aspects can be distinguished within it, both pointing to the reasons for the party's errors. One concerns the practical policies adopted by the party without prior adequate economic analysis and the consequences of these policies. The other concerns the purely theoretical inadequacy of the existing methods of decision-making in spatial economics.

The first aspect of the debate has already revealed that decisions to invest heavily in the east have been made without sufficient prior economic analysis. Spatial economic theory simply did not exist in the Soviet Union until very recently, and recent advancements have not yet been recognized and put into practice by those who make the decisions. Arbitrary political initiation of the process of drawing up and selecting the "leading links" in all Soviet plans is well known today.¹⁰¹ How Stalin and Khrushchev personally decided on many locational matters is also well documented.¹⁰² Brezhnev condemned this kind of "subjectivism" and called upon the decision makers "to be guided only by objective economic calculations."¹⁰³ But even if this call were heeded, for which there is no evidence yet, it would be too late for previous subjective long-term commitments.

The early decision to build huge HES in the east was based on two calculations: first, that costs of construction and production would be cheaper than those of the TES in the west, and second, that transport to the east of raw materials for power-intensive industries (non-ferrous ores and raw chemicals) and back to the west of finished metals, rayons and plastics would be cheaper than making these products in the west. Both calculations turned out to be wrong because only direct costs were taken into account (infrastructure, overhead and time costs were not considered), and also because the diversion of resources to the east failed to take into account possible shortages of resources for the west. Thus even A. E. Probst, who has long been a staunch defender of the initial decision and was possibly one of its main authors, now admits that the location of

the aluminum and chemical industries around Stalingrad HES was a mistake because it sapped power needed in the West.¹⁰⁴ That the cost of building the Siberian HES was underestimated compared to European TES was acknowledged by Khrushchev, as quoted above.

The push into Siberia in the late fifties was taken up by the Moscow Gosplan and the SOPS with great enthusiasm but with little if any sound economic analysis. Their writings of the time¹⁰⁵ were nothing but heavy propaganda. However, in practice the diversion of resources to the east inevitably resulted in their shortage in the west. For example, the possibility of a shortage of fuel and power in the West was first officially noted in 1956; by 1965 this crisis had become quite real: the European USSR, including the Urals, was now short by 9 per cent of the needed power. By 1970 the shortage had increased to 13 per cent.¹⁰⁶ Power shortages developed because the construction of new coal mines in Ukraine and near Moscow had been curtailed in the meantime. In 1962 the "easterners" in Moscow were advocating phasing out the Donbas mines,¹⁰⁷ and these were being closed down through attrition. Fuel and power shortages also developed all over Eastern Europe, which depends on the imports of Ukrainian coal.¹⁰⁸ The "easterners" were counting in the meantime on the transmission of power by high-voltage grids and of natural gas and oil by pipelines from Siberia to the west. This, too, was the reason for the curtailment of investments in the western coal industry and the TES.¹⁰⁹ However, their critics have pointed out that to satisfy the power deficit in the west by transmission of power from Siberia was "an unrealistic task," because it was simply impossible to produce enough aluminum to build and maintain the required 250,000-300,000 kilometres of power lines.¹¹⁰ The technology of high-voltage transmission for very long distances was not yet perfected. As to oil and gas, not only was the shortage of pipes not foreseen in advance, but also the reserves in Siberia may have been overestimated, and the lucrative demand for these resources by Japan and Western Europe came unexpectedly. In any case, it is estimated today that, if nothing drastic is done in the development of fuel and power resources in the European parts of the USSR, by 1980 the shortages will amount to 30 per cent of the expected demand.¹¹¹ Eastern Europe has already been advised that "huge reserves of coal and hydro-electric power in the eastern regions of the USSR are ineffective for export of coal and power to the European socialist countries."¹¹² They have also been told several times to start looking for oil in the Middle East,¹¹³ and they have already begun doing so.¹¹⁴ What goes for Eastern Europe also goes for Ukraine, Belorussia and the Baltic republics. It is now generalized that the "transportation of fuel and electric power from the eastern regions to the west is coupled with considerable costs"¹¹⁵ and that the "orientation of the flow of oil to the west appears economically ineffective," particularly as

compared to the prospects of trade with Japan.¹¹⁶ As far as natural gas is concerned, the barter deals with West Germany and Italy concluded in 1969, and exchanging pipes for Soviet gas, have only slightly alleviated the shortage of pipes in the USSR. The shortage is still very acute¹¹⁷ and hampers the supply of West Siberian gas to the European USSR. Belatedly, high party officials now favour an "additional search for gas in Ukraine and the North Caucasus,"¹¹⁸ perhaps because the 1973 deadline for the delivery of gas to West Germany and Italy is in jeopardy.

The rationality of the big push into Siberia for its own sake is questioned by the critics also because knowledge of Siberia's potentials is inadequate. At first, eager "easterners" were telling the Soviet people and the world tall tales about the riches of Siberia. It is probable that Khrushchev was one of the victims of these tales. When the push was well underway, however, more sober appraisals appeared. The USSR minister of geology—who presumably is well informed—has recently revealed that the "mineral resources of the European part of the country are potentially not poorer than those of Siberia."¹¹⁹ It has also been pointed out, although after the party had made its decision to go all-out with the development of western Siberia, that resources there have not yet been sufficiently studied, because prospecting in that region had absorbed so far only 25 to 27 per cent of total allocated costs, while in foreign countries a region is considered covered by prospecting only when it absorbs about 50 per cent of total prospecting costs.¹²⁰

Another example is also interesting. The USSR minister of the oil industry made a sensational claim that western Siberia possesses enough oil reserves to outproduce the United States,¹²¹ while not so long before an on-the-spot research conference had concluded that the amount of reserves was not yet certain, though it assumed them to be large.¹²² A few months after the minister's revelation, the SOPS's head, academician Nekrasov, who was on a diplomatic mission in Tokyo, had to admit under close questioning by Nagano Shigeo, the Japanese trade negotiator, that the actual oil reserves were not yet known and that large portions of Siberia have not yet been covered by prospecting.¹²³ Something similar is also acknowledged today about the iron ore reserves.¹²⁴

In general, Soviet mineral-fuel statistics are taken to be "apparently reliable,"¹²⁵ but this is probably true only with regard to production statistics. Geological reserves data are not very certain anywhere in the world, and in the Soviet Union they have some peculiarities of their own. Differences in Ukraine's own estimates and the Russian estimates for Ukraine have already been noted. Moreover, there are differences in the statistics reported by the Central Statistical Administration, which is responsible for the fulfillment of prospecting plans reports, and those of the Ministry of Geology, which is responsible for the actual estimates of the

reserves. The CSA statistics may have an upward bias, because the bonus system creates incentives for prospectors on the spot to exaggerate their findings, even though the criminal code promises them three years of jail for such practices.¹²⁶ The CSA and the Ministry of Geology have different reporting methods.¹²⁷ According to the current rules, which were last changed in 1959–61, the total reserves of minerals are counted mainly down to the C_1 category, with some in the lowest category, C_2 , also included.¹²⁸ To be statistically counted as “actual reserves” in the C_1 category, a mineral deposit must yield only one boring with “positive results,” while borings yielding no results in the same field are not counted.¹²⁹ Those in the C_2 category need to indicate only geological and geophysical “favourable possibilities;” no actual boring is done in such fields. Reserves in the higher category, B, need only two “positive” borings plus “favourable appraisal.”¹³⁰ The fact that empty borings are not taken into account in the estimation of the reserves seems to tend to overstate them. It is acknowledged that these methods of reporting are not very satisfactory for analytical work.¹³¹ Also, potential extraction losses are not subtracted from the reserve estimates,¹³² although this is the usual practice in the West. Moreover, natural gas reserves are measured at standard pressure at the temperature $+25^\circ$.¹³³ In Siberia the average temperature is much lower,¹³⁴ and whether this fact is accounted for properly is not yet definitely known.

Voluntaristic Rules Versus Location Theory

Thus it seems clear that the CPSU's *Drang nach Osten* has been undertaken without proper analysis of the alternative possibilities and consequences of such a grandiose spatial long-term economic decision, involving, so far, some 40 per cent of the capital investments of the whole country. It has already been mentioned that spatial economic theory simply did not exist in the USSR until recently. This must now be clarified. To be sure, there has been in existence since Lenin's days a set of nebulous and contradictory, largely political, spatial allocation goals and policy criteria, and they are still referred to officially as “theory.”¹³⁵ A full-fledged, economically consistent, sufficient and efficient theory in a modern, precise sense did not exist prior to the partial rehabilitation, in 1959, of the long-suppressed mathematical economics and econometrics. Partially rehabilitated it is because it exists, but it is not officially recognized or widely applied in practice and is still all too often openly attacked by various economic “Lysenkos.”

Expositions of the pure theory of spatial economics in the Soviet Union are not yet recognized and are hardly applied in practice. However, in the

course of the present debate, such theory has made considerable progress and won a few practical victories. Since it is not unlikely that it may gradually win some more, it is worthwhile to summarize its present status.

First of all, it may be worth mentioning that most of Western spatial economic theory is known today in the USSR, extending at least as far as the basic Walter Isard, whose *Methods of Regional Analysis* was translated into Russian in 1966. But in the positive sense references to this theory are cautious and infrequent.

The central issue in Soviet spatial theory today is the dichotomy between one single criterion of optimum resource allocation and many arbitrarily differentiated criteria. This issue goes back to the time of the re-emergence of mathematical economics in the early sixties, when the first open discussions of the criteria of capital investments were held.¹³⁶ Academician V. S. Nemchinov, while still heading the SOPS, seems to have been the first to introduce, in 1961, the issue of one criterion into the spatial allocation theory.¹³⁷ This criterion was to be the "minimum total input of labour time per unit of the final product." The "total labour input" meant to Nemchinov the full cost of production and distribution, labour time being simply a conventional *numéraire*, the same as money or cardinal (additive) "utils," and the final product was national income. As in classical Marxist economics, the problem was not really the measure unit of the *numéraire* ("utils," after all, do not exist either), but rather what comprised full or total socially necessary inputs. Nemchinov was not very explicit about rent and interest, hence his full costs still appear to include only direct costs and not alternative costs. It was up to the late V. V. Novozhilov to develop a full-fledged, mathematically very elegant, consistent and complete marginalist labour-scarcity theory of value, and to derive from it one single optimum (minimax) criterion of universal efficiency of resource allocation.¹³⁸ This truly neo-Marxian theory is also expressed in labour-time *numéraire* terms, but its full costs explicitly include all the differential rents and time-factor charges. The only deficiency in this theory is that it is static. Also, L. V. Kantorovich developed a mathematically similar pure-scarcity (and, therefore, non- but not anti-Marxian) theory of value, and he has derived a single optimum-solution criterion for all resource allocations.¹³⁹

The "three musketeers" of Soviet mathematical economics—Nemchinov, Novozhilov and Kantorovich—have been largely misunderstood so far, in the West because of the *numéraire* syndrome, in the USSR because their mathematical techniques were beyond the grasp of many. But aside from sheer misunderstanding, which undoubtedly can be clarified, the debate in the USSR has revealed¹⁴⁰ a very strong current of opposition in principle against any one single efficiency criterion. Again, many opponents have said that the approach is impractical on theoretical

grounds. But this is just another misunderstanding, which is mainly due to the inability to find a common space-time denominator under differentiated conditions; such misunderstandings can also be resolved. Of greater significance is the opposition to one single efficiency criterion on the grounds of principle, i.e., on the grounds of policy and, ultimately, of ethics.¹⁴¹

The refusal of those in power to accept one universal criterion was to be expected.¹⁴² It is quite rational in view of the purely monopolistic nature of the Soviet economic system.¹⁴³ An interesting recent theoretical study suggests that a discriminating spatial monopolist will indeed maximize his output if he discriminates.¹⁴⁴ However, this seems to be true only in static terms and only in an isolated state, i.e., without comparison to the rest of the world. Whether the "profit" is also maximized certainly depends on the time factor.

One of the major achievements, whose practical and theoretical significance is perhaps still incalculable, of the current spatial economics debate has been the fact that it has compelled the authorities, both institutional and individual, responsible for locational decisions to make public the documents and their explanations about how they arrived at their fateful decisions. It is as a result of this debate that numerous official and semi-official manuals (*metodiki*), instructions (*ukazaniia*), regulations (*polozheniia*), and humble "recommendations," some of them even designated as obligatory (*obiazatelnye*), have been recently published.¹⁴⁵ Most of these manuals on how to allocate resources in space, how to choose between alternative variants of the investment projects, construction sites, etc., within specific industries and sectors of the economy, have also been incorporated to some extent since about 1957 in the practical manuals and instructions on drawing up Soviet national and regional economic plans in their territorial and allocational sections,¹⁴⁶ although in lesser detail and with lesser clarity than in these newest documents. Attention must be drawn here, to the importance of the difference between the Russian terms *metodika* and *metodologiia*. This distinction is often missed in English. In English, too, there are two terms, "method" and "methodology," but they are not as clearly and pedantically differentiated as in Russian. Methodology is simply a "body of methods," according to Webster. However, *metodologiia* in Russian, and particularly Soviet, usage is literally and in fact a "doctrine about methods" (from Greek), or what we would rather call a "theory." In fact, *metodika* answers the question *how* to do something; *metodologiia*, on the other hand, explains *why* to do it and *what for*, thus rather than otherwise. Note, however, that all the sources referred to above speak precisely and exclusively of *metodika* and do not mention *metodologiia*. This is not a linguistic accident. As one keen Soviet critic notes, *metodologiia* (i.e., theory) is the "most important and

most complicated" but "usually the weakest link" in Soviet spatial economics.¹⁴⁷

As soon as the *metodiki* were published, they came under sharp criticism. For example, even the most important of them have been castigated for being "inexact" and "not unquestionable."¹⁴⁸ They were called "arbitrary" and said to "contain basic contradictions"¹⁴⁹ resulting in "confusion" and "leading to erroneous conclusions."¹⁵⁰ One professor has written that, in general, "laws" and "principles" of spatial economics "in a number of well-known works published in the postwar period are not only terminologically very confused but they also contain substantial differences in definitions and meaning of their theoretical postulates."¹⁵¹ This opinion is shared by others.¹⁵² One writer has even pointed out that when the General Electric Company in the U.S. makes a decision concerning the location of one of its enterprises, it takes into consideration different factors and variables, which are all standardized, while A. E. Probst recommends at best only six.¹⁵³ Then, while admitting that there was a lack of unified methodology in too many *metodiki*, a deputy department chief of the USSR Gosplan has also come to the conclusion that "in the fields of location of productive forces and territorial planning, there are still many unsolved problems, while some important problems of *metodologiia* have not yet been sufficiently studied in our economic sciences."¹⁵⁴

The pressure of criticism has finally become so intense that something like fissures have come into the open in the USSR Gosplan's SOPS. In connection with the elaboration of the 1971–5 Five-Year Plan, it was disclosed that the territorial cross-section of its draft was based on the hitherto unknown "General Scheme for the location of productive resources for the 1971–80 period."¹⁵⁵ The "Scheme" itself has never been published, but its main ideas and methods, developed many years earlier, have been known since 1966¹⁵⁶ and were all this time subject to heavy criticism. Just before his death, A. I. Vedishchev, a leading member of the SOPS and most probably one of the authors of the "Scheme,"¹⁵⁷ had published a very revealing—in fact, self-critical—admission that it lacked any theoretical methodological foundation. It was, according to him, based on purely "prognostic" estimates. "Today," said Vedishchev, "determination of the efficiency of location is possible, in principle, in only some isolated industries. The best variant of location of a new enterprise is generally determined by a minimum of direct and imputed (*privedionnykh*) costs of production and transportation, sometimes (*inogda*—what an irony! V. H.) also including consumption and related investments in unproductive fields and infrastructure. . . . Today, there still do not exist preconditions (*predposylki*) for the final determination of a criterion of methods and of the system of calculations of the efficiency of territorial industrial complexes."¹⁵⁸

Finally, the head of the SOPS, Nekrasov, has also admitted in an exclusive interview with the *Planovoe khoziaistvo* that the SOP's 1971–80 "General Scheme" was "fiction in the style of socialist realism." The work on its *metodologiia*, he said, was only "foreseen" in the 1971–5 Five-Year Plan (which is based on it), while "general instructions on *metodika* of the determination of economic efficiency of the location of industries," despite all the previous publications, are still "in the state of preparation." In these future instructions, he promised, the experience of foreign countries "will also be taken into consideration."¹⁵⁹

The question logically arises: If even preconditions do not yet exist (Vedishchev) and methodology is still only foreseen to be available in the future (Nekrasov), how can such "general schemes" be drafted and implemented in the plans? And yet, the latest news is, according to Brezhnev,¹⁶⁰ that work has already started on the 1976–90 plan.

An Appraisal of Established Methods and Policies

Brezhnev has declared that "the problem of equalizing the levels of economic development of the national republics has been in the main solved."¹⁶¹ This is probably not true, but what matters is that equalization is no longer a goal. Hence, differentiation and discrimination have been legalized. In fact, this was already anticipated in the *metodiki* quoted above.

To the uninitiated reader it may appear at first glance that the *metodiki* do recognize one optimum criterion of efficiency of resource allocation. For example, the 1971–80 "General Scheme" says that the main criterion of efficiency of spatial location is the maximum growth of the national income of the whole Soviet Union.¹⁶² This is only a nebulous phrase, however. It is stated more precisely in the most recent general *metodika* for all kinds of allocation: the criterion is to be the increment in national income per increment in capital investment in both fixed and working (*oborotny*) capital, in comparable prices and for the same period of time.¹⁶³

Although this formulation sounds fine, it is inadequate. First, the only investments to be taken into account are those in the "sphere of material production," that is, the "projects producing material goods." Investments in "housing, communal services and commercial projects" are to be included only if they involved "considerable" transfer of labour force (whatever "considerable" means); hence the full costs associated with the investment are not taken into account.

Second, and probably even more significant, the national income to be maximized is "of given (*zadannoi*) material structure."¹⁶⁴ This clause has

already been noted in Western literature from previous *metodiki*,¹⁶⁵ but it seems to have been rather taken for granted. What is involved here, however, is not whose consumption function the given demand for the given output structure expresses (let it be the Politburo's, which it is), but whether or not that given consumption function and/or the national income structure is really a maximum. The fact that the instructions say that it is to be maximized "as it is" does not at all guarantee that its structure per se is such that its maximization will result in the maximum possible total. Such would be the case only if that structure were determined by some single optimum criterion, that is, if the structuring per se did not permit any differentiation of criteria. And this is not the case in reality. All the above quoted *metodiki* explicitly permit differentiation, i.e., "deviations from the established normative co-efficient of efficiency," which is at present 0.12 for all fixed-plus-working-capital investments in "material production" in the USSR as a whole.¹⁶⁶

The 0.12 normative efficiency co-efficient is meaningless in practice, since almost every ministry and state committee establishes its own efficiency co-efficients.¹⁶⁷ Among different industries, they range today from 0.10 to 0.33.¹⁶⁸ The reason given for the difference is, believe it or not, that "industries are different."¹⁶⁹ Yet even these ministerial co-efficients have no practical significance because in actual allocational decision making "most projects are elaborated without variants."¹⁷⁰

The inter-industry differentiation of the normative investment efficiency co-efficients is made still larger by the additional regional differentiation. For purposes of investment in new industrial construction, the USSR is divided into ten "belts." The range between the first and the ninth belts co-efficients is in the proportion of 1 to 1.84. The tenth belt, described as "northern," prescribes a 20 per cent reduction in every co-efficient in the belt just below the "northern" one. There are, in addition, four climatic zones and one seismic zone, which differentiate construction costs a bit more. Finally, there are ten belts and five zones with different co-efficients for the installation of equipment, the range being in the proportion of 1 to 1.20.¹⁷¹ Thus, according to these normative co-efficients, construction cost of a new petrochemical plant in the Tiumen oblast is 26.6 per cent higher than in the Tatar ASSR; construction of a machine-building plant in southern Siberia costs 21 per cent more than in the Moscow oblast, etc.¹⁷² But again, these are non-obligatory normative co-efficients; in reality, costs in the east are even higher. The official normative co-efficients simply mean that costs are permitted to be higher. Critics do ask why, but they get no answer; they demand that there be one single inter-regional and inter-industry capital efficiency co-efficient,¹⁷³ but alas, in vain.

Granted that purely monopolistic discriminatory differentiation is involved, how are the alternative allocation and location variants compared

within it? All the *metodiki* advise taking into account capital investments, multiplied by the given normative efficiency co-efficient, plus the direct costs (*sebestoimost*), which in the case of inter-regional variants must include transportation costs to the place of consumption, in other words, c.i.f.¹⁷⁴ The problem is, what do the direct costs consist of? There are the usual items, such as the costs of raw materials, fuel and energy. Their prices are somewhat differentiated, and this differentiation affects the costs of comparative location in practice. But this is too broad a subject to go into here. Then there are wages, and they are also differentiated. According to Nekrasov, average money wages in Siberia today are twice as high as in the rest of the USSR.¹⁷⁵ Also, consumer goods prices there have been reduced to the level of the "second belt," which is the USSR average.¹⁷⁶ Thus, real wages in Siberia have gone up significantly, though no one quarrels with this.

Next, direct costs include capital depreciation allowances. It has been pointed out that, for the purpose of correct analysis of capital investment efficiency, they should not be included among costs.¹⁷⁷ As long as efficiency is measured with respect to national income, this point is well taken. However, depreciation is not excluded from the official *metodiki*. Moreover, depreciation rates are in practice differentiated not only according to the types of depreciable capital but also inter-regionally. Thus, trucks in Siberia are written off 20 per cent faster than in the rest of the country,¹⁷⁸ though even this advantage may still be too low in reality. Of considerable theoretical interest is the question whether or not the costs of obsolescence must be included for efficiency comparison purposes. One *metodika* recommends that they be added to direct costs in the amount of 0.15 to 0.4 per cent per annum per total value of active fixed capital.¹⁷⁹ However, it fails to make clear whether original or replacement value of capital is meant. Moreover, believe it or not, the same *metodika*¹⁸⁰ also recommends that, in the RSFSR, total direct costs must be increased by 2 to 3 per cent of the total volume of capital investments for no reason at all, or, to be more exact, in order "to guarantee putting into operation" the fixed capital (whatever that means).¹⁸¹ Apparently no one has noticed this interesting procedure.

On the other hand, the Soviet concept of direct costs does not include any interest charges. Even the interest on borrowed capital from the bank has been excluded since 1966.¹⁸² Needless to say, capital charges introduced in 1966 are not included because they are paid from profits. Profit and sales taxes, as well as fines and forfeit penalties, are not included among costs either. A delegation of the U.S. Atomic Energy Commission was surprised by incredibly low estimates of the cost of nuclear electric power in the USSR. However, when they asked the hosts whether their costs included interest and other ancillary expenses, "Soviet officials

seemed to find such questions absurd."¹⁸³

As far as rent is concerned, only direct, actual paid rent is included in the costs, although a miniscule amount is involved since no rent for land is charged. Imputed differential rent, along with time-factor interest, must of course be the second substantial component of any rational normative co-efficient of efficiency, but it is not.

To be accurate, the problem of mining rent has been at least partially solved since 1967 by the new, differentiated prices for mining products. However, in coal mining, for example, the new prices still do not fully reflect the differential rent among the regions.¹⁸⁴ Incidentally, A. E. Probst's attempt to disqualify prices, which include mining rent, for national income accounting purposes¹⁸⁵ only seems to disqualify him as a good Marxist theoretician. The level of those prices already reflects (though not yet fully) the socially necessary labour input for the whole economy, and therefore they are correct prices from the Marxian point of view.

As mentioned, for purposes of inter-regional standard costs comparisons, Soviet spatial economic theory includes transportation costs to the place of consumption. However, in practice transportation tariffs are differentiated according to distance, and this differentiation is not related to actual costs of transportation.¹⁸⁶ While actual marginal transportation costs continuously decrease with distance, Soviet tariffs decrease more slowly than costs at short distances, are more or less even at greater distances (250 to 2,500 kilometres, depending on the type of commodity), and finally rise very steeply. According to most Soviet critics, this does not make any economic sense. Moreover, there still continue to exist highly preferential tariffs between Central Russia (Moscow) and Siberia, as well as within Siberia, where tariffs are considerably lower than in the rest of the country; this, too, does not make any economic sense.¹⁸⁷

Moreover, some critics aptly point out that taking into comparative consideration only production and transportation costs still does not by far account for full real costs. Such "abridged costs" characterized A. E. Probst's original method, justifying the development of Siberia as compared to the European parts of the USSR.¹⁸⁸ He now admits that there is strong opposition to his views and that, indeed, resource productivity in the east of the USSR is significantly lower than in the west, as many of his critics have proven.¹⁸⁹ However, he still sticks to his position that in the long run he will be proven right and refuses to admit that his abridged costs concept is the root of all the evil. However, his critics point out that he also failed to consider the efficiency of specialization of the consumption regions that results from his production-and-delivery cost concept.¹⁹⁰ His choice of consumption regions was also quite arbitrary. For example, he proposed (and this was done) to deliver Central Asian natural

gas to Central Russia, but did not consider at all the possibility of chemical processing of that gas on the spot, in Turkmenia.¹⁹¹ Now the huge Nurek HES, which has been under construction since 1961 and has become operational, has no consumers for all its power.¹⁹² (The same, after all, is also true of the Bratsk and Krasnoiarsk HES, which cannot work at full capacity.)

Methods of comparative spatial economic analysis popularized by Probst have also adversely affected the state of Soviet spatial theory with respect to the analysis of external economies and diseconomies and joint economic feedbacks of comparative development of different economic regions. These areas of economic analysis are grossly neglected. Such variables or constraints as environmental costs and costs of pollution are hardly ever mentioned in theoretical models or practical recommendations. The costs of infrastructure, although taken into consideration in the post-Probstian analyses, are usually grossly underestimated, mainly, it seems, because obsolete inertia investments are still artificially divided into "productive" and "unproductive" (from the point of view of "material" production). Thus, these analyses sometimes speak of housing, roads, schools and hospitals but hardly ever of recreational facilities and workers' leisure. Some general figures may illustrate the problem. According to Nekrasov, the development of western Siberia anticipates that about one-third of all investments will go into infrastructure.¹⁹³ However, in the development of northern Canada under similar conditions, from 40 to 80 per cent of all investments is absorbed by infrastructure.¹⁹⁴ One of the newest and highly recommended *metodika* for small- to medium-scale factories anticipates "extra-factory" (*vnezavodskie*) costs of only 2.5 per cent of the total intra-factory direct costs.¹⁹⁵ The consequences of such underestimation have come under severe criticism even by journalists.¹⁹⁶ Large new Siberian cities, such as Bratsk, are in an extremely miserable condition with respect to virtually all living facilities. Hence, it is not at all surprising that labour turnover in Siberia is incredibly large and costly. Even native Siberians whose forebears have lived there for generations tend to leave whenever the opportunity arises.¹⁹⁷

The shortcomings of the analysis of external economies and diseconomies also hinder understanding of the economic reasons for the general phenomenon of urban agglomeration. Empirical studies indicate, for example, that marginal capital productivity in industry in all Soviet cities with populations of one million and over is 95 per cent above the average for all cities, while in towns with a population below 50,000 it is 13 to 31 per cent below the average.¹⁹⁸ Why this is so has not yet been explained.¹⁹⁹

Another important deficiency in Soviet allocational and locational theory is its utter disregard of investment and trade multiplier effects. The

whole concept was once dismissed as “bourgeois trickery,”²⁰⁰ and this is where things generally stand today. In only one publication of the Ukrainian Academy of Sciences is it suggested, very cautiously, that Walter Isard’s advice on the multiplier effect in inter-regional capital transfers might be considered in connection with a more exact definition of regional complexes.²⁰¹ Certainly, the marginal propensity to consume in the developed regions can be expected to be twice or even three times that in the undeveloped ones. Hence this is a weighty factor in inter-regional costs and efficiency comparisons. In fact, Soviet theory uses a remotely related concept of the “rate of turnover of working or circulating capital,” which is treated in Volume 2 of Marx’s *Capital*. But the Soviets have never refined this concept analytically and seldom use it in practice—in fact, never even in connection with spatial economic analysis thus far. Yet, the multiplier effect or the rate of capital turnover also has a great bearing on the comparative analysis of the time factor and, therefore, on comparative growth.

Still another major deficiency in most of the body of Soviet spatial economic theory is its insufficient appreciation and, until recently, complete disregard of the time factor. This sounds especially strange in view of the fact that the Soviet economy is famous for its long-term planning, and also because as a rule they prefer to build extremely large-scale plants, often much larger than similar plants in the West, even in the United States,²⁰² although it is recognized that even small American factories are often technologically more advanced than Soviet ones.²⁰³ Such large-scale plants, and long-term planning in general, require a lot of time for completion of construction and the attainment of full productive capacity. Resources are tied up and withheld from other uses in the meantime. Yet, as mentioned earlier, interest is not included as part of the alternative or comparative costs in practice and is often disregarded in theory, except in the very crude form of the comparative “recoupment periods.”

In Probstian economics in particular the time factor was completely disregarded. For example, time was not considered in the original decision to build the huge eastern HES. Only the costs of production of power in HES and TES were compared, and HES won. It became clear only later that the construction time of a TES is 20 to 25 months shorter than that of a similar HES of identical capacity, and that as a result the costs of production of power per equal period of time in the TES are not higher but lower than in the HES.²⁰⁴

In his latest “theoretical” contribution Probst tries to grapple with the problem for the first time, but he is quite hapless. He declares that his location criteria are valid only for long-run periods of “10-20-30 years” and “decades” to come. He is aware that locational mistakes, once made, “cannot be corrected” until investment has run its full course of time.²⁰⁵

But he does not display any awareness that costs, technology and demand are inevitably bound to change in such a long time, and that as a result his investment will almost inevitably turn out to be wrong.

The peak of Probst's conception of the economic importance of time is found in his consideration of the relationship between time, growth, efficiency of location and rate of investment. He calls "feasible" a model of location that abstracts from the constraint of the rate of investment in national income, but realizes that such a model "would not be related to a definable time period." Therefore, he concludes, the relationship between rate of investment and efficiency of location "is a special and big problem, which still requires a special study."²⁰⁶ However, "attempts at mathematical interpretation of society's development in the form of some linear or even non-linear function are wrong as a matter of principle."²⁰⁷ Enough of that, except that one must keep in mind that these pronouncements come from the topmost authority on the practices of Soviet spatial economics.

Almost all the *metodiki* quoted above recommend bringing efficiency comparisons to a common time period, embodied in the familiar concept of the recoupment period. This is as far as they have gone. Only one *metodika* recommends that, while comparing variants with different time periods, costs of the later years be reduced to those of the present by a "co-efficient of reduction" derived from the average rate of depreciation and proposed to be 0.08.²⁰⁸ Happily, this is the discount rate. However, because this is only a *metodika* and not a *metodologiia*, it does not explain what it is or why it should be used. And very few seem to understand this; so far there has not been much discussion of it. It has been mentioned in one place as an "extremist proposal" that requires "special substantiation,"²⁰⁹ the reason being that the acceptance of such a discount rate would automatically reduce to zero the efficiency of new technology in a rather short period of time.²¹⁰ Evidently 12.5 years is considered a short period in Soviet-type technological progress, while 40 years presumably is not. But whatever the actual rate of discount, it seems important that the approach has been proposed at all.²¹¹

Some writers are becoming increasingly aware that technology changes while resources are "frozen" in long-term projects. They propose that these costs (losses) be subtracted from capital investments used in comparisons of alternative efficiencies.²¹² Another growing problem, discussed more and more frequently, is the fact that there is an unforeseen lag between the time of putting the plant into operation and the time it attains its full capacity. Internal cost economies assumed in the design projects are not realized until full capacity is reached, and at present this takes some four to five years on the average.²¹³ These losses are also not taken into account in the comparative analysis of alternative projects, even though they are

brought to a common recoupment-time denominator, which in practice is not attained by some 40 to 50 per cent of all newly started enterprises.²¹⁴

To sum up, a predominant portion of current Soviet economic theory and almost all practice are not yet suitable for accurate economic analysis of the efficiency of comparative locations. It is not only that the party and bureaucracy make purely "voluntaristic" locational and allocational decisions; they also lack sound advice. The real process of spatial resource allocation is, as Mikoyan confided to Victor Perlo, an American "radical economist," nothing but pure struggle: "This is not a strictly peaceful process. Each struggles for his particular plans and plant—inside the all-Union Gosplan and the Gosplans of the union republics—until a decision is reached. Most issues can be smoothed out by argument and figures, but sometimes the government must make the decision."²¹⁵

And what if the decision is wrong? Probst maintains that it cannot be corrected.

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36. F. Kotov, “Novye metodicheskie polozenia k sostavleniiu gosudarstvennogo plana,” *Planovoe khoziaistvo* (October 1960): 26.
37. N. A. Obetkovskii, “Planovoe pereselenie na Dalnii Vostok za gody sovestkoi vlasti (1925–1953),” *Zapiski Amurskogo oblastnogo muzeia kraievedeniia pravitelstva po khoziaistvennym voprosam. Sbornik dokumentov* (Moscow, 1958), 3: 205; *KPSS v rezoliutsiakh i resheniakh siezdov, konferentsii i plenumov TsK*, 8th ed. (Moscow, 1971–2), 7: 157.
38. V. I. Perevedentsev, “Migratsiia i nekotorye sotsialnye protsessy v SSSR,” in Universitetskii tse'nt'r po izucheniiu problem narodonaseleniia Moskovskogo gosudarstvennogo universiteta, Rostovskii-na-Donu Institut narodnogo khoziaistva, *Problemy migratsii naseleniia i trudovykh resursov* (Moscow, 1970), 38–40; M. Khalmukhamedov, “Leninskaia družba narodov SSSR,” *Pravda*, 10 January 1970, 3.
39. Lewytc'kyj, *Die sowjetische Nationalitätenpolitik*.
40. Holubnychy, “Some Economic Aspects,” 114–15; Lewytc'kyj, *Die Sowjetische Nationalitätenpolitik*, 97; Koropec'kyj, “Industrial Location Policy,” 266; “Soviet Party Denounces Leaders of Tadzhik Republic and Demands Reforms,” *The New York Times*, 14 January 1969, 8.
41. Pennar, Bakalo and Bereday, *Modernization and Diversity*; J. Kolasky, *Education in Soviet Ukraine* (Toronto: Peter Martin Associates, 1968), 13.
42. *Resheniia partii i pravitelstva po khoziaistvennym voprosam. Sbornik dokumentov* (Moscow, 1968–70), 4: 331, 6: 388; *KPSS v rezoliutsiakh*, 7: 257.
43. Among the bibliographies in the Russian language the following should be consulted; *Bibliografiia po voprosam razmeshcheniia i raionirovaniia promyshlennosti SSSR (1901–1957)* (Moscow, 1960); *Bibliografiia po voprosam razmeshcheniia i raionirovaniia promyshlennosti SSSR (1958–1964)* (Moscow, 1966); *Istoriia SSSR: Annotirovannyi perechen russkikh bibliografii izdannykh do 1965g.* (Moscow, 1966); *Organizatsiia upravleniia promyshlennosti: Bibliograficheskii spravochnik, 1917–1967* (Moscow, 1967); *Narodnoe khoziaistvo SSSR v gody Velikoi otechestvennoi voiny (iiun 1941–mai 1945gg.): Bibliograficheskii ukazatel knizhnoi i zhurnalnoi literatury na russkom iazyke (1941–1968)* (Moscow, 1971); *Itogi*

nauki: Seriiia geografiia. vypusk 3. I. I. Parkhomenko and G. N. Ternovskaia, "Sovetskaia literatura po geografii naseleniia (1961–1965gg)" (Moscow, 1966); *Ibid.*, vypusk 8, "Sovetskaia literatura po proizvodstvenno-territorialnym kompleksam (1965–1969gg.)" (Moscow, 1970).

Bibliography pertaining to the economy of Ukraine in various languages appears under note 2. Recent statistical bibliography on other Soviet republics and regions (in Russian) can be found in Komitet po pechati pri sovete ministrov SSSR. *Annotirovannyi katalog knig izdatelstva "Statistika" 1966–1970gg.* (Moscow, 1971).

44. M. Kaser, "The Publication of Soviet Statistics," in V. G. Treml and J. P. Hardt, eds., *Soviet Economic Statistics* (Durham: Duke University Press, 1972), 57.
45. Holubnychy, ed., "National Economy," 687. A nearly complete collection of these is available, e.g., in the Butler Library of Columbia University, though still uncatalogued and even uncut.
46. *Ibid.*, 734.
47. P. A. Nahirniak, "Uzahalniuiuchi pokaznyky ekonomichnoho rozvytku u pershomu balansy narodnoho hospodarstva URSS," in *Istoriia narodnoho hospodarstva ta ekonomichnoi dumky: Respublikanskyi mizhvidomychiy zbirnyk*, vypusk 4–5 (Kiev, 1970), 89. The author of this feat was V. S. Myshkis of the Ukrainian Gosplan. Even though his writings were published in Russian, they are not included in recent bibliographies. The reason is not yet clear, for we do not know of Myshkis' fate. Perhaps he was prosecuted and not rehabilitated. The latter is certainly true of another Ukrainian statistician, L. Litoshenko, whose works are also not listed in the bibliographies. Yet, while working in the USSR Gosplan, he produced national income accounts for the whole USSR in the republic cross-section—another first in his time. Compare L. Litoshenko, "Natsionalnyi dokhod v territorialnom razreze," *Finansovye problemy* (Moscow), no. 5 (1930): 90–103.
48. *Natsionalnyi dokhod Ukrainiskoi RSR* (Kiev, 1963).
49. *Narodne hospodarstvo Ukrainiskoi RSR v 1970 rotsi: Statystychnyi hospodarstvo Ukrainiskoi RSR v 1970 rotsi: Statystychnyi shchorichnyk* (Kiev, 1971), 61–77.
50. Treml, "1959 Soviet Input-Output."
51. A. Emelianov and F. Kushnirskii, "Dinamicheskaia model razvitiia narodnogo khoziaistva respubliki," *Planovoe khoziaistvo* (November 1970); A. Emelianov and F. Kushnirskii, "Raschet osnovnykh pokazatelei narodno-khoziaistvennogo plana s primeneniiem ekonomiko-statisticheskikh modelei," *Planovoe khoziaistvo* (March 1972).
52. Holubnychy, "Some Economic Aspects," 76, 116.
53. A. Zeinalov, "Azerbaichan SSR milli kelirinin gurulushu ve dinamikasu" (Structure and dynamics of the national income of the Azerbaidzhan SSR), in *Voprosy razvitiia ekonomiki Azerbaidzhanskoi SSR* (Baku, 1966). In this

- bilingual monograph the cited paper is in the Azari language. I am obliged to M. Fahimi for translating it for me.
54. W. C. Wilde, "Issues in the Development of Siberia and the Far East," in N. T. Dodge, ed., *The Soviets in Asia* (Mechanicsville, Md.: Cremona Foundation, 1972).
 55. Koropeckyj, *Location Problems*, 70–2.
 56. A. Sidorenko, "Evropeiskaia chast strany raskryvaet nedra," *Kommunist*, no. 18 (1970): 68; N. T. Agafonov, *Osnovnye problemy formirovaniia promyshlennykh kompleksov v vostochnykh raionakh SSSR* (Leningrad, 1970), 4–5.
 57. V. Dovgopol et al, "Raskryt klady Urala," *Sotsialisticheskaia industriia*, 4 March 1971, 2.
 58. Afafonov, *Osnovnye problemy*, 5.
 59. "V tsentralnom komitete KPSS i Sovete ministrov SSSR," *Pravda*, 15 January 1970.
 60. N. N. Nekrasov, "Glavnye napravleniia razvitiia narodno-khoziaistvennogo kompleksa Zapadno-Sibirskoi nizmennosti," in *Problemy severa*, vypusk 15 (Moscow, 1971), 22.
 61. D. Belorusov, "Kompleksno osvaiavat novye raiony," *Sotsialisticheskaia industriia*, 15 April 1971, 2.
 62. Nekrasov, "Glavnye napravleniia," 18; A. G. Aganbegian, "Problemy effektivnosti ispolzovaniia prirodnykh resursov na territorii Zapadno-Sibirskoi nizmennosti," *Problemy severa*, vypusk 15 (Moscow, 1971), 48.
 63. N. Nekrasov, "Ekonomicheskaiia politika KPSS i razmeshchenie proizvoditelnykh sil," *Kommunist*, no. 3 (1972): 67–8.
 64. See, for example, Koropeckyj, *Location Problems*, 193–9; *Direktivy KPSS*, 4: 846; and note 43.
 65. *Resheniia partii*, 3: 531.
 66. S. G. Strumilin, ed., *Ekonomicheskaiia zhizn SSSR: Khronika sobytii i faktov*
 67. *Ibid.*, 488.
 68. *Sovet po izucheniiu proizvoditelnykh sil SSSR* (SOPS) was created in 1930, with the specific task of doing research on the prospects of economic development of the underdeveloped regions of the "east" and the "north." It is remarkable that, although Nemchinov was a leading mathematical economist, as long as he headed the SOPS he never applied mathematical techniques in his published writings on regional economics. Neither is SOPS known for such methods in the post-Nemchinov era—quite the contrary. Since 1964 the SOPS has been headed by academician N. N. Nekrasov, a chemical engineer and politician by profession. Among the SOPS' more prominent recent members have been the arch-conservative academicians K. V. Ostrovitianov and S. G. Strumilin, the late A. I. Vedishchev, S. V. Slavin (a septuagenarian chairman of the SOPS' Commission for the Problems of the North), A. E. Probst (SOPS' chief theoretician), S. M. Lisichkin (Nekrasov's deputy), V. V. Kistanov, S. P. Tokarev, A. A. Ivanchenko, D. Belorusov and others.

Among the union republics' academies of sciences the following are known to have their own separate SOPS: Ukraine, Georgia, Tadzhikistan, Uzbekistan and Kazakhstan. The SOPS of the republics study economic development of their own regions and are often found in open conflict with the USSR SOPS, though to no avail thus far.

69. V. S. Nemchinov, *Izbrannye proizvedeniia* (Moscow, 1967), 4: 5.
70. *Direktivy KPSS*, 3: 470.
71. Strumilin, ed., *Ekonomicheskaiia zhizn SSSR*.
72. H. Iakusha, "Leninski pryntsypy dovhostrokovoho planuvannia i prohnozuvannia rozvytku ekonomiky," *Komunist Ukrainy* (Kiev), no. 7 (1970): 14.
73. *Plenum tsentralnogo komiteta Kommunisticheskoi partii Sovetskogo Soiuzu 24–26 marta 1965 goda: Stenograficheskii otchet* (Moscow, 1965), 23, 43, 49.
74. Strumilin, ed., *Ekonomicheskaiia zhizn SSSR*, 512–13.
75. *Direktivy KPSS*, 3: 671–2.
76. *KPSS v rezoliutsiakh*, 7: 88.
77. *Borba KPSS za zavershenie stroitelstva sotsializma (1953–1958gg.)*. *Dokumenty i materialy* (Moscow, 1961), 236–7.
78. *KPSS v rezoliutsiakh*, 7: 104, 122, 142.
79. *Ibid.*, 126–7.
80. *Ibid.*, 166.
81. *Borba KPSS*, 363.
82. *Ibid.*, 538. What was meant by the "east" in different periods of history requires special investigation (cf. Holubnychy, "Some Economic Aspects," 84–5). In the official statistics between 1959 and 1963 the "east" included the Urals, West and East Siberia, the Far East, Central Asia and Kazakhstan. In 1963 and 1964 the Bashkir ASSR was added to this area. Since 1965 a subdivision, "east of the Urals," is specified; it excludes the Urals and Bashkiria. In any case, the eastern RSFSR probably accounted for some 80 per cent of all the "eastern" allocations.
83. *KPSS v rezoliutsiakh*, 7: 252–3.
84. *Borba KPSS*, 549.
85. *Partiia—vdokhnovitel i organizator razvernutoho stroitelstva kommunisticheskogo obshchestva (1959–1961 gody): Dokumenty i materialy* (Moscow, 1963), 66.
86. It would undoubtedly be worthwhile to undertake a thorough study of these and similar press materials published since 1958 in connection with the CC CPSU's "drafts" of later plans. For example, one as yet unpublished word-by-word comparison of the "draft" of the 1966–70 plan with the final "directives" adopted by the Twenty-third Party Congress has revealed a change of about 20 per cent in significant goal items in the plans before and at the congress. In addition, stenographic reports of these sessions of the USSR and the republics' Supreme Soviets adopting annual plans and budgets are worth studying for the expression of demands for changes. These sources

have been neglected thus far in Western Sovietology.

87. *KPSS v rezoliutsiakh*, 7: 383, 418, 453.
88. *Ibid.*, 446.
89. *Ibid.*, 425–6.
90. *Ibid.*, 426, 456.
91. *Ibid.*, 426, 444, 457.
92. *XXII siezd Kommunisticheskoi Partii Sovetskogo Soiuz 17–31 oktiabr 1961 goda: Stenograficheskii otchet* (Moscow, 1962), 218.
93. *Programme of the Communist Party of the Soviet Union* (Moscow, 1961), 70, 73.
94. *Ibid.*, 77.
95. L. I. Brezhnev, *Leninskim kursom: Rechi i stati* (Moscow, 1970), 1: 219.
96. *Ibid.*, 214.
97. *Ibid.*, 306–7.
98. *Ibid.*, 315.
99. Compare reports about the conference: D. Moskvina, "Problemy razmeshcheniia proizvoditelnykh sil v SSSR," *Voprosy ekonomiki*, no. 12 (1959); V. P. Evstigniev, A. F. Sokolovskii, "Soveshchanie po voprosam razmeshcheniia proizvoditelnykh sil," *Izvestiia Akademii nauk SSSR: Seriia geograficheskaiia*, no. 1 (1960). The first salvos in public, it seems, were the papers: Ia. Feigin, "Ob izuchenii sovremennykh voprosov razmeshcheniia proizvoditelnykh sil," *Voprosy ekonomiki*, no. 1 (1960); and I. Starovoitenko "K voprosu o tekhniko-ekonomicheskom obosnovanii razmeshcheniia novostroek," *Ekonomika Sovetskoi Ukrainy* (Kiev), no. 6 (1960); both implicitly but unequivocally attacked the shortcomings and fallacies of the methods of spatial economic analysis advocated by A. E. Probst and the USSR Gosplan, though the latter were not yet made public.
100. Iakov Grigorievich Feigin (born 1903) is a corresponding member of the Ukrainian Academy of Sciences and a specialist since prewar days in economic geography and territorial planning. Before coming to the Moscow Academy in 1949, he headed the Institute of Economics of the Ukrainian Academy for two years and was a leading member of its SOPS. His group in Moscow includes today, among others, L. N. Telepko, N. A. Shokin, A. M. Korneev, M. A. Vilenskii. The leading spokesmen for the Ukrainian SOPS are H. B. Iakusha, P. V. Voloboi, S. M. Bukhalo, I. A. Kuhukalo, M. M. Palamarchuk and the late F. M. Khyliuk.
101. Compare e.g. A. Oxenfeldt and V. Holubnychy, *Economic Systems in Action*, 3d ed. (New York: Holt, Rinehart and Winston, 1965); Holubnychy, ed., "National Economy."
102. Holubnychy, "Some Economic Aspects," 86–9.
103. Brezhnev, *Leninskim kursom*, 143, 215.
104. A. E. Probst, *Voprosy razmeshcheniia sotsialisticheskoi promyshlennosti* (Moscow, 1971), 27.
105. Cf. V. V. Kistanov, *Budushcheie Sibiri* (Moscow, 1960); S. P. Tokarev, *Uskorennoe razvitie promyshlennosti vostochnykh raionov SSSR* (Moscow,

- 1960); and A. I. Zubkov, *Osobennosti razmeshcheniia promyshlennosti RSFSR* (Moscow, 1964).
106. V. A. Rylskii, *Ekonomika mezhraionnykh elektroenergeticheskikh sviazei v SSSR* (Moscow, 1972), 9.
107. G. B. Iakusha, *Tekhniko-ekonomicheskie osnovy razvitiia elektro-energetiki ekonomicheskikh raionov Ukrainskoi SSR* (Kiev, 1965), 102.
108. Gumpel, *Energie-politik*, 279.
109. Iakusha, "Leninski pryntsypy," 14.
110. V. A. Shelest, *Ekonomika razmeshcheniia elektroenergetiki SSR* (Moscow, 1965), 181.
111. Rylskii, *Ekonomika mezhraionnykh*, 9.
112. I. V. Dudinskii, ed., *Resursy i mezhdunarodnoe sotrudnichestvo* (Moscow, 1968), 169.
113. L. Z. Zevin, "Sotsialisticheskaia ekonomicheskaia integratsiia i sotrudnichestvo so stranami 'tretiego mira'," *Narody Azii i Afriki* (Moscow), no. 2 (1972): 8; cf. also Dudinskii, ed., *Resursy i mezhdunarodnoe*, 170.
114. Gumpel, *Energie-politik*, 279.
115. Rylskii, *Ekonomika mezhraionnykh*, 11.
116. Aganbegian, "Problemy effektivnosti," 46-7.
117. Nekrasov, "Glavine napravleniia," 19.
118. E. Korshunov, "Gazovoi industrii—vysokie tempy rosta," *Ekonomicheskaia gazeta*, no. 23 (1971): 4. Yet the Ukrainians had been pleading for funds for oil and gas in their republic for a long time in vain. Cf. *Razvitie neftiano i gazovoi promyshlennosti Ukrainskoi SSR i effektivnost kapitalnykh vlozhenii* (Kiev, 1964); *Geologiiia i geokhimiia neftianyykh i gazovykh mestorozhdenii*, 3 vols. (Kiev, 1965); *Usloviia formirovaniia i zakonomernosti razmeshcheniia neftianyykh i gazovykh mestorozhdenii na Ukraine: Materialy respublikanskogo soveshchaniia* (Kiev, 1967). Cf. also Holubnychy, ed., "National Economy," 736-9. However, Moscow replied with lower estimates of Ukraine's potential. Cf. e.g. V. M. Zavialov, V. N. Kramarenko et al., *Effektivnost geologo-razvedochnyykh rabot na neft i gaz v Ukrainskoi SSR* (Moscow, 1966). The problem seems to reside in the fact that the Union ministries have the right to choose on their own the regions for prospecting within the total quantity of resources allocated to them for that purpose. Cf. V. D. Pakholkov, *Statistika geologo-razvedochnyykh rabot*, 2d ed. (Moscow, 1966), 94, 117.
119. Sidorenko, "Evropeiskaia chast," 61.
120. Aganbegian, "Problemy effektivnosti," 48.
121. V. D. Shashin, "Kruglyi million," *Literaturaia gazeta*, 20 January 1971. This statement was reported in *The New York Times*, 21 January 1971, 10.
122. "Bolshaia neft Sibiri," *Ekonomicheskaia gazeta*, no. 22 (1969): 12.
123. "Jih-su-k'ai fa Hsi-pai-li-ya" (A survey of Soviet-Japanese development of Siberia), *Ming Pao Yüeh-k'an* (Hong Kong) (July 1972), 9, 10. (Translation from Chinese is courtesy of Mrs. L. Holubnychy.) Originally this report appeared in Japanese in the *Yomiuri News*, 22 September 1971.

124. R. S. Livshits, *Effektivnost kontsentratsii proizvodstva v promyshlennosti SSSR* (Moscow, 1971), 269.
125. Shimkin, *Soviet Mineral-Fuels*, 2.
126. Pakholkov, *Statistika geologo-razvedochnyk*, 251–3.
127. *Ibid.*, 203–5.
128. *Ibid.*, 72, 75–6.
129. *Ibid.*, 158–9, 179, 209.
130. *Ibid.*, 208–9.
131. *Ibid.*, 178.
132. *Ibid.*, 205.
133. *Ibid.*
134. M. Sergeiev et al., “Neftianiki Zapadnoi Sibiri ne mogut zhdad,” *Sotialisticheskaia industriia*, 24 August 1971. This report states that in winter, with temperatures down to -60° C, steel in the derricks and heavy cranes cracks because it can withstand only -35° . Rubber parts in the machines become pulverized, diesels and other motors need to warm up four hours to start, etc.
135. Cf., Koropecykyj, *Location Problems*; Holubnychy, “Location of Industries,”; Holubnychy, “Some Economic Aspects”; Wiles, *Political Economy*; Koropecykyj, “Industrial Location Policy”; I. S. Koropecykyj, “The Development of Soviet Location Theory Before the Second World War,” *Soviet Studies* (July and October, 1967); I. S. Koropecykyj, “Soviet Theory on Industrial Location,” *Studies on the Soviet Union* (Munich), no. 5 (1960).
136. *Ekonomisty i matematiki za kruglym stolom* (Moscow, 1965); *Diskussia ob optimalnom planirovanii* (Moscow, 1968).
137. Nemchinov, *Izbrannye proizvedeniia*, 54.
138. V. V. Novozhilov, *Problemy izmereniia zatrat i rezultatov pri optimalnom planirovanii* (Moscow, 1967). There is an English translation of this monograph in *Mathematical Studies in Economics and Statistics in the USSR and Eastern Europe* 5 (White Plains, N.Y.), no. 2–3–4 (1968–9), but the reader must be warned that this translation has a number of confusing defects. French and East German editions of this work are also available.
139. L. V. Kantorovich, *The Best Use of Economic Resources* (Cambridge: Harvard University Press, 1965).
140. *Ekonomisty i matematiki; Diskussia ob optimalnom*.
141. “National resource allocation cannot be rational if it is not ethical.” (T. Nagel, “Reason and National Goals,” *Science*, 1 September 1972, 766.)
142. V. Holubnychy, “Recent Soviet Theories of Value,” *Studies on the Soviet Union*, no. 1 (1961).
143. Cf. Holubnychy, ed., “National Economy,” 715–17.
144. M. L. Greenhut and H. Ohta, “Monopoly Output Under Alternative Spatial Pricing Techniques,” *American Economic Review* (September 1972): 713.
145. *Tipovaia metodika opredeleniia ekonomicheskoi effektivnosti kapitalnykh vlozhenii i novoi tekhniki v narodnom khoziaistve SSR* (Moscow, 1960);

- [Gosplan SSSR], "polozhenie o poriadke vybora raiona i punkta stroitelstva novykh promyshlennykh predpriatii i ob osnovnykh pokazateliakh tekhniko-ekonomicheskogo obosnovaniia razmeshcheniia predpriatii," *Planovoe khoziaistvo*, no. 5 (1962); *Metodicheskie ukazaniia po opredeleniiu optimalnykh skhem perezozok, snabzheniia i razmeshcheniia predpriatii s pomoshchiu lineinogo programmirovaniia* (Moscow, 1964); *Metodika opredeleniia ekonomicheskoi effektivnosti razmeshcheniia promyshlennosti pri planirovanii i proektirovanii novogo stroitelstva* (Moscow, 1966); *Obshchaia metodika razrabotki generalnoi skhemy razmeshcheniia proizvoditelnykh sil SSSR na period 1971–1980gg.* (Moscow, 1966); *Metodika opredeleniia effektivnosti spetsializatsii kompleksnogo razvitiia khoziaistva soiuznykh respublik i ekonomicheskikh raionov SSSR* (Moscow, 1967); *Metodicheskie rekomendatsii po raschetam effektivnosti kapitalnykh vlozhenii pri razrabotke otraslevogo plana kapitalnogo stroitelstva* (Moscow, 1967); "Tipovaia metodika opredeleniia ekonomicheskoi effektivnosti kapitalnykh vlozhenii," in *Khoziaistvennaia reforma v SSSR* (Moscow, 1969). This document was also published in *Ekonomicheskaiia gazeta*, no. 39 (1969).
146. *Metodicheskie ukazaniia k sostavleniiu gosudarstvennogo plana razvitiia narodnogo khoziaistva SSSR* (Moscow, 1969); *Metodika opredeleniia ekonomicheskoi; Metodicheskie rekomendatsii*; Comité du Plan d'Etat du Conseil des Ministres de L'URSS, "Données comptables et Indicateurs destinés à servir de base au projet de plan perspectif de développement de l'Economie Nationale de l'URSS pour les années 1959–1965 (Moscow, 1957)," *Cahiers de l'Institut de Science Economique Appliqué* (Paris), Série G-10, no. 107, supplément no. 107, supplément, (November 1960); United Nations, Department of Economic and Social Affairs, *Basic Principles and Experience of Industrial Development Planning in the Soviet Union* (New York, 1965); United Nations, *Report of the United Nations Seminar on Planning Techniques: Moscow, USSR, 8–22 July 1964* (New York, 1965).
147. L. N. Telepko, *Urovni ekonomicheskogo razvitiia raionov SSSR* (Moscow, 1971), 7.
148. N. A. Shokin, *Metodologicheskie problemy razmeshcheniia otraslei promyshlennosti* (Moscow, 1971), 9–10.
149. Telepko, *Urovni ekonomicheskogo*, 26–7.
150. P. V. Voloboi and V. A. Popovkin, *Problemy terytorialnoi spetsializatsii i kompleksnogo rozvytku narodnoho hospodarstva Ukrainskoi RSR* (Kiev, 1972), 30.
151. *Voprosy territorialnoi organizatsii proizvodstva* (Rostov-on-Don, 1968), 3.
152. E. G. Agafonov, *Osnovnye problemy*, 15–16.
153. B. A. Ivashchenko, "Naukovi osnovy klasyfikatsii faktoriv rozmishchennia sotsialistychnykh produktyvnykh syl," *Rozmishcheniia produktiv syl Ukrainskoi RSR: Respublikanskyi mizhvidomchyi zbirnyk*, vypusk 13 (Kiev, 1970), 36–7.
154. V. Pavlenko, "O iedinykh metodikakh," *Ekonomicheskaiia gazeta*, no. 46 (1970): 7.

155. A. Vedishchev, M. Bakhrakh, "Metodologicheskie problemy razrabotki generalnykh skhem razmeshcheniia proizvoditelnykh sil SSSR," *Planovoe khoziaistvo*, no. 6 (1971): 90.
156. *Obshchaia metodika razrabotki*.
157. In *Bibliografiia po voprosam (1958–1964)*, 107, he is listed, together with S. V. Slavin, as the editor of the 1963 SOPS's "research programme" on such a "General Scheme."
158. Vedishchev, Bakhrakh, "Metodologicheskie problemy," 21.
159. "Razvitie i razmeshchenie," 94–5. Nikolai Nekrasov, even though he was elected to full membership in the Academy of Sciences in 1968 under the economists' quota, is not really a professional economist. His only published book is a textbook for colleges of chemistry, *Ekonomika khimicheskoi promyshlennosti* (1959). Though he is on the editorial board of the prestigious journal *Ekonomika i matematicheskie metody*, he has never used any mathematical techniques in any of his writings. He has ardently propagandized development of Siberia, but in his writings on economics he is obviously helpless. On the other hand, he is clearly a spokesman for the party line and an official salesman of Siberian resources to Japanese capital. He has been to Tokyo four times and has succeeded in attracting the interest of Japanese business circles in a few Siberian ventures.
160. L. I. Brezhnev, "O piatidesiatiletii Soiuza Sovetskikh Sotsialisticheskikh Respublik," *Pravda*, 22 December 1972, 5.
161. *Ibid.*
162. *Obshchaia metodika razrabotki*, 21.
163. "Tipovaia metodika opredeleniia," 289–90.
164. *Ibid.*, 291.
165. United Nations, Economic Commission for Europe, *Economic Survey of Europe in 1962*, part 2, Ch. 4 (Geneva, 1965), 36; Koropec'kyj, "Industrial Location Policy," 258.
166. "Tipovaia metodika opredeleniia," 292.
167. Cf. *Metodicheskie rekomendatsii po raschetam*, 110–12.
168. Iu. N. Kovalenko, *Ekonomika proektirovaniia promyshlennykh predpriiatii* (Kiev, 1970), 475.
169. *Ibid.*, 474.
170. *Ibid.*, 477.
171. *Metodicheskie rekomendatsii po raschetam*, 49, 88–95.
172. *Ibid.*, 96–9.
173. E.g. G. S. Detkov, "Vzaimosviaz mezhdru normativom ekonomicheskoi effektivnosti kapitalovlozhenii i tempom rasshirenogo vosproizvodstva," in *Effektivnost kapitalnykh vlozhenii v razlichnykh otrasliakh sotsialisticheskoi promyshlennosti* (Moscow, 1963), 79; R. Merkin, "Normativnoe obosnovanie otraslevykh planov kapitalnogo stroitelstva," *Planovoe khoziaistvo*, no. 11 (1966): 24.
174. E.g. *Metodika opredeleniia ekonomicheskoi*, 32; "Tipovaia metodika opredeleniia," 292.

175. "Jih-su-k'ai fa," 10.
176. V. Zhurba, "Sever stanet shchedreie," *Sotsialisticheskaia industriia*, 5 March 1971, 21.
177. Kovalenko, *Ekonomika proektirovaniia*, 476.
178. *Metodicheskie rekomendatsii po raschetam*, 26.
179. *Ibid.*, 63.
180. *Ibid.*, 65.
181. *Ibid.*, 63.
182. A. F. Revenko, *Promyshlennaia statistika SShA* (Moscow, 1971), 257.
183. R. Gillette, "Nuclear Power in the USSR: American Visitors Find Surprises," *Science* (Washington), 10 September 1971, 1,004.
184. Probst, *Voprosy razmeshcheniia*, 60.
185. *Ibid.*
186. A. V. Lreomom, "Osnovnye napravleniia sovershenstvovaniia zheleznodorozhnykh gruzovykh tarifov," in *Sovershenstvovanie sistemy zheleznodorozhnykh gruzovykh tarifov*, vypusk 373 (Moscow, 1968), 13.
187. *Ibid.*, 14.
188. Cf. A. E. Probst, *Effektivnost territorialnoi organizatsii proizvodstva (Metodologicheskie ocherki)* (Moscow, 1965); A. E. Probst, Iu. A. Sokolov and T. E. Makarova, *Sravnitelnye tekhniko-ekonomicheskie pokazateli po dobyche i transportu topliva po raionam SSSR* (Moscow, 1964).
189. A. E. Probst, "K prognozu ekonomicheskogo razvitiia i proizvodstvennoi spetsializatsii vostochnykh raionov SSSR," *Izvestiia Akademii nauk SSSR: Seriia ekonomicheskaiia*, no. 5 (1970): 69.
190. Voloboi and Popovkin, *Problemy terytorialnoi spetsializatsii*, 41.
191. Probst et al, *Sravnitelnye tekhniko-ekonomicheskie*, 51.
192. T. Shabad, "Large Soviet Dam Inaugurated, But It Lacks Big Power Users," *The New York Times*, 16 November 1972, 69.
193. Nekrasov, "Glavnye napravleniia," 22.
194. G. A. Agranat, *Zarubezhnyi Sever: opyt osvoieniia* (Moscow, 1970), 42.
195. R. Merkin, "Normirovanie ekonomicheskogo osvoieniia vvedionnykh predpriiatii," *Voprosy ekonomiki*, no. 1 (1970): 159.
196. A. Levikov, V. Moiev, "Uroki Bratska," *Literaturnaia gazeta*, 13 September 1972.
197. V. Ianovskii, "Kto proidet ispytaniia Severom?" *Sotsialisticheskaia industriia*, 22 August 1971, 2.
198. N. V. Fedotova, "Ob ispolzovanii pokazatelia fondootdachi dlia analiza razmeshcheniia promyshlennogo proizvodstva po gorodskim poseleniiam," in *Problemy razvitiia gorodov i ispolzovaniia trudovykh resursov* (Moscow, 1968).
199. Yet a century ago Marx noted that "even where the land is available free, no factories are built except in the more or less populated areas with good means of communication." K. Marx, *Theories of Surplus Value*, part 2 (Moscow, 1968), 37.

200. L. Alter, "‘Multiplikator’ i ‘printsip akseleratsii’ v burzhuaznoi politicheskoi ekonomii," *Mirovaia ekonomika i mezhdunarodnye otnosheniia*, no. 1 (1960).
201. Voloboi and Popovkin, *Problemy terytorialnoi spetsializatsii*, 26, 31.
202. Livshits, *Effektivnost kontsentratsii*, 75–9.
203. *Ibid.*, 58.
204. M. G. Kolodny, A. P. Stepanov, *Planirovanie kapitalnykh vlozhenii s primeneniem matematicheskikh metodov* (Moscow, 1966), 37–8.
205. Probst, *Voprosy razmeshcheniia*, 7–8, 22, 24.
206. *Ibid.*, 20.
207. *Ibid.*, 13.
208. "Tipovaia metodika opredeleniia," 293.
209. Ia. Krasha, V. Krasovskii, "Problema laga v dinamicheskoi ekonomike," *Voprosy ekonomiki*, no. 12 (1970): 71, 73.
210. *Ibid.*, 76.
211. In pure theory, the discount rate as well as the interest on the time factor had been proposed and substantiated in labour-value terms by V. V. Novozhilov. Cf. Novozhilov, *Problemy izmereniia zatrat*, chapters 6 and 7.
212. Kolodny, Stepanov, *Planirovanie kapitalnykh vlozhenii*, 38, 46.
213. R. Merkin, "Problema osvoeniia vrodimykh predpriatii v usloviakh razvitoi sotsialisticheskoi ekonomiki," *Voprosy ekonomiki*, no. 11 (1971): 41.
214. *Ibid.*
215. V. Perlo, *How the Soviet Economy Works: An Interview with A. I. Mikoyan* (New York: International Publishers, 1961), 17–18.

4. Some Economic Aspects of Relations Among the Soviet Republics

The State of General Theory on the subject in the Communist World

The main contribution to the Communist theory of the economic aspect of the “national” and “colonial” problem has been made by V. I. Lenin,¹ although he built his theories largely on the broad foundations of the writings of Marx and Engels.² Marx and Lenin were, of course, the first to correctly foresee the true gravity of the “national” and “colonial” problem as well as the oncoming disintegration of the Western colonial empires, which the world has witnessed recently. For this reason, careful attention ought to be paid to their views, even though they may be not as theoretically rigorous as modern theory requires.

The quintessence of Lenin’s contribution to our subject can be summarized as follows: Capitalist society is characterized not only by class inequalities and struggle among nationalities within the multi-national states and among the colonial and imperialist, and the underdeveloped and developed countries. According to the general philosophy of historical materialism, the latter inequalities, like the former, originate in and are determined by the unevenness of the levels of economic development. Under conditions of capitalism and imperialism, according to Lenin, the unevenness in the levels of development of the metropolitan and the colonial countries leads to a break in the “weakest link” of the “chain,”

and results in the national-liberation movements and even in socialist revolutions in the underdeveloped countries. On the other hand, under socialism, the unevenness in the levels of development of the socialist nations makes it imperative for them to join forces among themselves and with the developed socialist nations in order to be able to survive the capitalist encirclement and to get aid from the developed socialist nations.³

Lenin saw the key to the solution of the national and colonial question under socialism in the economic, and therefore also social, cultural and political equalization of all nationalities and races. He believed this solution to be possible only under socialism, because only a socialist government would be in the position to furnish the underprivileged and underdeveloped nationalities not only with legal, political and social but—and most important of all—also with economic aid, that is with direct aid to their economic development, industrialization, technical modernization, education of native professional and leadership cadres, and the development of their culture in general.

Lenin did not favour nationalistic demands for dissolution of multi-national states such as the former Russian empire; he did not prefer small national states. Neither did he favour the eternal preservation of the division of mankind into separate nationalities. At least prior to the First World War he had stated many times that he preferred assimilation of small non-Russian nationalities by the Russians, and he never explicitly repudiated this view. However, he is also on record as saying that force must not be used in any form to achieve assimilation, because it would only produce and strengthen nationalistic reaction on the part of minorities. He vigorously condemned Great Russian chauvinism among Russian communists, and specifically accused Stalin of fostering it.

One early pre-Stalinist interpretation of Lenin's views on the ways and means of solving the problem of nationalities, especially popular among the non-Russian Soviet Communists,⁴ held that Lenin de facto repudiated his earlier views on the desirability and inevitability of the assimilation of the non-Russian nationalities by the Russians. Since in the last five years of his life he unequivocally supported preferential development of the non-Russian nationalities aimed at their actually becoming equal in all respects with the Russians, this interpretation maintained that he no longer believed in any advantages deriving from the merger and disappearance of nationalities, or that he at least foresaw such a merger as possible only in a very distant, implicitly unrealistic future.

A second interpretation is also possible, provided historical evolution and change of Lenin's views is not assumed. Preferential economic and cultural development of the non-Russian regions of the Soviet Union, in Lenin's view, did not of course preclude the simultaneous continuation of the development of Russia proper. The Russian population would also

grow, and the Russians would always remain a majority in the USSR. Once, as a result of Russian aid, the minorities in all respects (education, income, wealth, culture, etc.) become equal to and identical with the Russians,⁵ presumably they would no longer have any reason to feel hostility toward Russians. At this point in history neither the non-Russians nor the Russians would have any reason to oppose their mutual integration and assimilation. But since the Russians would be numerically in the majority, it would be they who would assimilate the non-Russians, rather than the other way around. When qualitative differences are no more, sheer quantity, according to the Third Law of Dialectics, transforms itself into a new quality.

Lenin's theory and prescriptions for the solution of the "problem of nationalities" were repeatedly accepted by the Russian Communist Party. The thesis that it is primarily economic underdevelopment and inequality that underlie the "national" and "colonial" problems was explicitly adopted while Lenin was still alive, in the resolutions of the Tenth (March, 1921) and Twelfth (April, 1923) Congresses of the Russian Communist Party.⁶ Both congresses also resolved that the solution of the "question of nationalities" in the USSR was to be achieved primarily by means of equalization of the levels of economic and cultural development of the republics and regions inhabited by different non-Russian nationalities. Specifically, industry was to be "implanted in a planned way" in the Turkic and Caucasian republics, according to the resolution of the Tenth Congress.⁷ The Twelfth Congress spoke of the "formation of industrial centres" in the republics "of the previously oppressed nationalities" as the "foremost" task of the party.⁸ It also called on the "Russian proletariat" in Russia and in the non-Russian republics to do its best to help "actually and for a long time to come" the non-Russian nationalities to "raise themselves to a higher level of development so as to catch up with the advanced nationalities."⁹ Both congresses also resolved¹⁰ that on the basis of, and along with, the preferential economic development of the non-Russian republics, the education of their native cadres and the development of their cultures were also to be promoted.¹¹ The Twelfth Congress also resolved specifically that the government agencies in the non-Russian republics and regions must be staffed "for the most part" by native personnel, speaking local languages and practicing local cultures.¹² Extra-territorial nationalities, such as Jews and the immigrants from Latvia, Poland and other countries, were also promised complete equality and freedom to develop their capabilities and cultures.¹³ Both congresses also condemned Great Russian chauvinism for being both the provoker of non-Russian nationalisms and an enemy of the Soviet Union more dangerous than these nationalisms.¹⁴

Undoubtedly there was little refined economic analysis in this Leninist theory of the economic aspects of the problem of nationalities, especially in the solution offered. For this reason, it could, and did in fact, contradict the purely Russian theories of the spatial location of industries which were to come later. However, this was only an economic aspect of a non-economic problem. Furthermore, neither Lenin nor the party resolutions have ever said that the goal of the economic equalization of nationalities ought to be the sole, or even the main, criterion of spatial resource allocation. In fact, in addition to the "nationalities" criterion, Lenin also advocated at one place in his voluminous writings two other criteria for the location of industries, namely, placing them closer to the sources of raw materials and holding the expenditure of social labour costs on production and transportation at a minimum.¹⁵ A priori this may appear as contradictory to the "nationalities" criterion, unless of course proven by economic analysis that raw materials and least-cost combinations both happen to be located in the territory of the underdeveloped nationalities. On the other hand, however, this apparent contradiction of Lenin's can also be easily explained in the usual dialectical terms, as, for example, in Engels' locational model, which Lenin undoubtedly knew. Engels specifically assumed a very high level of development and of diversification, which permitted the location of the socialist industries with equal costs of production to be dependent on the minimum transportation costs alone. Under such a degree of diversification Engels assumed that, transportation costs permitting, the necessary raw materials could be imported into any place. As a result, industrialization would spread equi-proportionately all over the country and the world, and there would be no unequally developed industrial clusters and/or backward regions.¹⁶ If applied to the "question of nationalities," this would simply mean that in the territories of the underdeveloped nationalities those equal-cost industries must be developed that are economical from the viewpoint of transportation costs—and not only those for which raw materials are available on the spot. Within given demand-and-supply limits, the rule of the minimization of transportation costs automatically presumes a location of industries that is as close to their sources of factor supply as economically possible. (This makes a separate rule of bringing the industries closer to their supply sources redundant rather than contradictory.)

In his many writings on the "question of nationalities," Stalin failed to contribute anything substantially new to the theory of its economic aspect. He is on record, back in 1921, as repeating Lenin's theory that it is necessary to give economic aid to the underdeveloped non-Russian republics.¹⁷ His practice was for the most part anti-Leninist, however. This conclusion comes out in part from our analysis of his policies toward the republics in

the period of his reign. But in the ideological sphere also, especially since 1930, he clearly supported and fostered Russian chauvinism as a political weapon and used it against the interests of the non-Russian nationalities.¹⁸

Stalin's successors did not contribute anything positive to the theory either. Molotov admitted publicly that they neglected the "national" and "colonial" problem in Stalin's time to such an extent that the Soviet Union "suffered from the underestimation" of the "unprecedented rise" of the struggle of the colonial and dependent nations abroad and failed to exploit this struggle in its foreign policies.¹⁹ Khrushchev, too, admitted publicly that Stalin had committed grave mistakes in his attempts to solve the "question of nationalities" both inside the Soviet Union and inside the whole socialist camp.²⁰ However, quite like Stalin, Khrushchev repeatedly insisted that the "question of nationalities" no longer existed in the USSR; in his opinion, it had been solved.²¹ Such statements were sheer "socialist realism," of course, or wishful thinking in plain language, for at the same time Khrushchev contradicted his own statement many times (see the discussion below).

For a brief period during 1955–8, non-Russian Soviet Communists raised a desperate cry for a "return to Leninism" in the nationalities policy, and especially in respect of the development of local cadres, but the Russians behind Khrushchev quickly hushed them by pointing out that the "return to Leninism" could also mean a return to Lenin's overt statements on the desirability of the merger and assimilation of nationalities. There this attempt at a theoretical discussion of the meaning of Leninism rested, at least for the time being.

The State of the Specific Theory: Economic Colonialism in the USSR?

Many Western writers have accused the USSR of colonial practices in respect to its non-Russian nationalities. The accusation comes from political scientists and scholars, and from such eminent political figures as William O. Douglas, Robert F. Kennedy, Adlai Stevenson and John G. Diefenbaker.²² What characterizes these writings and statements, however, is that they are for the most part purely political. From the point of view of political science, the arguments advanced in these writings may be sufficient to prove the case. Of course, colonialism per se is much more than merely an economic phenomenon; however, none of these writings take proper cognizance of the economic aspect. None adequately deals with the economic colonialism present in the USSR. Therefore, we can accept these arguments only as statements of a hypothesis requiring further analysis.²³

The only acceptably comprehensive study of the economic aspect of Soviet nationality policies that is available thus far is the well-known paper on Central Asia by a team of economists of the United Nations' Economic Commission for Europe.²⁴ It clearly implies the existence of discrimination against the Central Asian Soviet republics, but it stops short of accusing the Soviet Union of colonialist policies. But, the reason for this hesitancy may also have been political.

The Soviet Union has been bitterly accused of colonialist practices by many emigre writers.²⁵ Especially numerous and comprehensive are Ukrainian writings on this subject, and it is also the Ukrainians who, more than others, have attempted to prove the presence of economic colonialism in the Soviet Union.²⁶ Although many of their writings contain important and reliable data, they are frequently hampered by faulty economic analysis. Some are also tendentious: separate and scattered bits of information are used to illustrate the presumed thesis rather than to test one or another hypothesis.

The methodologically most consistent of all these studies to date is that on the capital balance of Ukraine during the years 1928–32, by Dr. Z. L. Melnyk, professor of finance at the University of Cincinnati.²⁷ Using a national budget method of comparison of total revenues and expenditures at all levels of government in Ukraine, he established the very important fact that almost 30 per cent of total revenue (some five billion rubles of capital funds) collected in Ukraine during that period were withdrawn from Ukraine by the central government in Moscow and spent somewhere else. Melnyk suggests that his finding indicates that Ukraine was being exploited as a colony. The arguments supporting this conclusion are essentially threefold: (1) On balance, the Ukrainian economy suffered a considerable loss; (2) capital withdrawn from Ukraine was not borrowed and was not to be returned later, nor was there any interest paid on it; and (3) since Ukraine was not a politically sovereign state, the capital was taken away without the permission or consent of Ukraine taxpayers. Melnyk's method and findings coincide with several other similar studies accomplished by Soviet Ukrainian economists discussed below. Unfortunately, no similar studies are known to exist for other Soviet republics or regions.

That economic exploitation may indeed have been practiced, if not inside the USSR then inside the Soviet bloc among the different Communist nations has been charged and debated in a considerable body of recent scholarly literature. The Soviet Union has been accused of economically exploiting such other Communist nations as Yugoslavia, Poland, East Germany, Hungary, Rumania, Albania, China and North Korea by such means as price discrimination, rigged exchange rates, enforced specialization, joint-stock companies, long-term loans, indemnities

and reparations. What is even more important is that these charges were advanced not only by Western economists and researchers, but also by the Communists of the injured nations themselves.²⁸

On the other hand, under the pressure of the 1956 uprisings in Poland and Hungary, the Soviet Union publicly admitted that there had been, on its part, "violations and errors which demeaned the principle of equality in relations among the socialist states."²⁹ It also unequivocally implied, in a joint statement with the Polish government, that it had failed to pay the "full value" for Silesian coal delivered to it by Poland from 1946 to 1953, and that its loans to Poland had been excessively burdensome.³⁰ Under the impact of recent Chinese criticism the USSR insists, however, that it has already "corrected Stalin's errors and restored the Leninist principle of equality in its relations with fraternal parties and countries."³¹ Yet, if such practices have been present within the Soviet bloc, there can be no a priori reason why they might also not be present within the Soviet Union. It is as naive to assume that the interests of different republics and economic regions in the USSR (or in any other country) are always coincident as it is to assume that they are always or inevitably inimical. This is why an inquiry into this subject seems both justified and interesting.

The Methods of Inquiry and the Theories to Test

The task of the economist in this case consists, first of all, in ascertaining whether or not there has been a normal interspatial transfer of resources for a stated, sufficiently long period of time. As the first step, it is necessary to compute resource balances for each given economic region. The best, though also the most difficult to compute is the regional balance of payments. Balances of the regional national incomes³² and/or of gross social (in the Soviet sense) or national (in the Western sense) products³³ are also among the best tools of analysis, although, like the balances of payments, they are very difficult to compute today largely because of the lack of necessary statistics. Balances of trade, and the implicit terms of trade, are also useful, but they are partial balances only. In the case of the federal states, and especially under specific Soviet conditions where almost 70 per cent of the national income is siphoned via the government budgets, a balance of fiscal transactions, of revenues and expenditures, on a regional basis is also highly significant.³⁴ Capital transfer balances consisting of direct capital investments and banking or government loans are also quite meaningful,³⁵ and so are the population and labour transfer balances, although of course they represent only individual, separate resources. The official Soviet methodological instructions on the choice of location of industries also call for the calculation of regional supply-and-demand

balances of raw materials, of the production and consumption of specific commodities, and of their substitutes (all in kind, of course, rather than in money).³⁶ No doubt such balances—especially if they are inter-industry input-output matrixes—are also useful for the solution of partial and specific problems, but more generalized and synthetic balances are more useful and more economically meaningful.³⁷

If and when such balances show considerable and persistent deficits (or surpluses on the opposite side), this may signal the presence of a problem. No doubt such imbalances indicate a net inter-regional transfer of resources. We need to know, therefore: (1) What is the effect of these resource movements on the economic growth, employment and welfare of the respective regions? (2) Do these movements of resources promote a convergence of the differentials in regional per capital incomes, meaning both material incomes as well as psychic, such as culture, education, health, etc.? (3) Are these transfers of resources economically justified; are they not arbitrary in the sense that their direction and extent could be different and more economical; in other words, do these transfers maximize the total income, employment and welfare of all the regions combined and taken as a whole?

The purpose of study of the coterminous regional balances is, first of all, to trace the movement of resources among the regions; second, to establish whether or not such resource movements produce a trend in regional development toward an optimum equilibrium in inter-regional economic efficiency and welfare; or, on the other hand, whether or not the observed regional inequalities in income, employment and welfare, as well as in their comparative rates of growth, might be attributed to such resource transfers. The latter case would imply the presence of inter-regional discrimination and exploitation, if the observed inequalities do not decrease with time; as a result they would probably intensify the acuteness of the “colonial” or “national” question.³⁸

The basic definition of a balance-of-payments equilibrium is well known, of course; it may be depicted, for example, as follows:

<i>minus</i>	Exports of goods and services	
<i>minus</i>	Imports of goods and services	
<i>minus</i>	Net outflow of capital	
	Zero	
<i>equal</i>	Net outflow (inflow) of capital	
<i>minus</i>	Net outflow (inflow) of gold.	

All this is simple in case of relations among sovereign states, or even among regions, provided they possess gold or some hard currency to plug the deficit holes. The case ceases to be so simple when there is no gold, or when all its reserves have been exhausted. To plug the deficit, the state or the firms and the population in a region may go into debt for some time, provided credit is available. The real problem begins when deficit persists and credit is exhausted. The sovereign state must devalue its domestic currency at this point. The relative structure of the domestic/foreign price ratios changes as a result, and so do relative costs. This brings about, in due time, a structural change in the economy and its new specialization vis-à-vis foreign markets. Obviously the same trend of events must also occur in case of similar relations among the economic regions, except that "currency devaluation" appears in a different form in this case. Since currency is the same "at home" and "abroad" in case of inter-regional relations, it is its local purchasing power and/or total volume of local moneyed demands that undergoes a "devaluation." Local prices of goods and services imported into the region may rise, local prices of regional exports may fall, or both, and total moneyed income of the region may decline either because of falling export prices or because of rising unemployment, or again both. The structure of the region's economy as well as its specialization must undergo a change in any case.³⁹

Soviet students of Belorussia's balance of payments (although not explicitly stating that there was a deficit) have been quite right in pointing out that the mere discovery of a "*saldo*"—a deficit or a surplus—in the process of the balance-of-payments calculations does not in itself really say much; what is needed, they stress, is "to reveal the material contents" of such an imbalance, and "not only in physical measures (which is done in case of individual commodities), but also in terms of money for the most important commodity groups."⁴⁰ The latter is, of course, most significant because it would show changes in the relative price and cost structures, and would produce an impact on regional income, employment and welfare.

A deficit in the balance of payments can be likened to a hole in a vessel of the national or regional economy through which it loses its contents and becomes emptier as time goes by. It loses income and wealth. Its natural resources and raw materials may become cheaper and be exploited more intensively, and be exhausted in a shorter period of time. Its population and labour force may flee the region in search of higher real income and welfare. It may lose its scientific and artistic talent for the same reasons. Even its art objects and museum treasures may be removed to plug the payment gap, all of which would adversely affect its culture, education, human dignity and self-respect. This is how economic exploitation generates nationalism and anti-colonialist feelings.

In purely economic respects, however, the inter-regional transfer of resources that leads to their persistent loss on the part of a given region produces a clearly retarding impact upon that region's economic growth and development because it diverts the region's economy into such types of activity and lines of specialization which require less resources than before, reduces the scope and opportunities for technological progress and diversification, diminishes external and internal economies, and removes the secondary and cumulative effects that could have been produced by the investment and employment of the transferred resources. The rate of reproduction of the region's economy slows down, and may even come to a standstill, after which absolute decay might ensue.

In most cases it is probable that if one region loses resources some other region or regions gain them at its expense.⁴¹ If and when the juxtaposed regional balances show considerable and persistent surpluses, this means that the regions in question enjoy actual gains. The gain is not only absolute in the sense of wealth and resources added, which is self-evident. It is also relative, in comparison to the region that lost. The relative gain is in the ability to use the added resources to diversify the economy and to make it more complex, to enlarge the scope and opportunities for technological innovations and for the economies of scale, and to reap subsequent cumulative and compounded gains as time goes by. The fruits of this progress are as a rule distributed to producers in the form of rising incomes (rather than to consumers in the form of lower prices) and as the region's economy becomes more and more tilted in its favour and against the underdeveloped regions. Gradually, the rich region becomes richer, whereas poor regions become relatively poorer (in comparison to the rich).

If and when persistent and sufficiently large imbalances (deficits and surpluses) in the inter-regional balances have been empirically established, the next step in the purely economic analysis is to find out why these imbalances appear. In other words, one must establish the economic rationale behind the inter-regional transfer of resources. As a rule, one must first assume an open economy in this analysis in order to be able, second, to reverse this rule and thus test the hypothesis of whether or not there has been inter-regional discrimination and exploitation. Thus a region is assumed to be an open part of a country or a state; the latter, in its turn, may be a part of some larger spatial complex, such as a customs union, a common market, a bloc or camp, or of the world economy as a whole, provided that with each of the larger spatial complexes its economic frontiers are assumed to be open.⁴² (Frontiers among the Soviet republics and economic regions are of course open; hence, the assumption is quite realistic in this case, and the USSR as a whole can therefore be taken as one space complex, of which the republics are regional units.)

Under this assumption it is now necessary to inquire whether or not the observed inter-regional transfers of resources have had purely economic justification from the point of view of all concerned; that is, from the point of view of the sum total of regions taken as one single spatial complex. This is accomplished by testing whether or not the resources in question have been transferred and allocated in accordance with economically rational criteria of the maximization of the specified ends, minimization of the means, and equalization of the marginal returns to the said resources. If and when such tests indicate that the transferred resources have not been allocated in accordance with the rule of equalization of their marginal productivities in all the respective regions, it would mean therefore that some non-economic criteria or motives (such as regional nationalism, for example) have been applied in their transfer and allocation, and that inter-regional economic discrimination and exploitation have been practiced. This also would mean that some region has gained at the expense of another region, while the total space that they comprise has sustained a relative loss because it failed to attain maximum possible growth.

The rational economic policy in the inter-regional resource transfers must, as a rule, aim at the attainment of, or at least the ever closer approach to, the optimum economic effect of such transfers. An optimum in the regional allocation of resources is an allocation that maximizes total output, income and welfare simultaneously (i.e., during identical periods of time) in all the pertinent regions combined and taken together as one whole spatial complex. Conventionally, this is a Pareto-type optimum in the sense that, under it, it is impossible to increase the output, income and welfare of any regions without decreasing them, even relatively, in other regions and in the total space as a whole.⁴³

However, Pareto's optimum is static, and it also abstracts from the possibility of increasing or decreasing economies of scale. Therefore, at least in theory—if in practice such calculations are perhaps impossible—we must strive to approach a dynamic optimum by including the time-cost factor for the time period necessary to achieve it and by assuming the shape of the production functions themselves as time-dependent. The necessary and sufficient conditions for such an equilibrium are, first, that the price of each transferable resource be the same in all regions in which it is used—the price in this case explicitly including all transportation costs as well as a compound interest charge for the time it takes both to transfer resources and to reproduce or recoup them in their new locations; second, that the price (again, in the above sense) of all identical products be the same in all the regions; third, that the output or profitability of any one product per identical unit of each resource and the same length of time be the same in all regions. All these

conditions combine into one necessary and sufficient condition for this type of spatial equilibrium over a given period of time, namely, that the price (in the above sense) of each resource be equal to full cost of its marginal product in all the regions. Only under such conditions will the policy of resource transfers result in the simultaneous and equal gain of all the regions concerned and in the maximum gain of the total space they comprise.

To sum up, economic efficiency rules for the inter-regional transfer of resources, which would not hurt any region and would not create conditions for a "national" or "colonial" problem (or which would alleviate and eliminate the existing ones), and which at the same time would maximize the growth of output, income, employment and welfare of the sum total of all regions combined, must be formulated as follows.

1. Capital, labour and all other mobile resources should be allocated among regions so as to equate their marginal costs and/or products in all lines of production. In export and import industries resources must be allocated so as to hold their marginal costs below those prevailing in other regions, and/or marginal costs above those prevailing in other regions.
2. Each region must export resources with a lower marginal productivity at home than in other regions and must import resources with higher productivity at home than in other regions. The volume of such resource transfers will be optimum when their marginal costs will differ among the regions only by the amount of transfer costs for the same periods of time.
3. In case of immobile natural and other resources, the rule must be that they should be employed to the optimum which is reached when total output cannot be increased any more by any other combination of factors and of their substitutes, and when its cost of production does not exceed marginal cost plus the cost of transportation of a similar product imported from other regions. If a region lacks some particular resource, it must be imported up to the point where its "foreign" marginal cost and transportation cost are equal to the local equilibrium price.
4. Mobile resources must be transferred on a free loan basis, rather than on a permanent ownership or retained control basis. They must be subject to return conditions, or conditions relinquishing control. The interest charge must be determined by supply and demand in different regions, and such an alternatively deter-

mined interest rate must figure explicitly in all comparative costs.

It is perhaps worth mentioning at this point that some modern Soviet theories of inter-regional resource allocation have recently been moving in the direction of the above-mentioned principles. In particular, the most advanced among them advocate now the use of the average national normatives of the marginal capital efficiency of from 10–25,⁴⁴ 17⁴⁵ and 15 per cent,⁴⁶ corresponding to the compounded recoupment periods of about four to nine years. It is proposed that the actual capital-investment projects be then compared with these normatives. As a criterion of rational spatial resource allocation, the minimum, full, imputed costs are advocated, which would be the sum total of (a) direct production costs, (b) additional or new capital investments, multiplied by the marginal efficiency co-efficient (or the “profitability normative”), and (c) the c.i.f. costs of transportation and delivery of goods to the consumers.⁴⁷ Needless to say, such methods are a great step forward, even though they are not yet generally applied. The main shortcoming of the just-mentioned proposal, advocated by the USSR Gosstroï, is the conspicuous absence of a time-cost (interest) for the alternative use of resources, and of a proviso that the resources are being transferred on a loan basis and must therefore be returned in the due time. Much worse in its practical implications, however, is a methodology advocated by two agencies of the USSR Academy of Sciences—The Scientific Council on the Problem of Economic Efficiency of Fixed Capital, Capital Investments and New Technology (T. S. Khachaturov, Chief), and the Sector on the Effectiveness of the Location of Industries of the Institute of Economics (I. G. Feigin, Chief). While also ignoring interest charges and the returnability of investments, this methodology suggests that the efficiency normatives be differentiated according to regions, and that the empirical efficiency indicators be allowed to deviate from the normatives, “if necessary.”⁴⁸ If such a methodology is adopted in practice, it would obviously do away with any semblance of genuine economic rationality and would leave the door wide open to subjective and arbitrary decisions, influenced by possibly spurious motives.⁴⁹

The empirical methods of testing the economic rationale of the inter-regional transfer of resources are well known today. The most advanced and accurate are the methods of mathematical programming—non-linear and linear, as well as those using regional input-output models.⁵⁰ Some major problems involved in the use of these methods must be mentioned at this point to make the reader aware of their significance. In most mathematical programming models of the inter-regional transfer and location of resources, the dual objective

functions are (a) to minimize the total transportation and delivery costs and (b) to maximize some appropriate aggregate output, such as national income. In applying these models to the analysis of the Soviet economy one must be well aware of the arbitrary peculiarity of Soviet transportation tariffs: they have been made to decrease with the distance, rather than increase or be constant.⁵¹ The transferability of goods and people is thereby artificially increased, and tilted in favour of the Russian republic. It is comparatively cheaper to haul heavy freights to and from the small border republics hundreds and thousands of miles to and from Russia, and within Russia, than within even such medium-sized republics as Ukraine or Uzbekistan. Historically, back in the 1930s, this tariff policy was explicitly designed to aid in the acceleration of the economic development of the eastern parts of the RSFSR.⁵²

The elasticities of demand for and supply of the transportation services in the Soviet Union's consuming regions must accordingly be expected to be more effective than in the producing regions, and even more than in a free-market economy.⁵³ This would appropriately affect the shadow prices within the mathematical programme, while the cost minimums, too, would necessarily be smaller than they would in a normal competitive economy. Furthermore, it must be kept in mind that Soviet freight rates are insufficiently and arbitrarily differentiated among commodities as well as among types of carriers. As one Soviet author has recently stated outright, they do not reflect actual transportation costs.⁵⁴

As to the maximizing objective function of the dual programme, very much, of course, depends on what goes into the aggregate output or the national income, especially if it is taken as a measure of welfare. There still exist some doubts, for example, as to whether or not to include in the national income such items as investment and collective goods, or communal consumption supplied by the government free of charge, and how to value them if they are included.⁵⁵ While for the purpose of measuring welfare there is no question that these items must be included (at cost to the government), for our particular purpose of appraising the welfare and the "psychic income" of different nationalities it is even more true. In the Soviet Union, government financing of very wide programmes of collective consumption (especially such as the free-of-charge education in the native tongues, research in local history, social sciences and humanities, subsidization of publishing, national theatres, museums, public libraries, clubs, recreational and medical facilities, and so forth almost ad infinitum) directly affects the culture and welfare of different nationalities in different regions. Since all such financing is centralized and disbursed from Moscow through the state budget, and since the republics of the USSR do not have the right of self-taxation or self-crediting, it is obvious that the distribution of the budget funds can be, technically speaking, used

as a tool for fostering the culture and welfare of some nationalities, while others might be forced to remain culturally underdeveloped so as to succumb to assimilation and extinction. It is therefore imperative to find out whether or not such is in fact the case.

With the analysis of the economic rationale of the observed inter-regional transfer of resources and of its effects on the regional economy completed, the last remaining step is to find out whether or not the levels of regional economic development display a long-run tendency to converge. This is a purely mathematical exercise, of course, but one thing must be stressed in this connection. However we measure the comparative levels of economic development (by national income, personal disposable income, real wages, industrial output, etc., per capita or per unit of productive factors), we must be aware of the fact that the equalization of such levels is possible only in the sufficiently long run. The comparative regional endowment with natural and other "fixed" resources, geographic location and distances from and to markets, the historically given levels of economic development and the given structure of industries, as well as the socio-cultural and political conservatism on the part of local population and leadership may all combine to hinder, if not completely prevent, the equalization and convergence of the levels of development in the short run. Time is indeed needed to develop natural resources, to expand and specialize local industries and the regional export-import relations, and to break through conservative traditions.

Furthermore, the mathematics of the comparison of the levels of development also deserves some careful consideration. The convergence or divergence of the regional levels of development might appear evident at first sight, as soon as the absolute or relative gaps over limited periods of time are compared. However, such evidence may also be misleading as far as the actual trend of the comparative developments is concerned.⁵⁶ Even if the observed percentage rate of growth (per unit of time) of the comparatively lower level is larger than the comparative rate of growth of the higher level—and this is clearly the only possible case where the gap between the two levels would converge⁵⁷—the gap between the two levels might not necessarily decrease at once. Rather, it might first increase, reach a maximum, and only then begin to decrease. (In case of divergence of the comparative levels, especially if it happens at a slow rate, the opposite might be true for some time.) The gap between the two levels decreases from the beginning only if the absolute increment in the comparatively higher level is absolutely smaller than the absolute increment of the comparatively lower level, and this happens at the point in time where the gap between the two levels is a maximum. What all this actually depends on are the comparative percentage rates of growth of the two levels, averaged per unit of time over the (limited) period of

observation but then extrapolated into the future until the levels meet. The trend toward convergence or divergence of the two levels is necessarily an extrapolating exercise that must go beyond the limited period of time given in the comparison.

The average rate of growth of a region's economic development (a given aggregate per capita of the population) is the familiar geometric mean that can be computed in a number of ways. The following is an example of one of the possible formulas:

$$k_x = \frac{(\log X_t - \log X_0) 230.259}{t} \quad (1)$$

where k is the rate of growth of the level X ; X is that level at the beginning of the given period t and X is the level at the end of the period; t is the number of years or other time units in the given period; \log is the common logarithm of the given number, and 230.259 is the natural logarithm of 10 multiplied by 100. Having similarly computed k for the level Y , we compare them, as well as X with Y . The two levels will converge if, and only if, the following is true: either YX and kk or XY and kk . If these conditions hold, then we may calculate when (i.e., after how many units of t) in the future the gap between the X and Y will be closed—even though, as mentioned above, this gap may in the meantime absolutely increase for some time. This is calculated according to the following formula:

$$t = \frac{(\ln Y_0 - \ln X_0) 100}{k_x - k_y} \quad (2)$$

where all the symbols are the same as in (1), while \ln stands for the natural logarithms.

Formula (2) tells us whether or not, and if yes, when, the two comparative development levels will become equal. From (2) we can also derive the formula of the rate of growth of the lower level required to catch up with the initially higher level within some specified period of time:

$$k_x = k_y + \frac{(\ln Y_0 - \ln X_0) 100}{t} \quad (3)$$

Both rates of growth are assumed to be constant in the meantime, of course. They may also be changed into variable over time in accordance with one or another function, but this would severely complicate the calculations in practice.

*The Growing Gap Between Russia and the Non-Russian Republics*⁵⁸

What remains to be done now is apply the above theories and methods to the analysis of the available Soviet facts and data. This is not an easy task in view of its enormous scope and the paucity of available statistics. What follows must be considered only a preliminary test of correlation and comparison of facts and theories, and most conclusions must be considered tentative mainly because this is essentially the first inquiry of its kind,⁵⁹ and it is as such still incomplete; not all the available data have been studied with equal thoroughness, particularly not all the available statistical handbooks of the Soviet republics and regions. The incompleteness of the inquiry is evident especially from the fact that the autonomous republics and the economic regions of the RSFSR have not been treated separately; the present paper does not go any deeper than the level of the union republics.

To begin with, our first task is to establish whether or not considerable inequalities in the levels of economic development of different union republics still prevail in the USSR, and if so, whether or not the gap tends to decrease over time. Several indicators may be employed to measure such differences, but our choice is unavoidably limited only to those available.⁶⁰

The most widely used measure in the world is the per capita national income or product, but Soviet statistical sources have not so far published these data in a form suitable for analysis. The calculation of the national income in the union republics began in 1957, but only indexes of growth have been revealed thus far (see Table 1). This of course prevents a comparison of the levels of income among the republics. Two Soviet authors who presumably had access to the national income figures in absolute form have come up with different results. Ia. Feigin has found that "in 1960, the ratio between the maximum and the minimum amounts of national income per capita of population of the union republics was 3:1" and that the "highest level of national income per capita was found in the Latvian and Estonian SSRs, and then in the RSFSR."⁶¹ On the other hand, Iu. F. Vorobiov has found that, in 1961, the same ratio between the highest and the lowest per capita national income levels was only 2.4:1, with, indeed, Latvia, Estonia and the RSFSR heading the list in that order, and Uzbekistan and Tadzhikistan being at the very bottom.⁶² A jump from the level of 3 to 2.4 in one single year is not easily imaginable, although there might have been a decline in the per capita income in Latvia in 1961 (cf. Table 1). In any case, a more definite picture of the

TABLE 1 Growth Indexes of the National Income of the Soviet Republics, 1958-65 (1958=100)

Republics ^a	1958	1960	1962	1963	1964	1965	Per Capita National Income 1965
RSFSR	100	117	132	138	149	159	147
Ukraine	100	111	129	127	142	158	145
Belorussia	100	128	133	149	169	178	166
Uzbekistan	100	115	128	137	149	167	130
Kazakhstan	100	117	131	133	158	152	115
Georgia	100	108	123	124	131	146	130
Azerbaidzhan	100	117	127	128	136	147	117
Lithuania	100	124	130	156	172	188	171
Moldavia	100	110	139	136	154	178	152
Latvia	100	121	121	142	158	172	159
Kirghizia	100	114	126	149	155	174	136
Tadzhikistan	100	117	138	157	169	181	139
Armenia	100	122	140	146	161	181	146
Turkmenia	100	111	113	127	132	139	110
Estonia	100	125	135	152	169	180	168

SOURCE: *Narodnoe khoziaistvo SSSR v 1962 godu: Statisticheskii ezhegodnik* Moscow, 1963), 484; *Nar. khoz. SSSR v 1963 g.* (Moscow, 1965), 576; *Nar. khoz. SSSR v 1965 g.* (Moscow, 1966), 9, 590. The data are in "comparative" prices.

^a The order in which the republics are listed in this and subsequent tables is that used in the original Soviet tables.

actual and stable differences in the per capita national income of the Soviet republics must await publication of more evidence than is now the case.⁶³

Assuming that the maximum inter-republic differences in the levels of national income per capita lie within the range of 1:2.4 and 1:3, we may conclude that this range is quite a bit larger than in the developed capitalist countries, such as France, England and the United States.⁶⁴ Perhaps one might have expected that in a socialist planned economy this difference could have been smaller.

Whether or not these observed inter-republic national income inequalities diminish with time cannot be ascertained because of the absence of data for sufficiently long periods. The only available data are those reproduced in Table 1 and they only cover the seven-year period 1958-65. Even for such a short period, however, these statistics do not

indicate any significant convergence in the levels of income among the republics; this is particularly evident when the income is calculated per capita and compared with 1958. Turkmenia, Kazakhstan and Azerbaidzhan display particularly poor and divergent growth compared to Lithuania, Estonia and Belorussia. The table also shows that in some republics in some years the national income even declined absolutely in comparison with the previous year; such is the case in Ukraine, Moldavia and Kazakhstan. This of course was due to bad harvests, but it also shows how dependent on agriculture the economies of these republics still are.

Another accepted way of comparing the levels of economic development of the Soviet republics is to analyze the structure of their populations, viz., their distribution between urban and rural communities. These statistics are more readily available, and they are reproduced in Table 2. It emerges that, at the present time, Estonia, Latvia and the RSFSR are the most highly urbanized republics of the USSR, while Uzbekistan, Tadzhikistan and Moldavia are still very much agrarian. This finding exactly coincides with their respective levels of national income per capita, discussed above, and illustrates again the well-known fact that income and wealth grow with urbanization, while rural environment generates relative poverty and relative economic underdevelopment.

Today, most of the Soviet republics trail Russia in the level of urbanization by far, but that was not always so. The RSFSR made the greatest progress in urbanization in the post-Second World War period, leaving behind Azerbaidzhan, Ukraine and Turkmenia, whose levels of urbanization as late as 1939 surpassed or were equal to Russia.⁶⁵ In the post-Second World War period, the annexation of the western, predominantly rural regions to Ukraine and Belorussia undoubtedly lowered their levels of urbanization compared to Russia's, but not by much. For example, the proportion of urban to rural populations in the eastern provinces of Ukraine (i.e., excluding seven western provinces) was 36:64 in 1940, 50:50 in 1959, and 55:45 in 1963, while the same proportion in Russia in 1963 was 58:42.⁶⁶

Table 3 data supplement those of Table 2, and reinforce its evidence and implications. The share of "workers and employees," which comprises all those persons who are not members of collective farms or dependents is again the highest in Estonia, Latvia and Russia, and the lowest in Moldavia and Central Asia. A comparative study of the structure of the labour force according to employment, profession and source of income, the data for which presumably are available in the fifteen republic volumes of the 1959 population census,⁶⁷ would probably show additional interesting inter-republic differences, but this study could not be undertaken in connection with this paper.

TABLE 2 Urban-Rural Population in the Soviet Republics, 1914-65^a

Republics	1914	1926	1933	1939	1959	1965
RSFSR	17:83	17:83	25:75	33:67	52:48	59:41
Ukraine	21:79	17:83	22:78	34:66	46:54	52:48
Belorussia	17:83	15:85	16:84	21:79	31:69	39:61
Uzbekistan	15:85	22:78	25:75	23:77	33:67	35:65
Kazakhstan	10:90	...	...	28:72	44:56	48:52
Kirghizia	12:88	...	...	19:81	34:66	38:62
Turkmenia	7:93	14:86	19:81	33:67	46:54	49:51
Tadzhikistan	2:98	9:91	11:89	17:83	33:67	35:65
Georgia	26:74			30:70	42:58	47:53
Azerbaidzhan	24:76	24:76	29:71	36:64	48:52	50:50
Armenia	10:90			29:71	50:50	55:45
Lithuania	13:87	...	...	23:77	39:61	45:55
Latvia	38:62	...	...	35:65	56:44	62:38
Estonia	19:81	...	...	34:66	56:44	63:37
Moldavia	13:87	...	...	13:87	22:78	28:72

SOURCE: *The U.S.S.R. in Figures* (Moscow, 1934), 133; *Nar. khoz. SSSR v 1963 g.*, 11; *Nar. khoz. SSSR v 1965 g.*, 11.

^a Frontiers of 1926, 1933 and 1939 are as of 1 January 1939; those of 1914, 1959 and 1965 are as of 1 January 1965.

TABLE 3 Percentage of Workers and Employees in the Total Population of the Soviet Republics, 1940, 1956, and 1963^a

Republics	1940	1956	1963
RSFSR	19.2	29.1	35.4
Ukraine	15.1	21.7	27.2
Belorussia	11.9	16.2	25.8
Uzbekistan	11.0	15.1	18.9
Kazakhstan	14.7	25.9	31.9
Georgia	12.6	18.7	24.9
Azerbaidzhan	14.2	18.5	20.0
Lithuania	6.4	18.3	27.9
Moldavia	3.8	13.2	17.7
Latvia	13.9	38.8	37.7
Kirghizia	11.0	16.9	21.5
Tadzhikistan	9.3	13.8	16.1
Armenia	10.9	19.4	25.6
Turkmenia	14.4	18.2	19.1
Estonia	17.9	33.4	40.1

SOURCE: *Narodnoe khoziaistvo SSSR: Statisticheskii sbornik* (Moscow, 1956), 18; *Nar. khoz. SSSR v 1958 g.* (Moscow, 1959), 660; *Nar. khoz. SSSR v 1963 g.*, 9, 477.

^a Frontiers are post-Second World War.

Differences in the levels of economic development can also be measured by the per capita industrial output. In a way it is a better indicator than even the national income per capita because it shows the level of industrialization attained by an economic region, making its level of development independent of agriculture and other non-industrial sectors of the economy. This indicator also suits very well the Leninist theory of the economic aspect of the "question of nationalities," expressed in the resolutions of the Tenth and Twelfth Party Congresses referred to above.

Per capita industrial production in the Soviet republics is presented in Table 4, which gives absolute output figures of all industries,⁶⁸ in constant 1926–7 rubles (linked up by a chain index formula to the subsequent constant-price years 1952 and 1955).⁶⁹ The defects of the 1926–7 prices are of course well known, but this is not relevant in our case. We do not compare growth here with that of foreign countries; since the same methods of index construction and the same prices had been used consistently in all Soviet republics, this makes the data sufficiently comparable for our purposes.⁷⁰

Table 4 provides evidence for some rather grave conclusions. First, in spite of the undoubtedly outstanding progress of industrialization in all

TABLE 4 Per Capita Production of All Industries in the Soviet Republics

Republics	1913		1940		1958		1965	
	Rubles	Index	Rubles	Index	Rubles	Index	Rubles	Index
RSFSR	130	100	923	100	3,376	100	5,671	100
Ukraine	120	92	576	62	1,693	50	2,884	51
Belorussia	51	39	261	28	854	25	1,801	32
Uzbekistan	67	51	332	36	572	17	1,380	24
Kazakhstan	36	28	260	28	978	29	1,560	27
Georgia	45	35	339	37	1,067	32	1,647	29
Azerbaidzhan	145	111	743	80	1,417	42	1,784	31
Lithuania	57	44	140	15	1,127	33	2,502	44
Moldavia	25	19	148	16	748	22	1,569	28
Kirghizia	35	27	188	20	700	21	968	17
Tadzhikistan	12	9	71	8	186	5	350	6
Armenia	56	43	375	41	1,540	46	3,001	53
Turkmenia	39	30	201	22	520	15	587	10
Average for non-Russian republics	57	44	303	33	950	28	1,669	29

SOURCE: *Sotsialisticheskoe stroitelstvo Soiuza SSR (1933-1938 gg.) Statisticheskii sbornik* (Moscow, 1939), 8-9, 145; *Planovoe khoziaistvo*, no. 5 (1939): 174; *Ekonomika sotsialisticheskoi promyshlennosti* (Moscow, 1940), 297; *Strany uira: Ezhegodnii spravochnik* (Moscow, 1946), 186-251; S. E. Kamenitser and M. S. Urinson, *Rossiskaia federatsiia v novoi piatiletke* (Moscow, 1947), 28; *Bolshaia sovetskaia entsiklopediia*, volume on the USSR, 1st ed. (Moscow, 1948), 1827-1925; *Narodnoe khoziaistvo SSSR (1956)*, 51; *Narodnoe khoziaistvo RSFSR* (Moscow, 1957), 3, 66; *Narodnoe gospodarstvo Ukrainской RSR* (Kiev, 1957), 22; *Razvitie narodnogo khoziaistva Belorusskoi SSR za 20 let* (Minsk, 1964), 29; *Sovetskii Turkmenistan za 20 let* (Ashkhabad, 1964), 19; *SSSR v tsifrakh* (Moscow, 1958), 16, 139-69; *Nar. khoz. SSSR v 1964 g.* (Moscow, 1965), 4, 128, 802; *Nar. khoz. SSSR v 1965 g.*, 9, 127.

non-Russian republics, their level of industrialization attained thus far is still very much below that of Russia. Second, the gap between the levels of industrialization of Russia and the non-Russian republics continued to grow until 1958; then, during the Seven-Year Plan, it decreased, but only very slightly. In terms of the gap, the non-Russian republics today are industrially more underdeveloped compared to Russia than they were before the Bolshevik Revolution: in 1913, they produced 44 per cent of per capita Russian production, while in 1965 they produced only 29 per cent.⁷¹

Some republics fared especially badly compared to the RSFSR; they are Tadzhikistan, Turkmenia and Kirghizia, whose level of industrialization remains extremely low. Others, such as Azerbaidzhan, Ukraine, Uzbekistan, Belorussia and Georgia increased their gaps in relation to Russia very rapidly. Only Armenia and Moldavia have gained some ground, and Kazakhstan remained on the same relative level of development compared to Russia as in the past.

TABLE 5 Per Capita Electric Power Output in the Soviet Republics, 1913, 1940 and 1965

Republics	1913		1940		1965	
	Kwt. hrs	Index	Kwt. hrs.	Index	Kwt. hrs.	Index
RSFSR	14.7	100.0	284	100.0	2,639	100.0
Ukraine	15.4	104.9	306	107.7	2,088	79.1
Belorussia	0.4	2.9	57	20.1	980	37.1
Uzbekistan	0.7	5.1	75	26.4	1,104	41.8
Kazakhstan	0.2	1.6	105	37.0	1,602	60.7
Georgia	7.6	51.7	212	74.6	1,338	50.7
Azerbaidzhan	48.2	327.5	571	201.0	2,265	85.8
Lithuania	2.0	13.8	28	9.8	1,298	49.2
Moldavia	0.4	3.0	7	2.5	932	35.3
Latvia	5.9	40.2	132	46.5	660	25.0
Kirghizia	0.01	0.06	34	12.0	883	33.4
Tadzhikistan	0.01	0.06	41	14.4	619	23.4
Armenia	5.1	34.7	304	107.0	1,320	50.0
Turkmenia	2.5	17.0	70	24.6	745	28.2
Estonia	6.1	41.5	190	66.9	5,548	210.2
Average for non-Russian republics	10.3	70.3	212	74.6	1,527	57.9

SOURCE: *Promyshlennost SSSR: Statisticheskii sbornik* (Moscow, 1964), 234-5; *Nar. khoz. SSSR v 1965 g.*, 99.

Lenin's exhortation to achieve equality between the levels of industrialization of the non-Russian republics and the RSFSR has clearly not been realized thus far. During Stalin's reign practical policies in this

respect obviously differed: the industrialization of Russia proceeded faster than that of the non-Russian regions. Only between 1958 and 1965, as mentioned before, did the gap between them decrease a little. The average annual rate of growth of per capita industrial production in this seven-year period was 7.4 per cent in Russia and 8 per cent elsewhere. (This has been computed from data in Table 4 by means of Formula 1, above.) From Formula 2 we can compute now that, if the 1958–65 trend were to continue unchanged into the future, the equalization of the non-Russian republics, taken together, could attain the level of Russia only by the year 2170. If, however, the long-range trend prevails—that of 1913–65—the two levels would never meet, for the Russian output would grow by 7.9 per cent a year and that of the non-Russian republics by only 7 per cent.

The findings of Table 4 can be compared with those of Table 5 and 6, which show the per capita levels of electrification and of the consumption of energy in the Soviet republics. Table 5, to be exact, shows only the production of electric power in each republic, but inter-republic exports and imports of this commodity are known to have been negligible.⁷² Therefore, production can be indicative of consumption in this case. Also, Table 6 basically substantiates the evidence of Table 5. Both tables show a slightly different picture from that arising out of Table 4; viz., electric power output and consumption of energy have been distributed between the RSFSR and the non-Russian republics somewhat more equally than the production of all the industries combined. But the basic conclusions from Table 4 still stand. One observes again vast differences in the levels of electrification and in general consumption of energy between the RSFSR and the other Soviet republics, especially those of Central Asia. Also, in the comparison over time, the gap between the electrification of Russia and of the non-Russian republics, taken together, increased rather than decreased, especially in the post-Second World War period.⁷³

Of course, it may be said that the absolute gap between the highest and the lowest levels of electrification, shown in Table 5, had decreased from a proportion of 4820:1 in 1913 (Azerbaijan compared to Tadzhikistan) to a mere 9:1 (between Estonia and Tadzhikistan) by 1965, but this is hardly of much consequence as far as the question of nationalities is concerned.⁷⁴ No one denies that there has been remarkable progress in the economic development of the non-Russian republics in the past fifty years. It is also readily granted that their progress was rapid compared to, let us say, Afghanistan, Saudi Arabia, or the former colonial countries of Africa, and that this difference was due to the difference in their respective economic, social and political systems. However, what matters most as far as the solution of the nationalities question in the USSR is concerned is how the growth of the non-Russian nationalities compares to that of

TABLE 6 Consumption of Energy in the Soviet Republics, 1962

	All Types of Energy (in per cent of the USSR total)	Electric Power	Mineral Fuel	Population	Per Capita Consumption Index, All Types of Energy (RSFSR = 100)
RSFSR	63.6	68.0	72.2	55.5	100.0
Ukraine	22.1	18.2	16.2	19.8	97.4
Belorussia	1.9	1.2	1.8	3.8	43.6
Uzbekistan	1.6	1.9	0.9	4.1	34.0
Kazakhstan	4.5	3.7	2.9	5.0	78.5
Georgia	0.9	1.2	0.8	1.9	41.4
Lithuania	0.6	0.4	0.7	1.3	40.2
Azerbaidzhan	1.7	1.9	1.4	1.9	78.1
Moldavia	0.5	0.3	0.4	1.4	31.1
Latvia	0.7	0.6	1.0	1.0	61.1
Kirghizia	0.4	0.4	0.3	1.0	34.9
Tadzhikistan	0.2	0.4	0.1	1.0	17.4
Armenia	0.3	0.9	0.4	0.9	29.0
Turkmenia	0.4	0.3	0.2	0.8	43.6
Estonia	0.6	0.6	0.7	0.6	87.3
Average for non-Russian republics					51.3

SOURCE: *Nar. khoz. SSSR v 1963 g.*, 61; *Nar. khoz. SSSR v 1961 g.* (Moscow, 1962), 9.

Russia. Russia is the "elder brother" of them all, Russia is the largest by far of the republics, and Russia was an imperialist oppressor of the other nationalities before the October Revolution—or at least Lenin said so. This is why the comparison must be made, first of all, with the achievements of Russia.

Also, as Table 4 shows, the absolute gap between the highest and the lowest levels of *total* industrialization increased in any case from a proportion of 12:1 in 1913 (between Azerbaidzhan and Tadzhikistan) to 16:1 (between Russia and Tadzhikistan). This fact alone merits further investigation.

Transfer of Resources to the RSFSR?

The question why the gap between Russia and the non-Russian republics has increased needs to be answered at this point. Part of the answer has already been given in Table 4, which shows that the growth of industry in Russia has been consistently faster than in most of the non-Russian republics. Even when that growth was relatively slower in Russia than in some non-Russian republics, it still contributed a larger absolute increment to the total output of Russia because the volume of Russia's output is, of course, much larger than that of the smaller republics. Hence, the gap is also not a mere "telescopic mirage" of percentages multiplying from a near-zero base. Russia's 1913 industrial base was not smaller, but much larger, than that of the non-Russian republics combined.

The main reason for the growing gap can be seen more clearly from Tables 7 and 8, which show per capita capital investments. Both tables, but especially Table 8, indicate that the RSFSR has enjoyed clear priority in the allocation of investments per capita: It has received considerably more per capita from the USSR treasury than other republics and this inequality has increased over time. Of all the republics, only Azerbaidzhan has obtained more investments per capita than the RSFSR, but most of these investments have been absorbed by its depleting oil industry; as Table 4 suggests, other industries have not been developed sufficiently rapidly in Azerbaidzhan.⁷⁵

By itself the fact that there has been considerable inequality in the per capita distribution of capital in the different republics still does not imply any inequity in the distribution. We have seen that the per capita national income in Russia is higher than in most other republics. From Table 15 below we also observe that the population of the RSFSR has been paying higher income taxes per capita (because of their higher income). All this suggests that higher investments per capita in Russia could at least in part explain on equity grounds—after all, a considerable proportion of them stems from taxes. However, the solution of the question of nationalities through the equalization of the levels of economic development presumes an inequitable distribution of resources on a loan basis; otherwise, without economic aid by the developed countries, there can be no economic solution of this problem. Hence, had Soviet capital investments been guided at least to a substantial extent by the desire to alleviate and solve the nationalities question, a different picture of the allocation of investments from that in Table 7 and 8 should have emerged.

The actual degree of equity or inequity in the larger per capita allocations in the Russian republic cannot, unfortunately, be ascertained as yet. A thorough analysis of the equity of taxation is necessary. Since this cannot be accomplished here, it is an additional important reason why the

TABLE 7 Per Capita Capital Investments of State and Co-operative Enterprises, 1918-60

Republics	1918-32		1933-40		1941-60		1946-60		1918-60	
	Rubles	Index	Rubles	Index	Rubles	Index	Rubles	Index	Rubles	Index
RSFSR	50	100.0	194	100.0	1,309	100.0	1,221	100.0	1,531	100.0
Ukraine	48	97.2	116	59.7	905	69.1	864	70.8	1,050	68.6
Belorussia	30	61.0	63	32.4	569	43.4	551	45.1	657	42.9
Uzbekistan	34	67.5	100	51.5	544	41.5	505	41.3	636	41.5
Kazakhstan	...	...	172	88.3	1,254	95.7	1,188	97.3	1,385	90.5
Georgia	...	...	166	85.5	817	62.4	764	62.6	991	64.7
Azerbaidzhan	...	...	247	126.9	1,176	89.8	1,122	92.0	1,416	92.5
Lithuania	...	...	...	...	...	...	557	45.6	...	...
Moldavia	...	...	...	...	...	...	395	32.3	...	...
Latvia	...	...	...	...	...	...	873	71.5	...	...
Kirghizia	...	...	99	50.9	683	52.1	645	52.8	763	49.8
Tadzhikistan	56	111.6	126	64.7	640	48.8	610	49.9	765	50.0
Armenia	...	...	176	90.4	783	59.8	743	60.8	929	60.7
Turkmenia	47	93.4	160	82.6	1,124	85.8	1,060	86.8	1,274	83.2
Estonia	...	...	...	...	...	...	1,283	105.1	...	...
Average for non-Russian republics	44	89.0	122	63.0	875	66.8	817	66.9	1,011	66.0

SOURCE: *Kapitalnoe stroitelstvo v SSSR: Statisticheskii sbornik* (Moscow, 1961), 80-109; *The USSR in Figures, 133*; *Nar. khoz. SSSR v 1960 g.* (Moscow, 1961), 10.

TABLE 8 Per Capita Capital Investments in Industry, 1918-60

Republics	1918-40		1941-60		1946-60		1918-60	
	Rubles	Index	Rubles	Index	Rubles	Index	Rubles	Index
RSFSR	104	100.0	651	100.0	602	100.0	745	100.0
Ukraine	91	87.5	476	73.1	452	75.1	541	72.6
Belorussia	25	24.0	198	30.4	193	32.0	214	28.7
Uzbekistan	40	38.5	239	36.7	216	35.9	267	35.8
Kazakhstan	82	78.8	480	73.9	450	74.7	528	70.9
Georgia	74	71.1	373	57.3	352	58.5	434	58.2
Azerbaidzhan	181	174.0	685	105.2	655	108.8	829	111.4
Lithuania	...	...	...	...	224	37.2	...	...
Moldavia	...	...	...	...	142	23.6	...	...
Latvia	...	...	...	...	283	47.0	...	...
Kirghizia	31	29.8	319	49.0	301	50.0	339	45.5
Tadzhikistan	36	34.6	274	42.2	261	43.3	300	40.3
Armenia	85	81.7	377	57.9	357	59.3	435	58.4
Turkmenia	44	42.3	507	77.9	475	78.9	540	72.5
Estonia	...	...	...	...	501	83.2	...	...
Average for non-Russian republics	79	76.0	414	63.6	378	62.8	475	63.7

SOURCE: *Kapitalnoe stroitelstvo v SSSR*, 80-109; *The U.S.S.R. in Figures*, 133; *Nar. khoz. SSSR v 1960 g.*, 10.

conclusion reached in this paper must still be considered as tentative. If it were true that the whole differential in the higher capital investments in Russia could be explained on equity grounds, all our findings would amount to a conclusion that Russians did not want to aid economically the underdeveloped republics of the USSR and did not care to solve the Soviet problem of nationalities by economic means. Of course, this still would be an important finding.

However, there are many grounds for suspecting that the rules of equity can explain only a part of the investment differential in the case of the RSFSR. As Table 15 shows, taxes per capita in the RSFSR are not even 34 per cent higher than in the non-Russian republics combined—34 per cent being the investment differential in the last column of Table 7. Hence, a considerable proportion of the investment differential in the Russian republics must have come from the transfer of investment capital to Russia from other republics of the Union. If so, this is something quite different from the equity principle.

That capital funds have in fact been transferred from one Soviet republic to another without respect to equitable taxation has been explicitly acknowledged in more than one official statement. Thus Khrushchev wrote in *Pravda* on 30 March 1957:

Socialist accumulation must be distributed in accordance with all-Union interests, and primarily in accordance with national economic priorities. It must be kept in mind in this connection that, in a number of cases, capital formation may take place in some republics and the government may decide to develop the economy—in other republics. If centralized leadership is relaxed in such a case, funds may become spread too thinly and would be spent not on economic growth but on various other needs, on which we still cannot afford to spend a larger share of investments.

Khrushchev expressed this point of view even more clearly in *Pravda* on 8 May 1957:

There may develop a situation when monetary accumulations of the enterprises of industry and of other sectors, which are located in the territory of that or another republic, are insufficient to finance the economic development targets established by the national economic plan, while at the same time, in other republics, capital is formed in amounts exceeding the needs foreseen in the plan. In all such cases the funds must be redistributed among the republics through the Union budget. This can be explained by the following example. In the Kazakh SSR, where there are very rich deposits of natural resources, it is necessary to develop iron and non-ferrous metallurgy, the mining of coal and of iron ore. For this, large capital investments are required. Yet, all the revenues that are collected in the territory of Kazakhstan are insufficient to secure the financing of the measures already in progress.

Hence, the shortage of funds must be covered from the Union budget out of the redistribution of the general, all-Union revenues. The same situation can also develop in other republics.

Let us take good note of the fact that it did not occur to Khrushchev to suggest that Kazakhstan borrow the necessary funds from other republics, or at least from the Union treasury or the State Bank. No, on the contrary, he deliberately spurned the equity and the economy principles in this case while suggesting that the taxpayers of other republics carry the burden Kazakhstan was unable to bear. Furthermore, how could Khrushchev be so sure that it was economical to develop Kazakhstan's resources in comparison with the already-developed resources of some other republic if he did not propose to charge interest on the investments in Kazakhstan and therefore failed to take the time factor into account? We must keep all this in mind for further consideration.

Khrushchev tried to justify the transfer of capital resources from one republic to another. Some half-dozen Soviet economists who partook in the discussion of the method of calculation of the national income of the republics simply stated, as a matter of fact, that the transfer of one republic's national income to another republic via the all-Union budget is definitely taking place.⁷⁶ A. Zverev, the former minister of finance of the USSR, even went so far as to apply the Marxian term "surplus product" to that part of the accumulated funds which is transferred from one republic to another.⁷⁷ Logically, this means that one republic exploits another in the Marxian sense of exploitation!

In no other republic but Ukraine have the actual calculations of the transferred funds been accomplished and published thus far. In 1963, the Academy of Sciences of the Ukrainian SSR published a monograph on the national income of Ukraine—the collective work of twenty-six economists. The monograph establishes that, in the period 1959–61 alone, considerable funds were withdrawn from Ukraine into the all-Union treasury and were never returned. The difference between the Union budget revenues and expenditures in Ukraine amounted to 3.8867 billion rubles in 1959, 4.1758 billion in 1960, and 3.6648 billion in 1961.⁷⁸ These net losses of Ukraine constituted about 14 per cent of its national income⁷⁹

These newest Soviet calculations sustain similar data for preceding periods, calculated by a similar method of financial balances: calculations by Professor Melnyk, quoted above, which produce a net loss of about five billion rubles for Ukraine during the First Five-Year Plan period; calculations of Soviet economists of the Ukrainian Gosplan in the 1920s, which produced a net loss for Ukraine for the period 1923–4 of some 500 million rubles.⁸⁰ Also I have found, in an as yet unpublished paper

presented to the Shevchenko Scientific Society in New York on 27 January 1957, that in 1940, Ukraine's deficit in relation to the all-Union budget amounted to at least 2.1 billion rubles. Hence, there is no doubt that funds have been withdrawn from Ukraine in considerable amounts and used by the USSR treasury outside of Ukraine. These funds have never been returned, and neither were they borrowed from Ukraine to bear an interest. Hence, from the Ukrainian point of view, the charge that Ukraine has been exploited financially by Moscow makes clear sense. These facts have undoubtedly contributed to the existence of Ukrainian nationalism.⁸¹

However, the charge of colonialist exploitation is not a priori or necessarily true if looked upon from the point of view of the USSR as a whole, and also possibly from the viewpoint of other republics. Similar calculations of financial balances of other Soviet republics do not exist or are not being published. Hence, there exists no evidence that all or any one of them is not exploited as much as Ukraine. Suppose for discussion's sake that Moscow withdraws identical proportions of resources from all republics and uses these resources abroad—to supply foreign aid to the underdeveloped countries of the world, for example, to finance space explorations, oceanographic research, etc. If this aid and expense is extended in the form of loans with an appropriate interest, or when research equally benefits all republics, there is no exploitation, of course. But this objection is purely academic. There is no doubt that the USSR does not spend 14 per cent of its national income abroad. Hence, it is quite probable that not all the republics bear the burden of 14 per cent withdrawals; some probably lose less, others maybe even more, while some probably do not lose anything but gain from the transfer of funds from others. This inequity can produce conditions of accounting for the existence of the question of nationalities in the USSR.

Since there is no doubt that the unpaid-for funds are transferred within the USSR, something can be learned about their distribution from studying the shares of different republics in the total capital investments of the USSR. These data are reproduced in Table 9. The first thing that can be learned from this table is the change of shares over time. It is evident that the RSFSR's share constantly increased before and during the war; then it declined, partly due to the incorporation of new republics into the Union, and then sharply increased and slightly decreased again. The share of all the non-Russian republics taken together fluctuated in an inverse proportion, of course. As far as the individual non-Russian republics are concerned, these noteworthy factors have emerged: a considerable decline in Ukraine's and Estonia's share, irregular fluctuations in the shares of Belorussia, Uzbekistan, Kirghizia and the three Transcaucasian republics, and noticeable increases in the shares of Moldavia, Lithuania and

TABLE 9 Share of the Soviet Republics in Total Capital Investments, 1928-60
(in per cent)

Republics	1928-32	1933-7	1938-41	1941-5	1946-50 ^a	1951-5	1956-60
RSFSR	67.8	69.5	69.7	73.5	(61.2)	66.3	65.5
Ukraine	18.5	16.6	14.4	12.3	(20.7)	15.8	16.1
Belorussia	2.0	1.4	2.3	1.0	(2.9)	1.9	2.0
Uzbekistan	2.0	2.1	2.1	2.3	(1.6)	1.8	2.0
Kazakhstan	3.3	3.4	3.5	4.7	(3.7)	4.8	6.5
Georgia	1.8	2.0	1.9	1.5	(1.7)	1.6	1.1
Azerbaidzhan	2.1	2.5	2.6	1.5	(2.5)	2.5	1.6
Lithuania	...	...	0.1	0.2	(0.6)	0.6	0.8
Moldavia	0.1	0.1	0.1	0.2	(0.5)	0.5	0.5
Latvia	...	...	0.2	0.3	(0.9)	0.7	0.8
Kirghizia	0.3	0.4	0.6	0.6	(0.5)	0.7	0.6
Tadzhikistan	0.9	0.7	0.6	0.5	(0.5)	0.6	0.6
Armenia	0.6	0.7	0.8	0.5	(0.6)	0.6	0.6
Turkmenia	0.6	0.6	0.6	0.7	(0.7)	0.8	0.7
Estonia	...	...	0.5	0.2	(1.5)	0.7	0.6
Non-Russian republics combined	32.2	30.5	30.3	26.5	(38.8)	33.7	34.5

SOURCE: *Kapitalnoe stroitelstvo v SSSR, 74-5; Borba KPSS za vosstanovlenie i razvitiie narodnogo khoziaistva v poslevoennii period (1945-1953 gody): Dokumenty i materialy* (Moscow, 1961), 90-117.

^a The figures in parentheses represent the share assigned to the republics under the Fourth Five-Year Plan. Note that the RSFSR actually received more than was allocated to it by the plan.

especially Kazakhstan in recent years. What can be concluded from the analysis of this table is that Ukraine has undoubtedly been a net loser, while earlier Russia and lately Kazakhstan have undoubtedly been net gainers. However, since even Kazakhstan's share in the total is relatively small, while the RSFSR has had the lion's share, there is the strong suspicion that the RSFSR must have been a gainer in the long run.

This finding coincides with the evidence presented in Tables 7 and 8, and also with that of Table 10. The last, in particular, shows that the

TABLE 10 Share of the Soviet Republics in Fixed Capital and New Investments in Industry
(in per cent)

Republics	Fixed Capital 1955	Investments 1956-60
RSFSR	63.8	66.6
Ukraine	20.2	17.5
Belorussia	1.6	1.5
Uzbekistan	1.7	1.9
Kazakhstan	3.4	4.9
Georgia	1.8	1.1
Azerbaidzhan	3.1	1.8
Lithuania	0.5	0.7
Moldavia	0.4	0.5
Latvia	0.8	0.6
Kirghizia	0.4	0.5
Tadzhikistan	0.3	0.5
Armenia	0.7	0.6
Turkmenia	0.6	0.7
Estonia	0.7	0.5
Non-Russian republics combined	36.2	33.4

SOURCE: *Promyshlennost SSSR: Statisticheskii sbornik* (Moscow, 1957), 18; *Kapitalnoe stroitelstvo v SSSR*, 72.

Russian republic's share in USSR investments was larger than its share in already accumulated productive capital. This disproportion was not due to any high productivity of Russian capital; as can be seen from Table 12, marginal productivity of capital in the RSFSR in the same period was less than 1 per cent (0.78, in fact). Hence, the larger share of capital investments did not result from the increment produced by the RSFSR's own capital. Rather, that larger share means that investments were being obtained by the RSFSR from sources other than its own capital. Of

course, this does not yet prove beyond any doubt that capital investments were transferred to the RSFSR from other republics, but it makes the case for such a hypothesis very strong.

Another piece of significant circumstantial evidence that suggests that resources have probably been transferred to the RSFSR is the well-known official priority policy of accelerated development of the so-called eastern regions of the USSR. This policy was initiated in 1930, and it has remained substantially unchanged until now.⁸² The "eastern regions" were allotted "about one-half" of all capital investments in heavy industries during the Second Five-Year Plan of 1933–7,⁸³ and in the Seven-Year Plan of 1959–65 they were still being given "more than 40 per cent" of all capital investments in the total economy of the USSR.⁸⁴

Generally speaking, the term "eastern regions" that figures in numerous official documents is usually understood to mean the Asian part of the USSR—the Ural area, Siberia, the Far East and the Maritime provinces, but also Kazakhstan and the four Central Asian republics.⁸⁵ In practice, however, as Table 9 indicates, in Central Asia only Kirghizia enjoyed some slight advantage in capital allocations in the postwar, as compared to prewar, period, and Kazakhstan was given noticeable priority only in the post-1950 period. The eastern regions of the RSFSR, on the other hand, viz., the Ural area, western and eastern Siberia, the Far East and the Maritime provinces, have headed the priority lists continuously since about 1930. Their comparative growth between 1940 and 1964 is clearly evident from Table 11. Also such regions of the RSFSR as Upper Volga (Povolzhie, sometimes also called Middle Volga), the central region (around Moscow, Ivanovo and Tula), and the northwestern region (Leningrad), in spite of the fact that they are not classified among the "eastern regions," have received top priority in the allocation of capital investments.⁸⁶ Their economic growth has been more rapid than that of the USSR average almost uninterruptedly.⁸⁷ This is additional circumstantial evidence that the RSFSR has probably grown at the expense of capital transfers from the non-Russian republics. Ultimately, however, this hypothesis can be proved or disproved only by the calculation of the Russian republic's financial or national income balances.

Methods and Criteria of Spatial Resource Allocation in Soviet Practice

A pertinent question at this stage of our discussion is the following: By which methods and on what grounds does the USSR decide to allocate resources among the republics and economic regions? Major decisions on the allocation of resources in the Soviet Union are made in the appropriate

TABLE 11 Share of the Eastern Regions in the Total Output of the Soviet Union, 1940 and 1964

Area	Electric Power (in billion kwt. hrs.)		Coal (in million tons)		Crude Oil (in million tons)		Gas (in billion cubic metres)		Pig Iron (in million tons)		Steel (in million tons)		Rolled Steel (in million tons)		Mineral Fertilizers (in million tons)	
	1940	1964	1940	1964	1940	1964	1940	1964	1940	1964	1940	1964	1940	1964	1940	1964
USSR	48.3	459.0	165.9	554.0	31.1	223.6	3.20	108.6	14.9	62.4	18.3	85.0	11.4	57.4	3.2	25.6
All eastern regions	10.7	190.0	59.5	275.3	3.6	62.3	0.03	14.6	4.3	23.5	5.9	35.3	3.7	24.0	1.0	9.4
Kazakhstan and Central Asia ^a	1.3	31.4	8.3	49.8	1.4	12.2	0.00	10.1	0.0	1.5	0.0	0.9	0.0	0.6	0.0	2.8
As per cent of USSR	2.6	7.0	5.0	9.0	4.4	5.5	0.00	9.4	0.0	2.4	0.0	1.0	0.0	1.0	0.0	11.0
Eastern regions of the RSFSR ^b	9.4	158.6	51.2	225.5	2.2	50.1	0.03	4.5	4.3	22.0	5.9	34.4	3.7	23.4	1.0	6.6
As per cent of USSR	19.5	34.9	30.9	40.7	7.1	22.4	0.90	4.1	28.8	35.2	32.2	40.5	32.4	40.8	31.2	25.8

SOURCE: *Nar. khoz. SSSR v 1964 g.*, 148-9, 158, 164, 166, 168, 170.^a Uzbekistan, Turkmenia, Kirghizia, and Tadzhikistan.^b The Urals, Siberia, the Far East, and the Maritime provinces.

departments of the Central Committee and in the Politburo of the Communist Party; the draft proposals for such decisions and the details on their execution are prepared by the Gosplan of the USSR, by various government ministries, and by the Central Committees, Gosplans and governments of the union republics.⁸⁸ All major decisions are made by the politicians, not by the economists. Economists—and, at that, only those who work for the Gosplans and the government agencies, not professors—prepare and elaborate only technical details of various projects and provide analyses of the proposed drafts and of decisions already made. Consequently, in Soviet practice, spatial resource allocation in its decision-making stage is a political process, full of arbitrary rules and compromises. Thus, Mikoyan stated on this matter: “This is not a strictly peaceful process. Each struggles for his particular plans and plant—inside the all-Union Gosplan and the Gosplans of the union republics, until a decision is reached. Most issues can be smoothed out by argument and figures, but sometimes the Government must make the decision.”⁸⁹ In these internal fights the question of nationalities seems to loom very large. Consider, for example, the following revelations made by Khrushchev in his fateful speech, in which he attacked the centralizers in the party and government and proposed to dichotomize the party along agro-industrial lines:

The planning agencies do not always start with the need to develop the economy in a complex way; they fail to show initiative in the elaboration of the most economical decisions, frequently wrongly determine the sequence of construction of the most important national economic projects.

Were the planning agencies and the USSR Ministry of Energy and Electrification correct in their approach to the proposals of the Central Asian republics to build there big hydro-stations and powerful irrigation systems? It was not because of the central agencies' initiative, for example, that construction began on the Nurek and Toktogul hydro-electric stations, which have great importance not only for the development of the economy of Central Asia, but of the whole country.

... Central Asia is rich in mineral resources. With cheap electric power it is possible to develop large-scale industry there. The planning agencies must take everything into consideration while deciding where first to build big hydro-stations—in Central Asia or, for instance, in Siberia.

There was a heated controversy about whether or not to build the Kiev hydro-electric station on the Dnieper River. Yet now, as you know, it is already being built. We are also building the Dnieprodzerzhinsk HES, and soon we will build the one at Kaniv. However, the people at Gosplan once thought that these stations should not be built. Why? Because they took the prime cost of a kilowatt-hour of the Kiev Station, for example, and compared it with the prime cost at the Bratsk HES. Obviously such a comparison was not in favour of the stations on the Dnieper River. But can one approach

such a serious problem in such a simplified manner? Would it be more profitable to build thermal stations in Ukraine and to develop the industry based on Donbas coal? Nothing of the sort. Donbas coal is expensive; it is mined at very great depths and from poor strata. The power of the thermal stations working on Donbas coal cannot compete with Dnieper hydro-electric power. Therefore, one should not add a sparrow and a camel and count them as two equal heads of cattle.

Yet some still calculate according to this "method." When we interfered and insisted on the construction of the Dnieper hydro-stations, there were "planners" who reasoned like this: "Well, Khrushchev knows Ukraine and it is difficult to argue with him, but nevertheless money is not allocated there where it should be in the first place." What can one answer to this?⁹⁰

Many interesting conclusions can be drawn from this speech, but one should also take into account its background. It deals with the perennial struggle in the upper echelons of the Soviet power pyramid over the question of which regions should have priority in resource allocation. The struggle for and against the construction of the huge hydro-electric power stations in Siberia—as before this on the Volga River—began in Stalin's time. The struggle concerns the future industrial development of Central Russia versus Ukraine and the western parts of the USSR. The whole of the European part of the USSR is presently short of fuel and electric power, and this scarcity will increase in the future. Ukrainian economists, planners and politicians have for some time been leading a fight for the construction of a number of powerful hydro-electric power stations on the Dnieper, especially in its upper parts around Kiev, from where power could be supplied to northwestern Ukraine, Belorussia and Lithuania—the overpopulated and industrially underdeveloped parts of the USSR.⁹¹ In this struggle, the Ukrainians were supported by other European and some Russians who want to build atomic power stations in European Russia.⁹² The Russians in the USSR Gosplan, however, pushed their own pet project of developing the eastern parts of the USSR at all costs.⁹³ Central Asia was neglected by all sides, and so was the Caucasus. The Gosplanners' argument in favour of Siberia has been typically Stalinist economics: only prime costs of production were compared, social overhead costs of development were neglected, a very long-run time horizon was assumed, and no interest rate was included into the cost and recoupment calculations. The arguments of the proponents of European development have been economically more plausible, although not always consistent. For instance, none of them proposed to calculate the interest. But they pointed out that social overhead costs of developing Siberia, of building cities, roads, housing facilities and of transferring population there were prohibitive in the short run, while transportation of electric power from

Siberia to European Russia—as long as the Siberian industries remained undeveloped and it could not be consumed on the spot—was also quite expensive. Nevertheless, the Gosplanners won the first round of this fight, and the construction of the Siberian complex of hydro-stations began. However, at the Twenty-first CPSU Congress, the Europeans won their first battle: the congress resolved that, at least theoretically, it was cheaper to develop the already-developed economic regions than to start from scratch—a self evident truth unknown thus far only to the ignoramuses.⁹⁴ The Twenty-third Congress finally resolved that it was necessary to intensify the search for fuels in the European parts of the USSR, and implied that they ought to be cheaper there than elsewhere.⁹⁵

The case of Siberian versus Ukrainian electric power stations is only one yet typical example of the essentially political process of decision-making in spatial resource allocation in the USSR. Concomitant with the electric power question has been the question of the underdevelopment of the coal, oil and gas industries in the Ukrainian republic; Ukrainian party leaders and economists have vigorously fought for an increase of investment allocations in their region and in part have won the battle.⁹⁶ There was also a remarkable attack by the Ukrainians on the USSR Gosplan for the latter's refusal to develop chemical industries in Ukraine at a sufficient rate, but this has had no effect thus far.⁹⁷ Another perennial, as yet unsuccessful, campaign has been the fight by the Uzbeks for the development of cotton textile manufacturing in their republic, the largest producer of raw cotton in the USSR.⁹⁸ The employment interests of Russian textile workers in the Moscow region have been clearly opposed to the Uzbeks' demands.⁹⁹ The complaints by the Azerbaidzhanis have also been very ominous. Their republic's oil deposits are approaching exhaustion, and few other industries have been developed instead to secure full employment. Recently agriculture has been growing faster than industry in this republic, but it lacks a sufficient supply of water. The first secretary of the Azerbaidzhan party poignantly referred to "western imperialists" who "threaten the very existence of nations" by their exploitation, while discussing the decay of Azerbaidzhan's economy.¹⁰⁰ The growth of industry in the Georgian republic since 1956 has also been slower than that of agriculture, and an oblique Georgian complaint is on record that the republic's industry has been under-capitalized.¹⁰¹ Similar more or less sharp and explicit criticisms of the central, Moscow authorities have been voiced in the cases of Belorussia and Moldavia, as well as even in small autonomous republics of the RSFSR such as Tataria and the Mari ASSR.¹⁰²

What probably affects national idiosyncrasies most, however, is the arbitrariness of Moscow's decisions. There is unanimous dissatisfaction among all complainants, who, as a rule, raise objective, purely economic,

arguments in defence of their interests. Usually they stress the disproportionately small investments made in their regions, their regions' comparatively higher profitability or productivity, unused productive capacity and hidden labour unemployment in their overpopulated areas. On the other hand, Moscow never furnishes any explanations for its decisions. Khrushchev himself blatantly recalled how, in the past, Stalin personally, without consulting anyone even at the USSR Council of Ministers, made decisions about one or another national economic plan.¹⁰³ And yet, at the same time, it was also Khrushchev himself who, in his turn, personally refused Belorussia investment funds for draining her marshlands,¹⁰⁴ and he published decisions bearing only his signature to construct plants in Ukraine.¹⁰⁵

Each arbitrary political decision to allocate resources over the territory of the multi-national Soviet Union probably touches upon the sensitive question of nationalities, because men who made decisions are inevitably themselves members of one or another nationality and because resources are allocated to one place and not to another. It resembles the allocation of new taxes among different income groups in an ethnically homogenous but socially differentiated society; or the allocation of educational and welfare funds in a religiously differentiated society like that in the United States. The decision-maker is suspected of favouring his social class, his religion, his state, or his race and nationality. The issue becomes especially acute when evidence of favouritism or bias exists.

The economic rules for the allocation of resources discussed earlier provide objective criteria for such decision-making. If they are strictly observed, the economic bases of the question of nationalities are eliminated; if they are observed at least partially, the intensity of suspicions and animosities can be alleviated to some extent. However, at this time hardly any evidence exists that these rules have been observed in Soviet practice. One major rule, that resources be transferred from one republic to another on a loan basis and with interest paid in full, has not been observed at all, even in theory. As to the remaining rules, some elements appeared in Soviet theory for the first time only at about 1960-2,¹⁰⁶ while their non-observance in practice seems to be clearly evident from the data in Tables 10, 12 and 13.

Table 10 shows that the Russian republic has obtained much more in new investment funds than her share in the already accumulated fixed funds. Ukraine, on the other hand, has got much less than her rational proportion. Table 12 demonstrates that such a decision to allocate investments was arbitrary and not justified by economic considerations. The correlation regression between investment shares and Table 10 and the marginal capital products in Table 12 has a very low co-efficient. Data in Table 12 also show that both marginal productivity of investments and

TABLE 12 Capital Investment Efficiency and Profitability in the Soviet Republics

Republics	Marginal Capital Product in Industry (Per Cent Growth of Output Divided by Per Cent Growth of Investment)		Profit on Investments 1959-63 (in per cent)	Profitability Index
	1933-41	1954-62		
RSFSR	2.40	0.78	14.9	100.0
Ukraine	2.47	0.92	17.6	117.8
Belorussia	2.14	0.89	20.8	139.2
Uzbekistan	0.80	0.53	14.1	94.2
Kazakhstan	1.49	0.70	2.2	15.1
Georgia	2.79	1.11	14.7	98.2
Azerbaidzhan	1.24	1.21	11.6	77.8
Lithuania	...	0.63	19.2	128.9
Moldavia	2.44	0.57	28.8	193.2
Latvia	...	0.63	31.2	208.8
Kirghizia	1.10	0.70	12.8	86.0
Tadzhikistan	2.41	0.57	11.7	78.4
Armenia	1.69	0.89	14.6	97.6
Turkmenia	1.15	0.67	7.2	48.3
Estonia	...	0.45	16.9	113.2

SOURCE: *Promyshlennost SSSR* (1964), 49, 74-5; *Kapitalnoe stroitelstvo v SSSR*, 80-109; *Nar. khoz. SSSR v 1963 g.*, 458, 638.

their profitability have been considerably lower in Russia than in Ukraine and a number of other republics. This means that had a transfer of resources from Ukraine to Russia taken place, it would not only not have been in the interest of Ukraine, but also contrary to the interests of the Soviet Union, because both the Soviet Union as a whole and the Ukrainian republic have increased their output, income, employment and welfare by a smaller percentage and increment than they might have. In such a case Russia would have gained, there is no doubt, while the USSR and a number of republics would have lost a foregone opportunity to increase their economic growth to the maximum. Even less economical and efficient than the investments in the RSFSR were the investments in Kazakhstan; they produced a bare 2.2 per cent profit (Table 12). This sort of relative misallocation of capital in space, the wasteful sinking of funds into Siberia and Kazakhstan, has undoubtedly been one of the reasons for the post-1950 slowdown in the economic growth of the USSR—as this writer had an opportunity to observe earlier.¹⁰⁷

Pre-Second World War data also support these conclusions. The incremental capital/output ratio in large-scale industry in Siberia during the First and Second Five-Year Plans (1928–37) was 1.87, whereas in Uzbekistan it was 1.64, in Tadzhikistan, 0.88, and in Ukraine, 0.74.¹⁰⁸ In other words, for each additional ruble of output it was necessary to invest 1 ruble and 87 kopecks of capital in Siberia, only 88 kopecks in Tadzhikistan, and only 74 kopecks in Ukraine. It is therefore obvious that it was not worthwhile to invest in Siberia on the scale that the Soviet government did. It was more economical to invest in Ukraine and Central Asia and possibly also in the European parts of the RSFSR. It can be argued, however, that defence considerations necessitated the construction of industries behind the Ural Mountains. Perhaps this was true, although to be certain it would be necessary to calculate whether or not the increment in growth of the defence industries forgone in the European parts of the USSR would not have been larger than that gained in the Urals.¹⁰⁹ What is more important, however, is the fact that this defence argument is no longer valid in the post-Second World War period. Today, nuclear bombs and missiles can reach any part of the USSR. Hence, there is no justification whatsoever for pushing the development of Siberia and Kazakhstan so hard.

Table 13 is reproduced here as evidence that the allocation of resources illustrated by Tables 10 and 12 was not guided by the traditional rules of Marxian economics. In the latter, capital should be invested where the rate of “surplus value,” and therefore profit, is comparatively higher. The rate of surplus value is higher where labour productivity and the “organic structure of capital” (that is, capital per unit of labour) are comparatively higher. Both labour productivity and capital per worker have been higher in Ukraine than in Russia, for example, as they were in a number of other republics (Table 13). Hence, investment in Russia on the scale undertaken by the Soviet government was not justified from the Marxian point of view either. Again one cannot escape the conclusion that the investment bias in favour of Russia has been highly arbitrary.

Comparative Material and Cultural Living Standards

Space does not permit a sufficiently detailed discussion of the inter-republic allocation of such resources as labour, land, natural resources, etc., although there is no doubt that the questions which—or rather whose—oil fields are pumped out and depleted before others, for example, or whose lands are used for dust-bowl wheat planting instead of possibly more economical and profitable sheep, camel and steer grazing, also bear significantly upon the question of nationalities in the USSR. As

TABLE 13 Comparative Labour Productivity in the Industry of the Soviet Republics, 1960

Republics	Industrial Output per Worker		Capital Investment per Worker	
	Rubles	Index	Rubles	Index
RSFSR	7,212	100.0	687	100.0
Ukraine	9,136	126.7	695	101.2
Belorussia	7,414	102.8	542	78.9
Uzbekistan	9,341	129.5	824	119.9
Kazakhstan	7,993	110.8	1,598	232.6
Georgia	8,889	123.2	741	107.9
Azerbaidzhan	9,132	126.6	1,370	199.4
Lithuania	7,619	105.6	476	69.3
Moldavia	10,656	147.7	820	119.3
Latvia	8,088	112.1	368	53.6
Kirghizia	8,411	116.6	934	135.9
Tadzhikistan	10,811	149.9	1,351	196.6
Armenia	8,451	117.2	704	102.5
Turkmenia	8,955	124.2	1,492	217.2
Estonia	8,074	111.9	621	90.4

SOURCE: U.S. Congress, Joint Economic Committee, *Dimensions of Soviet Economic Power* (87th Cong., 2d sess.; Washington, D.C., 1962), 704–32.

far as labour is concerned, the CPSU Programme calls specifically for the “continuous exchange of trained personnel among [Soviet] nations,”¹¹⁰ which in practice frequently means the inflow of government and party officials and various specialists from Russia to the western Soviet republics; the transfer of Russian, Ukrainian and Belorussian university graduates and skilled workers to Central Asian and Caucasian republics, instead of training and employing local personnel.

The last question that must be dealt with in this paper is whether or not the transfer of capital resources to the RSFSR, which has been circumstantially indicated, has resulted in some real gain for that region. This is not an easy question, even in theory. In practice, however, the dearth of statistical information creates difficult problems and permits only very tentative conclusions to be drawn.

The pertinent statistical data that can be assembled thus far are presented in Tables 14 through 15. Comparative nominal wages in Table 14 have been computed by subtracting the total wage fund of the RSFSR from that of the Soviet Union. Wage data for individual republics have not been available. It is only known that, in 1956, the lowest average

money wages were paid in Moldavia, Belorussia and Lithuania, while the highest wages among the non-Russian republics were paid in Kazakhstan and Estonia; the difference between the highest (Kazakhstan) and the lowest (Moldavia) was 41 per cent. The data for the RSFSR as a whole for that year have not been given in the source, but from the data for the individual economic regions of the RSFSR it would appear that the RSFSR average was somewhere below that of Estonia and more or less on a par with that of Ukraine.¹¹ Data in Table 14 also show that the money

TABLE 14 Average Monthly Wages of Workers and Employees in the Soviet Republics, 1940–65 (in current, local rubles)

Republics	1940	1950	1955	1960	1965
RSFSR	35.1	65.9	73.6	82.5	98.0
Non-Russian republics combined	29.0	60.0	67.6	75.9	91.7
As per cent of RSFSR	82.6	91.0	91.8	92.0	93.6

SOURCE: *Nar. khoz. SSSR v 1965 g.*, 557, 567; *Narodnoe khoziaistvo RSFSR v 1965 godu* (Moscow, 1966), 394, 397.

wages in the Russian republics have been higher, on the average, than in all the non-Russian republics combined, but after the war this difference was not very large, and it has been decreasing.

An average money wage does not tell much, of course. It conceals rather than reveals the true significance of income differentiation. In this connection, data in Tables 15 and 16 are obviously more interesting. From Table 15 it can be seen that the per capita income tax collections in the non-Russian republics are 30.7 per cent smaller than in Russia, whereas sales tax collections are only 26.5 per cent smaller. This indicates not only a considerable difference between the levels of total income in the RSFSR and the non-Russian republics, but also that income distribution is more differentiated in the RSFSR than in the non-Russian republics. A larger proportion of income tax revenue comes from the upper income groups, while the incidence of the sales taxes falls predominantly on the lower income groups. The data in Table 15 seems to suggest that more rich people live in the RSFSR, while the poor predominate in the non-Russian republics. Strikingly, this finding is also corroborated by Table 16; bank savings per capita of the population in the Russian republic are almost twice as large as in all the non-Russian republics combined.

In Table 17 an attempt has been made to construct something resembling a measure of the personal disposable income before taxes. No doubt, it is an incomplete measure, because it only consists of the sum total of (a) consumption expenditures in the government and co-operative

TABLE 15 Per Capita Income and Sales Taxes Collected from the Population of the Soviet Republics, 1960-5 Annual Average (in current, local rubles)

Republics	Income Tax		Turnover Tax	
	Rubles	Index	Rubles	Index
RSFSR	19	100.0	192	100.0
Ukraine	14	77.9	134	70.1
Belorussia	10	53.0	141	73.5
Uzbekistan	9	48.4	110	57.6
Kazakhstan	15	80.2	141	73.4
Georgia	12	63.4	113	59.2
Azerbaidzhan	9	48.4	113	59.2
Lithuania	13	71.0	163	85.0
Moldavia	7	39.4	122	63.8
Latvia	20	105.1	250	130.6
Kirghizia	13	71.0	118	61.7
Tadzhikistan	12	63.4	113	59.2
Armenia	12	63.4	127	66.4
Turkmenia	12	63.4	124	64.7
Estonia	23	117.7	209	109.0
Average for non-Russian republics	13	69.3	141	73.5

SOURCE: *Gosudarstvennii biudzheth SSSR i biudzhety soiuznykh respublik: Statisticheskii sbornik* (Moscow, 1962), 15; *Gosudarstvennii biudzheth SSSR i biudzhety soiuznykh respublik* (Moscow, 1966), 18; *Nar. khoz. SSSR v 1964 g.*, 9.

retail outlets and public catering (retail sales in current prices); (b) net savings in banks; (c) net government bonds purchased; and (d) direct tax collections. Expenditures in collective farm markets, payments for communal services, social security taxes, savings hidden under mattresses and in stockings, etc., could not be accounted for to arrive at the true total disposable income. However, the totals comprising the data in Table 17 are proportionately probably not very much different from the true totals, and therefore can be taken as representative.

The inferences from Table 17 are significant and interesting. The data are the most complete available on per capita incomes in the Soviet republics. The table shows, of course, that, on the average, per capita incomes in the RSFSR are about one-fourth larger than in the non-Russian republics combined. This gap seems to remain constant over time. However, if we exclude the three Baltic republics and Moldavia and thus compare Russia with the non-Russian republics approximately within the old, pre-1939 frontiers of the USSR, the results are striking: while in

TABLE 16 Per Capita Savings in Banks of the Soviet Republics, 1940, 1958 and 1964 (in current, local rubles)

Republics	1940	1958	1964
RSFSR	4.91	49.91	82.75
Ukraine	2.32	37.38	63.84
Belorussia	1.92	24.72	48.30
Uzbekistan	2.66	20.19	27.24
Kazakhstan	2.37	27.71	44.99
Georgia	3.46	38.87	60.50
Azerbaidzhan	2.47	23.79	33.82
Lithuania	...	21.98	44.08
Moldavia	...	17.46	27.48
Latvia	...	36.88	69.89
Kirghizia	2.29	26.04	38.74
Tadzhikistan	3.40	20.62	29.98
Armenia	2.34	30.64	60.60
Turkmenia	3.68	24.27	34.82
Estonia	...	40.68	87.98
Average for non Russian republics	2.69	27.94	48.01
As per cent of RSFSR	54.8	56.0	58.0

SOURCE: *Nar. khoz. SSSR v 1963 g.*, 9; *Nar. khoz. SSSR v 1964 g.*, 597.

1940, Russia's per capita income was 26.5 per cent higher than in ten old non-Russian republics combined, in 1958, it was 31.2 per cent higher, and by 1964, this gap increased to 34.1 per cent!

To make this finding more reliable, retail price changes in different republics since 1940 have been taken into consideration.¹¹² The thus deflated, "real" personal disposable income per capita in 1964 (in 1940 prices) was 421 rubles in Russia and 287 rubles in the ten non-Russian republics. The gap was still 31.8 per cent in 1964, as compared to only 26.5 per cent in 1940.

Can such an inter-regional income gap be called significant? The answer is yes, especially because in this case different nationalities inhabit different regions. For even in the ethnically more homogenous societies such gaps happen to be smaller. In Great Britain, for example, in 1963, the proportion of the gap between the lowest regional income per capita (Northern Ireland) and the highest (London and southeast) was only 1:1.35.¹¹³ In the United States, in 1965, the same range between the minimum (Mississippi) and the maximum (Connecticut) was 1:2.16.¹¹⁴ In the Soviet Union, however, in 1964, it was 1:2.25 (between Azerbaidzhan and

TABLE 17 Per Capita Personal Disposable Income (Before Taxes) in the Soviet Republics, 1940, 1958 and 1964 (in current, local rubles)

Republics	1940		1958		1964	
	Rubles	Index	Rubles	Index	Rubles	Index
RSFSR	121	100.0	449	100.0	589	100.0
Ukraine	90	74.4	341	75.9	468	79.4
Belorussia	71	58.7	273	60.8	397	67.4
Uzbekistan	91	75.2	291	64.8	341	57.9
Kazakhstan	77	63.6	364	81.1	466	79.1
Georgia	105	86.8	333	74.2	404	68.6
Azerbaidzhan	102	84.3	277	61.7	326	55.3
Lithuania	...	...	307	68.4	459	77.9
Moldavia	...	...	237	52.8	328	55.7
Latvia	...	...	511	113.8	682	115.8
Kirghizia	72	59.5	288	64.1	367	62.3
Tadzhikistan	79	65.3	275	61.2	326	55.3
Armenia	94	77.7	305	67.9	408	69.3
Turkmenia	113	93.4	339	75.5	381	64.7
Estonia	...	...	530	118.0	734	124.6
Average for non-Russian republics	89	73.5	333	74.2	434	73.7
Average for non-Russian republics, excluding Baltic republics and Moldavia	89	73.5	309	68.8	388	65.9

SOURCE: *Sovetskaia trgovlia: Statisticheskii sbornik* (Moscow, 1964), 301-15; *Nar. khoz. SSSR v 1964 g.*, 9, 579, 627; *Gosudarstvennii biudzhët SSSR i biudzhety soiuznykh respublik* (1966), 18.

Estonia), or 1:1.80 (between Azerbaidzhan and Russia). Inter-regional income differentials in such countries as Canada, Switzerland, Sweden, the Netherlands and West Germany are also smaller than in the USSR.¹¹⁵

The data in Tables 18 and 19 showing regional per capita retail sales also partially corroborate the previous findings on income inequalities between the Russian and the non-Russian republics. Since these data are in local prices, however, they are not completely comparable. About one-half of all consumer goods in the USSR have their prices differentiated according to three territorial belts. The first belt includes Ukraine, Moldavia, the Baltic republics, Belorussia, Kazakhstan, the republics of Central Asia and the southern parts of the RSFSR. The second belt consists of the centre and northwestern regions of the RSFSR, the Urals, and the Transcaucasian republics. The rest—Siberia and the north—belong to

TABLE 18 Per Capita Retail Sales of State and Co-operative Stores in the Soviet Republics, 1963^a (RSFSR = 100)

Republics	In Urban Areas			In Rural Areas		
	All Types of Goods	Food Items	Non-food Items	All Types of Goods	Food Items	Non food Items
RSFSR	100.0	100.0	100.0	100.0	100.0	100.0
Ukraine	91.2	84.3	102.1	66.9	53.7	84.8
Belorussia	103.1	96.3	113.7	55.4	53.0	58.6
Uzbekistan	80.2	72.6	92.1	66.1	61.2	72.7
Kazakhstan	81.2	76.9	88.0	114.2	103.0	129.3
Georgia	90.6	78.2	109.9	48.5	39.5	60.6
Azerbaidzhan	73.7	68.3	82.1	32.6	30.6	35.3
Lithuania	115.9	103.4	135.3	45.5	44.8	46.5
Moldavia	111.2	89.4	145.2	52.4	38.8	70.7
Latvia	128.8	116.7	147.7	88.4	91.0	84.8
Kirghizia	75.8	69.1	86.3	80.7	74.6	88.9
Tadzhikistan	77.9	67.8	93.8	57.9	51.5	66.7
Armenia	75.7	69.1	85.9	56.6	50.0	65.6
Turkmenia	77.6	74.5	82.6	66.9	61.9	73.7
Estonia	128.4	118.6	143.6	106.0	114.2	94.9
Average for non-Russian republics	93.7	84.7	107.7	67.0	62.0	73.8

SOURCE: *Sovetskaia trgovlia* (1964), 49.

^a Data calculated on the basis of local prices.

the third price belt. In the second belt prices are 10 per cent higher than in the first, and in the third belt they are 20 per cent higher than in the first.¹¹⁶ In addition, in 1963, all prices in the rural areas of the USSR were 7 per cent higher than in the urban areas. The remaining prices of about half of all consumer goods are fixed locally—by the governments of the Union and autonomous republics, provincial and city soviets, etc. Inter-regional differences among these prices are somewhat larger than the differences among the three belts of the centralized prices, but which way these differences tend is not known.¹¹⁷ All this implies that higher money incomes in the RSFSR may be offset, in part, by a somewhat higher cost of living, although by how much higher and whether it is in fact so is not known.¹¹⁸ One Soviet source says that the difference in the cost of living between the “south” and the “far north” amounts to 70–80 per cent, but this is probably the most extreme range.¹¹⁹ That higher costs of living do not completely offset the Russian republic’s income preferentials is clearly borne out by data in Table 16.

TABLE 19 Per Capita Retail Sales of State and Co-operative Stores in the Major Cities of the Soviet Republics, 1955 (in current, local rubles)

RSFSR	Rubles	Non-Russian Republics	Rubles
Moscow	9,304	Kiev (Ukraine)	5,699
Leningrad	7,001	Minsk (Belorussia)	5,510
Gorky	4,273	Tashkent (Uzbekistan)	3,951
Kuibyshev	3,852	Alma-Ata (Kazakhstan)	5,307
Saratov	4,286	Tbilisi (Georgia)	4,587
Stalingrad	4,104	Baku (Azerbaijan)	6,002
Rostov-on-Don	5,110	Vilnius (Lithuania)	5,260
Molotov	4,886	Kishinev (Moldavia)	4,880
Sverdlovsk	5,171	Riga (Latvia)	6,914
Cheliabinsk	4,310	Frunze (Kirghizia)	4,435
Omsk	3,865	Stalinabad (Tadzhikistan)	4,155
Novosibirsk	4,226	Erevan (Armenia)	3,527
Krasnoarsk	4,580	Ashkhabad (Turkmenia)	6,140
		Tallin (Estonia)	7,870
Average for Russian cities	6,632	Average for non-Russian cities	4,968

SOURCE: *Sovetskaia torgovlia* (Moscow, 1956), 194–200; *Narodnoe khoziaistvo SSSR* (1956), 24–5.

Furthermore, Soviet authors use per capita retail sales data for the same purposes as we have done here, and even insist that they are a “decisive index that characterizes the level of people’s consumption.”¹²⁰ While not sharing the “decisive” aspect of this statement, we may nevertheless observe that the data in Tables 18 and 19 probably reflect not only the unknown territorial price differentials, but also actual physical per capita purchases as well as suppliers. Especially noteworthy is the fact recorded in Table 18 that the non-Russian rural areas fared very badly compared to Russia and to Kazakhstan. In part, of course, this is because the Russian countryside is short of food, and Russian peasants must purchase food. But then it also means that the Russian countryside is much more moneyed than the countryside in the non-Russian areas, which fact is also reflected in the comparative purchases of non-food items. Table 19, on the other hand, strikingly reflects the differentiated supply of cities with consumer goods. It is well known, of course, that different cities in the USSR are assigned different priorities in their supply with various goods. Moscow and Leningrad have always headed the list, as have other industrial centres—most of which happen to be located in central Russia. The above-mentioned Soviet study claims, however, that the differences in the per capita retail sales among different cities have decreased lately.¹²¹

TABLE 20 Allocation of Selected Durable Consumer Goods Among the Soviet Republics, 1963

Consumer Goods	Percentage in RSFSR	Percentage in Non-Russian Republics
Vacuum cleaners	65.06	34.94
Cameras	64.06	35.94
Watches	61.41	38.59
Television sets	61.08	38.92
Furniture	60.23	39.77
Bicycles	58.33	41.67
Washing machines	58.28	41.72
Radios	56.31	43.69
Refrigerators	55.65	44.35

SOURCE: *Sovetskaia torgovlia* (1964), 378–83; *Nar. khoz. SSSR v 1962 g.*, 9.

Table 20 corroborates the data in Tables 18 and 19 in physical terms. It shows the distribution of the so-called marketable fund (*rynochny fond*) of consumer goods that are allocated among different regions by the central planning authorities via the so-called material balances in kind. The fact that the RSFSR gets a disproportionately larger share of these goods in comparison to its population (55.19 per cent of the USSR's people live in the RSFSR, and 44.81 per cent in the non-Russian republics) clearly indicates that its population possesses a disproportionately large purchasing power to buy these expensive goods.

Of considerable interest is Table 21. It shows that in the non-Russian republics 28.5 per cent less of new urban housing per capita was built at government expense than in the RSFSR, while the non-Russians built 23.1 per cent more on credit and at private expense than did the Russians. What does this strange difference imply? Certainly not that the non-Russians were richer and could provide housing for themselves at their own expense. Does this, then, mean that the Soviet government favoured the RSFSR with housing at the expense of all Soviet taxpayers? If so, this would be a case of very gross discrimination, indeed.¹²²

Differences in the rural living standards are partially revealed in Table 22. The table is reproduced merely for the sake of observation; any meaningful inferences from it are rather difficult to obtain. It is not clear, for example, why Ukraine fares so badly in livestock per household compared to all other republics but Moldavia. Differences in tax rates are explained in part by the intensity of cultivation and the profitability of crops: irrigated lands in Central Asia and citrus crops in the Caucasus.

TABLE 21 Per Capita Occupancy of New Urban Housing Units in the Soviet Republics, Total for 1951-60

Republics	Built at Government Expense		Built on Credit and at Private Expense	
	Square Metres	Index	Square Metres	Index
RSFSR	351	100.0	121	100.0
Ukraine	230	65.5	141	116.5
Belorussia	241	68.7	165	136.4
Uzbekistan	174	49.6	185	152.9
Kazakhstan	417	118.8	208	171.9
Georgia	188	53.6	107	88.4
Azerbaidzhan	192	54.7	87	71.9
Lithuania	205	58.4	88	72.7
Moldavia	157	44.7	138	114.0
Latvia	259	73.8	73	60.3
Kirghizia	172	49.0	225	185.9
Tadzhikistan	185	52.7	99	81.8
Armenia	200	56.9	120	99.2
Turkmenia	221	63.0	114	94.2
Estonia	228	64.9	62	51.2
Average for non-Russian Republics	251	71.5	149	123.1

SOURCE: *Kapitalnoe stroitelstvo v SSSR, 196-7; Nar. khoz. SSSR v 1960 g.*, 10.

Why the Baltic republics seem to have tax privileges is not clear.

Last but not least important for our topic are the comparative cultural living standards from the economic point of view. The financing of cultural activities is highly centralized in the USSR. Since the republics do not possess the right to tax their population or economies, they have no funds of their own with which to finance their cultures. It is the USSR Ministry of Finance, for instance, that allocates to the republics lump sums for education, maintenance of theatres, museums, libraries, and various other social and cultural programmes.¹²³ The USSR Ministry of Higher and Special Education establishes for the republics specific quotas for the enrolment of student candidates for the particular professions, while the USSR Gosplan allocates the graduates from the republics to various job placements throughout the USSR.¹²⁴ The centralization of financing and decision-making in cultural matters inevitably produces suspicions that some national cultures are being short-changed and gradually squeezed into oblivion, while the Russian culture is being subsidized at their expense. That some such suspicions are current even on the highest levels

TABLE 22 Private Household Economy of the Collective and State Farmers in the Soviet Republics, 1959-60 Average

Republics	Livestock per Household (=cows ^a)	Land Plot per Household (in hectares)	Average Tax per 0.01 Hectares (in rubles)
RSFSR	1.52	0.29	8.50
Ukraine	0.89	0.36	7.50
Belorussia	1.53	0.37	5.00
Uzbekistan	1.33	0.15	16.50
Kazakhstan	2.00	0.16	8.00
Georgia	1.36	0.40	13.00
Azerbaidzhan	1.42	0.15	12.00
Lithuania	1.69	0.52	3.00
Moldavia	0.43	0.29	6.00
Latvia	1.87	0.49	4.00
Kirghizia	1.37	0.22	9.00
Tadzhikistan	1.27	0.10	16.50
Armenia	1.16	0.13	13.00
Turkmenia	1.59	0.17	15.50
Estonia	1.35	0.54	4.00

SOURCE: *Selskoe khoziaistvo SSSR: Statisticheskii sbornik* (Moscow, 1960), 43, 49, 52, 124, 272-93; G. L. Mariakhin, *Ocherki istorii nalogov s naseleniia SSSR* (Moscow, 1964), 220.

^a Pigs, sheep and goats were translated into "cow equivalents" by the standard co-efficients given in *Statisticheskii slovar* (Moscow, 1965), 275.

in the Soviet Union was testified to by Khrushchev, who said this at the Twentieth CPSU Congress in 1956:

Let us take distribution of the budgetary funds among union republics. By and large, the funds are distributed properly, although we should think seriously of enhancing the role and authority of the republics in these matters. Some comrades have complained that there is as yet no proper system of determining allocations for public education, health services, housing construction, and the building of cultural and service establishments, city improvements, etc. As a result, we sometimes have a wholly inexplicable gap between the appropriations for some of the republics. Can such a state of affairs be regarded as normal? Of course not, primarily because it violates the basis of fair relations: equality for all.¹²⁵

In Tables 23, 24 and 25 we have reproduced some of the comparative data on this topic. The conclusions to be drawn are too obvious to require

comment. "Wholly inexplicable gaps" among the Soviet republics do exist, and they in all probability represent "violations of fair relations" and of "equality for all." This is why further research along these lines is both worthwhile and necessary.

TABLE 23 Per Capita Expenditures from the Republic Budgets on Social and Cultural Measures, 1940, 1956 and 1960

Republics	1940		1956		1960	
	Rubles	Index	Rubles	Index	Rubles	Index
RSFSR	15.33	100.0	46.78	100.0	87.44	100.0
Ukraine	13.33	86.9	43.13	92.2	70.95	81.1
Belorussia	14.14	92.2	39.15	83.7	66.89	76.5
Uzbekistan	15.47	100.9	39.36	84.1	63.47	72.6
Kazakhstan	14.88	97.1	42.18	90.2	71.48	81.7
Georgia	22.05	143.8	50.85	108.7	82.66	94.5
Azerbaidzhan	20.68	134.9	47.26	101.0	73.17	83.7
Lithuania	...	...	43.03	92.0	71.89	82.2
Moldavia	4.32	28.2	36.66	78.4	57.16	65.4
Latvia	...	...	61.70	131.9	102.23	116.9
Kirghizia	15.46	100.8	44.00	94.0	70.13	80.2
Tadzhikistan	19.93	130.0	46.33	99.0	68.09	77.9
Armenia	24.46	159.5	57.56	123.1	86.68	99.2
Turkmenia	25.16	164.1	49.78	106.4	75.50	86.3
Estonia	...	...	68.09	145.5	114.75	131.2
Average for non-Russian republics	13.66	89.1	43.87	93.8	71.65	81.9

SOURCE: *Gosudarstvennii biudzheth SSSR i biudzhety soiuznykh respublik* (1962), 28; *Narodnoe khoziaistvo SSSR 1956*, 18; *Nar. khoz. SSSR v 1960 g.*, 8.

TABLE 24 Selected Cultural Activities in the Soviet Republics, 1964 (per 1,000 population) (RSFSR = 100)

Republics	Children in School	Students in Higher Education	Radios Owned	Visits to the Movies	Books in Public Libraries	Books Published	Copies of Newspapers Read	Children in Summer Camps
RSFSR	100	100	100	100	100	100	100	100
Ukraine	92	81	90	85	106	32	57	62
Belorussia	100	64	73	74	101	24	69	60
Uzbekistan	111	86	66	52	43	28	40	31
Kazakhstan	107	63	71	85	64	20	48	58
Georgia	95	95	63	48	86	38	56	35
Azerbaidzhan	114	74	63	44	86	35	40	35
Lithuania	84	82	62	61	107	59	86	42
Moldavia	114	57	71	57	82	35	51	28
Latvia	70	79	108	79	124	76	88	55
Kirghizia	109	64	57	56	70	25	44	57
Tadzhikistan	100	61	49	48	52	25	44	29
Armenia	122	90	70	59	85	46	53	44
Turkmenia	112	56	56	66	60	26	50	29
Estonia	100	89	126	106	191	111	128	79
Average for non-Russian republics	102	74	73	66	90	42	61	46

SOURCE: *Nar. khoz. SSSR v 1964 g.*, 74-5, 80-3, 674-5, 681-3, 708-9, 719, 721.

TABLE 25 Per Capita Expenditures from the Republic Budgets on Education, (1960)

Republics	Total		On Higher Education Alone	
	Rubles	Index	Rubles	Index
RSFSR	38.96	100.0	5.80	100.0
Ukraine	32.40	83.2	4.22	72.7
Belorussia	36.48	93.6	3.57	61.5
Uzbekistan	33.79	86.7	4.34	74.8
Kazakhstan	36.34	93.3	3.44	59.3
Georgia	43.30	111.1	6.33	109.1
Azerbaidzhan	37.10	95.2	4.16	71.7
Lithuania	41.57	106.7	5.50	94.8
Moldavia	30.30	77.8	2.73	47.1
Latvia	48.14	123.5	6.00	103.4
Kirghizia	38.90	99.8	4.22	72.7
Tadzhikistan	41.33	106.1	4.38	75.5
Armenia	48.52	124.5	6.26	107.9
Turkmenia	39.81	102.2	4.93	85.0
Estonia	55.91	143.5	7.00	120.7
Average for non-Russian republics	35.58	90.8	4.30	74.1

SOURCE: *Gosudarstvennii biudzhel SSSR i biudzhety soiuznykh respublik* (1962), 29, 48; *Nar. khoz. SSSR v 1960 g.*, 8.

Notes

1. Lenin's writings that are directly relevant to this topic are: *On the "Cultural-National" Autonomy* (November, 1913); his letter to S. G. Shaumian, dated 6 December 1913, but published in 1920; *Imperialism as the Highest Stage of Capitalism* (1916); *The Draft of the Programme of the RCP(b)* (1919); *Report to and the Concluding Statement at the Eighth Congress of the RCP(b) on March 19, 1919*; *Speeches at the Second All-Russian Congress of the Communist Organizations of the Oriental Peoples* (November, 1919); *The Initial Draft of the Theses on the National and Colonial Questions* (June, 1920); *Report by the Commission on the*

- National and Colonial Questions on July 26th* (1920); *To the Communist Comrades of Azerbaidzhan, Georgia, Armenia, Daghestan and the Mountaineer Republic* (April, 1921); and *On the Question of Nationalities, Or Concerning "Autonomization"* (end of December, 1922).
2. Selections from Marx and Engels on the subject have been recently published in several languages in K. Marx and F. Engels, *On the Colonial System of Imperialism* (Moscow, 1959). The newest independent but scholarly re-interpretation of the original Marxian views on the "question of nationalities" is to be found in a monographic study by R. Rosdolsky, "Friedrich Engels und das Problem der 'geschichtslosen' Völker," *Archiv für Sozialgeschichte* 4. (Hanover) (1964).
 3. See V. I. Lenin, "Zakon neravnornosti ekonomicheskogo i politicheskogo razvitiia," in G. A. Kozlov and S. P. Pervushin, eds., *Kratkii ekonomicheskii slovar* (Moscow, 1958), 81.
 4. See G. Safarov, *Natsionalnii vopros i proletariat* (Petrograd, 1922); G. Safarov, "Natsionalnii vopros," *Za 5 let* (Moscow, 1922); M. Ravich-Cherkassky, ed., *Marksizm i natsionalnii vopros*, 2 vols. (Kharkiv, 1922); I. P. Trainin, *SSSR i natsionalnaia problema* (Moscow, 1924); M. Skrypnyk, *Statti i promovy*, 3 vols. (Kharkiv, 1931); M. Skrypnyk, "Zblyzhennia i zlyttia natsii za doby sotsializmu," *Bilshovyk Ukrainy* (Kharkiv), no. 8 (30 April 1931); B. S. Borev, ed., *Natsionalne pytannia: Khrestomatiia* (Kharkiv, 1931); and A. Khavin, *Sotsialisticheskaia industrializatsiia natsionalnykh respublik i oblastei* (Moscow, 1933). See, also, early articles in journals devoted to the nationalities question, such as *Zhizn natsionalnestei*. Also of interest is A. E. Khodorov, "Lenin i natsionalnii vopros," *Novii vostok* (Moscow), no. 5 (1924).
 5. Perhaps, a better understanding of the semantics of the Russian language would also help in interpreting Lenin's dialectic correctly. In Russian etymology and synonymity the words *ravnii*, *sraivivat*, *uravniat* and *ravenstvo* (i.e., "equal," "to equal," "to equalize," "equality") mean and are used interchangeably as *odinakovii*, *sovershenno skhozii*, *delat ravnym*, *to-iest odinakovym*, *takim zhe samym*, and *polnoe skhodstvo*, *tozhdestvo*, which in Western languages all mean "identical," "to identify, to make the same," and "complete identity." Identity and equality are, of course, two different things in Western languages, whereas in Russian their meanings are basically the same. Hence, when the Russians speak of the "equality of nationalities," they do not necessarily mean making nationalities equal only before the law, or socially and economically; rather, they probably also understand this to mean "making them identical, not different from us, the same as we are," which implies merger, assimilation, the same language, culture, etc. Similarly, the Russian term *edinstvo* (as in *edinstvo natsionalnestei SSSR*) does not mean simply a "unity of nationalities of the USSR" in the face of some danger, for example; its meaning is broader, namely, "complete sameness" (*polnoe skhodstvo*, of opinions, views, tastes, etc. Unity in diversity, unity and equality of *different* people or things are meanings that are not easily conveyed in Russian and require interpretation. For additional discussions of

- the Russian language in connection with Lenin's dialectics, see V. Holubnychy, "Der dialektische Materialismus Mao Tse-tungs im Vergleich mit den Klassikern des Marxismus-Leninismus," *Der Ostblock und die Entwicklungsländer* (Hanover), no. 8-9 (1962): 37ff.; and V. Holubnychy, "Mao Tse-tung's Materialistic Dialectics," *The China Quarterly* (London) (July-September, 1964): 32ff. For general theory on the subject, see B. L. Whorf, *Language, Thought, and Reality* (Cambridge, Mass., 1956).
2. *Kommunisticheskaia Partiiia Sovetskogo Soiuzu v rezoliutsiakh i resheniakh siezdov, konferentsii i plenumov TsK*, 7th ed. (Moscow, 1953), 1: 559, 713.
 7. *Ibid.*, 50.
 8. *Ibid.*, 714.
 9. *Ibid.*
 10. Ukraine was the subject of the first separate resolution in this series, adopted by the Eighth Conference of the RCP(b) in December, 1919. See *ibid.*, 459.
 11. *Ibid.*, 559, 715-18.
 12. *Ibid.*, 716.
 13. *Ibid.*, 561.
 14. *Ibid.*, 562-3, 713, 715, 717-18.
 15. V. I. Lenin, "A Note on the Plan of the Scientific and Technical Research," in his *Sochineniia* 27, 4th ed. (Moscow, 1950).
 16. F. Engels, *Anti-Dühring*, part 3, chap. iii: "Production."
 17. See I. V. Stalin, *Sochineniia* (Moscow, 1947), 5: 57-8.
 18. Stalin's revision of Leninist theory and practice in the "question of nationalities" can be traced in his writings. See, especially, his *Report to the XVIIth Congress of the CPSU(b) on the Work of the Central Committee* (January, 1934); his letter to the Politburo members, dated 19 July 1934, but published seven years later, "On Engels' Article 'Foreign Policy of Russian Tsarism,'" *Bolshevik* (Moscow), no. 9 (1941); his wartime speeches, *On the Great Patriotic War of the Soviet Union* (1946); and his *Marxism and the Questions of Linguistics* (1950).
 19. V. M. Molotov, *Rech na XX sezde KPSS* (Moscow, 1956), 16-17.
 20. See *Protokoll der Verhandlungen des VI. Parteitages des Sozialistischen Einheitspartei Deutschlands* (Berlin, 1963), 1: 331-2.
 21. N. S. Khrushchev, *Stroitelstvo kommunizma v SSSR i razvitie selskogo khoziaistva* (Moscow, 1962), 2: 297.
 22. See W. Kolarz, *Russia and Her Colonies* (New York, 1952); G. von Rauch, *Russland: Staatliche Einheit und nationale Vielfalt* (Munich, 1953); O. K. Caroe, *Soviet Empire: The Turks of Central Asia and Stalinism* (New York, 1953); R. Conquest, *The Soviet Deportation of Nationalities* (New York, 1960); G. Wheeler, *Racial Problems in Soviet Muslim Asia*, 2d ed. (New York, 1962); H. Seton-Watson, *The New Imperialism* (Chester Springs, Pa., 1962); U.S. Congress, Senate Committee on the Judiciary, *The Soviet Empire* (Washington, D.C., 1958; rev. ed., 1965); M. Holdsworth, "Soviet Central Asia, 1917-1940: A Study in Colonial Policy," *Soviet Studies*

- (Oxford) (January, 1952); O. K. Caroe, "Soviet Colonialism in Central Asia," *Foreign Affairs* (October, 1953); G. Wheeler, "Colonialism and the USSR," *Political Quarterly* (London) (July-September, 1958); R. Pipes, "Soviet Moslems Today," *The New Leader*, 28 December 1958; "L'Empire colonial de l'Union soviétique," *Est & Ouest* (Paris), 16-30 July 1960; E. Mettler, "Soviet Colonialism in Asia," *Swiss Review of World Affairs* (Geneva) (August, 1963); H. Seton-Watson, "Moscow's Imperialism," *Problems of Communism* (January-February, 1964); W. O. Douglas, "Soviet Colonialism—Product of Terror," *Look*, 13 December 1955; R. F. Kennedy, "The Soviet Brand of Colonialism," *The New York Times Magazine*, 8 April 1956; Adlai Stevenson's statement in the U.N. debate on colonialism, November 1961, as quoted in *The Soviet Empire* (rev. ed.), 169; and "Moscow Berated on Own 'Colonies,'" *The New York Times*, 17 November 1961.
23. Soviet counter-criticism of Western critiques has also been very weak thus far. See, for example, G. D. Krikheli, *Protiv falsifikatsii natsionalnoi politiki KPSS* (Moscow, 1964).
24. "Regional Economic Policy in the Soviet Union: The Case of Central Asia," *Economic Bulletin for Europe* (Geneva) (November, 1957).
25. See, for example, "Theorie und Praxis der Sowjetkolonialismus," *Sowjet-studien* (Munich) (December, 1961); B. Hayit, "Turkestan as an Example of Soviet Colonialism," *Studies on the Soviet Union* (Munich), no. 2 (1961); M. Tachmurat, "Colonization in Turkestan," *Problems of the Peoples of the USSR* (Munich), no. 9 (1961); and A. Adamovich, "Soviet Internal Colonialism," *Studies on the Soviet Union*, no. 1 (1962).
26. See K. Kononenko, *Ukraine and Russia: A History of the Economic Relations Between Ukraine and Russia (1654-1917)* (Milwaukee, 1958); D. F. Solovei, "The Colonial Victimization of the Ukraine," *Problems of the Peoples of the USSR*, no. 9 (1961); D. F. Solovei, *Ukraina v systemi sovetskoho koloniializmu* (Munich, 1959); B. Vynar, *Ekonomichny koloniializm v Ukraini* (Paris, 1958); D. Andrievsky, *Rosiisky kolonializm i sovetska imperiia* (Paris, 1958); M. Velychkivsky, *Siliske hospodarstvo Ukrainy i koloniialna polityka Rosii* (New York, 1957); and B. Vynar, "The Establishment of Soviet Economic Colonialism in Ukraine," *Ukrainian Quarterly* (New York) 13 (Spring, 1957). See also *American Economic Review* (March, 1960): 218.
27. Z. L. Melnyk, *Soviet Capital Formation: Ukraine, 1928/29-1932* (Munich, 1965). The initial version of this monograph was defended at Michigan State University in 1961 as a Ph.D. dissertation entitled *Ukrainian Capital and the Soviet Economy*. See also *Slavonic and East European Review* (London) (July, 1967): 568-71.
28. See, among others, Oleg Hoeffding, in A. Bergson, ed., *Soviet Economic Growth: Conditions and Perspectives* (Evanston, Ill., 1953); A. Zauberman, *Economic Imperialism: The Lessons of Eastern Europe* (London, 1955); N. Spulber, *The Economics of Communist Eastern Europe* (Cambridge, Mass., 1957); F. L. Pryor, *The Communist Foreign Trade System*

- (Cambridge, Mass., 1963); as well as the articles by H. Mendershausen in *The Review of Economics and Statistics*, May 1959, and May, 1960; and in *Osteuropa-Wirtschaft* (June, 1962); H. Kato, "Soviet East European Trade Relations," *Keio Economic Studies* (Tokyo), no. 1 (1963); and Mah Feng-hsia, "The Terms of Sino-Soviet Trade," *The China Quarterly* (January, 1964). See also, for example, *O kontrarevolucionarnoj i klevetnickoj kampanji protiv socialisticke Jugoslavije*, 2 vols. (Belgrade, 1949–50); *Seven Letters Exchanged Between the Central Committees of the Communist Party of China and the Communist Party of the Soviet Union* (Peking, 1964); and "Soviet Revisionism's Neo-Colonialist 'Aid,'" *Peking Review*, no. 40 (29 September 1967), which concerns Mongolia.
29. Statement of the Soviet government, in *Pravda*, 31 October 1956.
 30. Soviet-Polish statement, in *Pravda*, 19 November 1956.
 31. *Seven Letters*, 70.
 32. This method has been used, e.g., by the Academy of Sciences of the Ukrainian SSR, Institute of Economics, in its *Natsionalny dokhod Ukrainiskoi RSR v period rozhornutoho budivnytstva komunizmu* (Kiev, 1963); see the review of this work in *American Economic Review* 54, no. 5 (September, 1964). Another example, though with much less statistical data, is A. A. Abduganiev, U. N. Mirzakhodzhaiev and V. A. Osminin, *Obshchestvennii produkt i natsionalnii dokhod Uzbekskoi SSR* (Tashkent, 1960).
 33. On this, see the purely theoretical analysis by L. A. Tarasov, "O sostavlenii balansa obshchestvennogo produkta v soiuoznoi respublike," N. M. Osnobin ed., *Ocherki po sovremennoi sovetskoj i zarubezhnoi ekonomike* 3 (Moscow, 1962); and also a predominantly methodological study based in part on statistics of the Belorussian SSR by the RSFSR Ministry of Higher and Special Education, Moscow Economic-Statistical Institute, *Balans obshchestvennogo produkta soiuoznoi respubliki* (Moscow, 1962). The latter states that the Central Statistical Administrations of the union republics have been computing such planned balances for each republic since 1957 (page 3), and mentions that in the 1920s such balances were calculated in several union and autonomous republics, and even in some provinces (oblasts) (page 11). The study complains, however, that statistics on the fulfillment of the planned balances today are quite insufficient (pages 65–6).
 34. This method was used by Z. L. Melnyk, *Soviet Capital Formation*. See also, for example, G. F. Break, *Intergovernmental Fiscal Relations in the United States* (Washington, D.C.: The Brookings Institution, 1967); as well as R. Parenteau, "Les problèmes du développement régional dans un Etat fédératif—L'expérience canadienne," *Revue d'Economie Politique* (Paris), no. 2 (1963). According to a recent Soviet source, such balances are being computed by the Soviet Union republics today; see *Planirovanie narodnogo khoziaistva SSSR* (Moscow, 1965), 531. Like most other data of this kind, however, the statistics have not been made public. (The following, presumably important, monograph was published after work on this paper was completed: M. A. Binder, *Gosudarstvenno-pravovie problemy vzaimopomoshchi*

- sovetskikh narodov* [Alma-Ata, 1967]. Part 3, chap. ii, discusses the inter-republic flow of budgetary funds, although its economic analysis does not seem to be on a sufficiently adequate level.)
35. On this method see, for example, J. T. Romans, *Capital Exports and Growth among U.S. Regions* (Middletown, Conn., 1965); and also a general discussion in P. Bauchet, "La Comptabilité économique régionale et son usage," *Economie Appliquée* (Paris), no. 1 (1961).
 36. *Metodika opredeleniia ekonomicheskoi effektivnosti razmeshcheniia promyshlennosti pri planirovanii novogo stroitelstva* (Moscow, 1966), 7–8. On how such balances are calculated on the all-Union and republic levels, see G. I. Grebtsov and P. P. Karpov, eds., *Materialnie balansy v narodno-khoziaistvennom plane* (Mowcow, 1960), 15–25.
 37. It has been reported that such matrixes are being computed for the union republics in the current five-year plan. See *Voprosy ekonomiki*, no. 2 (1967): 150.
 38. Historically, Marx seems to have been the first to identify the imbalance in the balance-of-payments as a measure and an index of international economic exploitation. See *Capital* 3, chap. xxxv, sec. 2, "England's Balance of Trade." It is easy to imagine exploitation in terms of labour-hours calculus; it is what Marx called the "inequitable exchange." In more realistic and empirical terms, however, the calculus is much more difficult. For high-calibre modern Western theories on this subject, see for example, H. G. Johnson, "A Theoretical Model of Economic Nationalism in New and Developing States," *Political Science Quarterly* 80 (1965): 169–85; A. O. Krueger, "The Economics of Discrimination," *Journal of Political Economy* 71 (1963): 481–6; A. Breton, "The Economics of Nationalism," *Journal of Political Economy* 72 (1964): 376–86; and G. S. Becker, *The Economics of Discrimination* (Chicago, 1957).
 39. For a very lucid further analysis, see S. A. Ożga, *The Rate of Exchange and the Terms of Trade* (Chicago, 1967), chaps. 3, 4 and 7. See also C. P. Kindleberger, *Balance-of-Payments Deficits and the International Market Liquidity* (Princeton, N.J., 1965).
 40. *Balans obshchestvennogo produkta soiuznoi respubliki*, 65.
 41. This rule is not without exceptions, however. In some cases, losses are nobody's gain; they are simply unaccounted for. This is true, for example, in the case of a monopsonistic market situation, where the factors of production are underpaid; i.e., the sellers lose part of their income completely and absolutely, while the monopsonist's gain is at best only relative (comparative). This relates to the monopsonistically exploited agricultural regions and colonies, among others. Marx had this in mind when he noted that the "majority of agricultural nations are compelled to sell their produce *below value*." (*Teorii privavochnoi stoimosti* [Moscow, 1957], part 2, 480. [Italics in original].) See also, *ibid.*, 7, as well as H. W. Singer, "The Distribution of Gains between Investing and Borrowing Countries," *American Economic Review* 40 (May, 1950).
 42. It can be argued that, in the case of an "open" world economy,

- “discrimination” and/or “colonialism” would turn themselves into the constrained time-horizon functions of pure competition, in spite of the fact that at first glance this sounds like a paradox. For example, world resources are the subject of competition between the interest in the conquest of space and in the increased production of food for the overpopulated areas, etc.
43. See A. C. Pigou, *The Economics of Welfare*, 4th ed. (London, 1950), 647–55, for a purely theoretical discussion of which the above is an analogue. See also A. P. Lerner, *The Economics of Control* (New York, 1946), chaps. 26–7, for some basic ideas. It may be worth noting that this marginalist dialectic was not entirely unknown to Karl Marx either. See, for example, his statement that whenever capital resources are being transferred to an underdeveloped industry or to a region with “low organic capital structure,” the result “to be true, would lower the specific surplus profit obtainable in the latter, but would also raise the overall level of profit” in all the industries combined or in the country as a whole. (*Teorii pribavochnoi stoimosti*, part 2, 438 and above.)
 44. A. G. Aganbegian, “Ekonomiko-matematicheskoe modelirovanie i reshenie otraslevykh zadach,” in *Primenenie matematiki pri razmeshchenii proizvoditelnykh sil* (Moscow, 1964), 23.
 45. *Metodicheskie ukazaniia po opredeleniiu optimalnykh skhem perevozok, snabzheniia i razmeshcheniia predpriatii s pomoshchiu lineinogo programmirovaniia* (Moscow, 1964), 84ff.
 46. *Metodika opredeleniia ekonomicheskoi effektivnosti razmeshcheniia promyshlennosti pri planirovanii i proektirovanii novogo stroitelstva* (Moscow, 1966), 14. A few hints about the background of the formulation of this methodology can be found in A. A. Mints, “Obsuzhdenie proekta metodiki opredeleniia ekonomicheskoi effektivnosti razmeshcheniia promyshlennosti,” *Izvestiia Akademii nauk SSSR: Seriia geograficheskaiia*, no. 5 (1965).
 47. *Metodicheskie ukazaniia po opredeleniiu optimalnykh skhem*, 83ff.
 48. *Metodika opredeleniia ekonomicheskoi effektivnosti razmeshcheniia promyshlennosti*, 8, 14–15.
 49. Such a well-known Russian scholar in the field as V. V. Kossov (Central Economic Mathematical Institute of the USSR Academy of Sciences) also advocates a regional differentiation of the marginal efficiency co-efficients, without explaining his reasons. See his “Metody optimalnykh raschetov na osnove territorialnykh modelei,” in A. N. Efimov, ed., *Problemy optimalnogo planirovaniia* (Moscow, 1966), 226. (This is a symposium of Soviet-bloc economists on the problems of optimization, held in East Berlin in April, 1965.)
 50. The earliest classic in this field seems to be F. L. Hitchcock, “The Distribution of a Product from Several Sources to Numerous Localities,” *Journal of Mathematics and Physics* 20 (1941): 224ff. A useful collection of models and an extensive, pertinent bibliography can be found in S. Vajda, *Readings in Mathematical Programming* (New York, 1962). Soviet work in the field is described in *Primenenie matematiki pri razmeshchenii*

- proizvoditelnykh sil* (Moscow, 1964). A significant new contribution in this field is L. Johansen, "Regionaløkonomiske problemer belyst ved lineær programmeringsteori," *Sosialøkonomen* (Oslo), no. 2 (1965). (I am obliged to Mrs. Sigrid Sereda for helping me read Johansen's paper.) The application of linear programming models to the optimization of foreign trade has been successfully developed by an East German economist, G. Otto, "Optimierung der territorialen Struktur des Aussenhandels," *Der Aussenhandel* (Berlin), no. 3 (1965). These models can be easily adapted to the optimization of the regional balance of payments. A current, world-wide bibliography can be found in *Referativnii sbornik: Ekonomika promyshlennosti*, Series D: *Primenenie matematicheskikh metodov v ekonomicheskikh issledovaniakh i planirovanii* (Moscow). Specialized, but nonetheless interesting, is V. S. Mikheeva, *Matematicheskie metody v planirovanii razmeshcheniia selsko-khoziaistvennogo proizvodstva* (Moscow, 1966).
51. See I. V. Ivliev and V. P. Potapov, eds., *Transportnye tarify* (Moscow, 1960); and A. V. Kreinin, ed., *Passazhirskie tarify na transporte SSSR* (Moscow, 1966). The historical background of this policy is given in H. Hunter, *Soviet Transportation Policy* (Cambridge, Mass., 1957). See also Sh. Ia. Turetsky, *Ocherki planovogo tsenoobrazovaniia v SSSR* (Moscow, 1959), 341ff.
 52. See, for example, *Zheleznodorozhnyi transport SSSR v dokumentakh Kommunisticheskoi Partii i Sovetskogo pravitelstva* (Moscow, 1957), 319–20. See also Hunter, *Soviet Transportation Policy*, 212 and *passim*; F. D. Holzman, "Soviet Ural-Kuznetsk Combine," *Quarterly Journal of Economics* 71 (August, 1957): 384–5; and H. Chambre, *L'Aménagement du territoire en U.R.S.S.: Introduction à l'étude des régions économiques soviétiques* (Paris, 1959), 45–50, 142–8.
 53. See S. Kobe, "Elasticity of derived Demand for Transportation Services," *Waseda Economic Papers* (Tokyo), no. 3 (1959): 58–9.
 54. A. M. Shulga, "Voprosy opredeleniia sebestoimosti zheleznodorozhnykh prevozok po napravleniiam," *Voprosy ekonomiki zheleznodorozhnogo transporta*, Issue no. 215 (1966): 98. (A publication of the Moscow Institute of Railroad Engineers.)
 55. See A. Bergson, *Essays in Normative Economics* (Cambridge, Mass., 1966), 149–53.
 56. I am greatly indebted to Dr. D. Lazdinš for her discussion of this point with me and for mathematical clarification of the conditions necessary for the relationships (2) and (3) below to hold true. See also a discussion of these problems in V. Holubnychy, "Le ralentissement des rythmes d'accroissement de l'économie soviétique," *Problèmes soviétiques* (Munich), no. 2 (1959): 64–5; and V. Holubnychy, "Problemy osnovnoi ekonomicheskoi zadachi SSSR (Dognat i peregnat Ameriku)," *Uchenie zapiski Instituta po izucheniiu SSSR* (Munich) 1, no. 1 (1963): 71–3.
 57. Obviously, if both levels grow by identical rates, they will never meet, although the absolute gap between them may narrow for some time and then widen again in a cyclical pattern. If the lower level's rate of growth is smaller than that of the higher level, the levels will start diverging immediately and

the gap between them will grow absolutely. In all three cases the rates of growth are assumed to be constant. If the rates vary with time, the trends in the two levels will depend on the shape of the rates' functions.

58. The remaining part of this paper was read on 4 March 1967, at a meeting of the Economics and Law Section of the Ukrainian Academy of Arts and Sciences in New York City, Professor B. M. Martos presiding. The author has benefited from the criticism and comments of those present.
59. The impact of the location of industries in the USSR upon the relations among its nationalities has been treated in relatively few books and papers, and then only in relation to individual, separate republics and without inter-republic or inter-regional comparisons. See *Bibliografiia po voprosam razmeshcheniia i raionirovaniia promyshlennosti SSSR, 1901–1957* (Moscow, 1960), 27, 166–315; *Bibliografiia po voprosam razmeshcheniia i raionirovaniia promyshlennosti SSSR, 1958–1964* (Moscow, 1966), 15, 114–220; and *Kapitalovlozheniia v narodnoe khoziaistvo SSSR: Osnovnye fondy promyshlennosti i ikh ispolzovanie—Ukazatel sovetskoi literatury 1945–1964* (Moscow, 1966), 9, 13–15, 18, 60–4; 104–9. The only significant exceptions are a book by Iu. F. Vorobiov, *Vyravnivanie urovnei ekonomicheskogo razvitiia soiuznykh respublik* (Moscow, 1965), 215 pp.; and his articles, “Vyravnivanie urovnei promyshlennogo razvitiia natsionalnykh respublik Sovetskogo Soiuzna v period stroitelstva sotsializma,” *Istoriia SSSR*, no. 4 (1962), and “Fakty i falsifikatory,” *Ekonomicheskaiia gazeta*, no. 51 (December, 1966). Vorobiov's method, however, is strange, to say the least. While explicitly discussing the economic aspects of the problem of nationalities, he compares the levels of development and growth over time of the non-Russian republics either among themselves or with the USSR average, consistently avoiding any comparison with the RSFSR, as if the latter was not a part of the Union. Why such a strange method was chosen is perhaps suggested by the findings of this paper. Somewhat more objective is a similar paper by V. A. Shpiliuk, “Vyravnivanie urovnia promyshlennogo razvitiia soiuznykh respublik posle obrazovaniia SSSR,” in *Torzhestvo leninskoi natsionalnoi politiki* (Moscow, 1963), 311–36. He makes a few timid and selective comparisons of the achievements of the non-Russian republics with the RSFSR, but his comparisons are conspicuously incomplete and he uses for comparison the output of large-scale industries only, which makes the picture of some non-Russian republics look better than it is in reality. A method identical to that of Vorobiov (i.e., excluding the RSFSR from the inter-republic comparison) but limited historically to the pre-Second World War period alone is also used in the otherwise apparently respectable volume of the USSR Academy of Sciences, Institute of Economics, *Sotsialisticheskoe narodnoe khoziaistvo SSSR v 1933–1940 gg.* (Moscow, 1963), 314–51. This book tries to impress upon the readers the view that the economic aspect of the problem of nationalities had already been resolved before the war. This opinion is *not* shared by an eminent Soviet student of prewar economic history, who compared the non-Russian republics with the RSFSR.; P. I. Liashchenko, *Istoriia narodnogo khoziaistva SSSR* (Moscow,

- 1956), 3: 504. See *Ekonomika sotsialisticheskoi promyshlennosti*, ed. E. L. Granovsky and B. L. Markus (Moscow, 1940), 296–7, which also did not claim that the problem had been solved.
60. Soviet authors admit that even the methods of inter-regional comparisons of the levels of development have not yet been agreed upon in the USSR, not to speak of actual indicators of such levels. See, for example, Sh. L. Rozenfeld, "O metodologii sopostavleniia urovnei razvitiia ekonomicheskikh raionov," *Planovoe khoziaistvo*, no. 9 (1966): 71; also his *Opredelenie urovnei razvitiia promyshlennosti v raionakh* (Moscow, 1963). In addition, see "Diskussiiia o regionalnykh osobennostiakh ekonomicheskogo razvitiia," *Voprosy ekonomiki*, no. 2 (1967): 149–50. On the other hand, compare the high calibre of the methodological work in this field in Yugoslavia, for example, B. Ivanović, "Classification of Underdeveloped Areas According to Level of Economic Development," *Mathematical Studies in Economics and Statistics in the USSR and Eastern Europe* (New York) 1, no. 3 (Spring, 1965).
61. Ia. Feigin, "Problemy razdeleniia truda v promyshlennosti mezhdou respublikami i ekonomicheskimi raionami," *Voprosy ekonomiki*, no. 8 (1962): 34.
62. Vorobiov, *Vyravnivanie urovnei ekonomicheskogo razvitiia soiuznykh respublik*, 193.
63. However, the rough estimates of the per capita personal disposable income provided in Table 17 suggest that the actual difference is probably close, and certainly not larger than that mentioned by Feigin and Vorobiov.
64. Cf. U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 1964* (Washington, D.C., 1964), 329.
65. The reduction in the proportions of urban population of Ukraine and Belorussia between 1914 and 1926 is due to the official change in the definition of urban centres in these two republics adopted in 1924. In Belorussia, the new title "towns and cities" was not connected with any statistical definition; rather, the number of towns was reduced by decree. In Ukraine, only urban centres with a population of 10,000 or more were classified as urban after 1924; a large number of towns and cities so called in 1914 were deprived of these designations. In the RSFSR, on the other hand, inhabited centres with a population of only 1,000 or more were classified as urban. As a result of this reform, the RSFSR became at once more "urbanized" than the other republics; it probably had to look statistically more "proletarian" than the others. This was also important from the point of view of priorities in the allocation of resources. Other republics, too, had different definitions of "urban" centres during the 1920s and 1930s. See O. A. Konstantinov, "Sovremennoe sostoianie deleniia naselennykh punktov SSSR na gorodskie i selskie," *Izvestiia Akademii nauk SSSR: Seriia geograficheskaiia*, no. 6 (1958): 70–1.
66. *Itogi vsesoiuznoi perepisi naseleniia 1959 goda: Ukrainskaia SSR* (Moscow, 1963), 15–16. The Ukrainian republic includes, in this case, the Crimea and excludes the Moldavian ASSR.
67. See an advertisement on page 863 of *Nar. khoz. SSSR v 1961 g.* (Moscow,

1962). If there were also data on the structure of the labour force of each republic by nationality, remarkable differences would undoubtedly become apparent. It is probable, for example, that in the republics of Central Asia, and elsewhere, workers in heavy industry are for the most part Russians and other Slavs, not members of local nationalities. The same is probably even more true of the nationality structure of the republic government and party bureaucracy, professionals and intellectuals. In spite of the professed party policy of training local, endemic cadres, there is some evidence that discrimination against local nationalities, deliberate or not, has been practiced in the Soviet Union. Cf. the nationality structure of students, specialists and scientists in *Nar. khoz. SSSR v 1961 g.*, 586, 700, 704. See also U.S. Department of Labor, Bureau of Labor Statistics, Division of Foreign Labor Conditions, *Discrimination in the Field of Employment and Occupation in the Soviet Union* (Washington, D.C., 1957).

68. These figures are given for all industries, as distinguished from large-scale industries, the data for which are more often found in Soviet sources, but which are also very frequently mixed in with the data for all industries. Examples of such confusion can be found in Vorobiov, *Vyravnivanie urovnei ekonomicheskogo razvitiia soiuznykh respublik*, 82; and in Shpoliuk, "Vyravnivanie urovnei," 325-6. There is no doubt that the use of data from large-scale industries artificially embellishes the picture in some republics. In the case of Turkmenia and Uzbekistan, for example, the exclusion of the cotton-gin shops from industrial output statistics because they are small-scale enterprises leaves both republics almost bare of any industry; then, construction of one single gin-building factory and its inclusion into the industrial output index (because it is large-scale) skyrockets that index from the almost-zero base artificially and without any justification.
69. Cf. *Nar. khoz. SSSR v 1965 g.* (Moscow, 1966), 815.
70. An objection has been raised to this method of comparison of the levels of industrialization on the ground that different republics have different types of industries. Some industry products are high-priced, others are low-priced, and therefore production levels in price terms do not reflect actual productivity; only labour-values do. (See S. M. Iugenburg, *Indeksnii metod v sovetskoi statistike* [Moscow, 1958], 179-82.) This argument is rather strange. Although it is well known that Soviet prices have at times been fixed quite arbitrarily, what is important for the measurement of the level of industrialization is not so much the prices of individual goods as the total volume of output. If production is planned rationally, its volume will be large enough to bring in a maximum volume of profit, irrespective of whether prices are high or low. It is only when the volume of output (i.e., quantity produced) is not large enough that the marginal productivity levels of individual goods become distorted. But then the total output of all industries combined would be smaller than normal, and this would mean that a given republic was arbitrarily kept underdeveloped.
71. This conclusion is also implicit in the findings of the Soviet scholar V. A. Shpiliuk, "Vyravnivanie urovnei," 326. He produces per capita output

- data of large-scale industries for the RSFSR and eight non-Russian republics in the years 1913, 1940 and 1961, but stops short of drawing any conclusions as far as the comparison with the Russian republic is concerned. His data for the RSFSR for the given years are 80.2, 578.9 and 2719.0 rubles; the average for the non-Russian republics comes out as 47.8, 224.9 and 738.3 rubles. The level of the non-Russian republics compared to the RSFSR has therefore declined from 60 per cent to 39 per cent and 27 per cent, respectively.
72. *Promyshlennost SSSR: Statisticheskii sbornik* (Moscow, 1957), 58–100.
 73. Another check substantiates these same conclusions, that of the per capita haul of freight by railroads and other carriers. The figures are not reproduced here because they give the same results. Cf. *Transport i sviaz SSSR: Statisticheskii sbornik* (Moscow, 1957), 67.
 74. This is the argument employed by Shpiliuk, to prove that the gap decreases after all. Unfortunately, such an argument only dodges the problem.
 75. For a worried statement to this effect by V. Iu. Akhundov, first secretary of the Azerbaidzhan Communist Party, at the Twenty-third CPSU Congress, see *XXIII siezd Kommunisticheskoi Partii Sovetskogo Soiuza: Stenograficheskii otchet* (Moscow, 1966), 1: 376.
 76. M. Bor, "Planovii balans natsionalnogo dokhoda v soiuznykh respublikakh," *Voprosy ekonomiki*, no. 3 (1960). See also similar statements and discussions in A. Zverev, "Voprosy metodologii ischisleniia narodnogo dokhoda," *Voprosy ekonomiki*, no. 11 (1960); A. Liando, "O sostavlenii svodnykh otchetnykh balansov finansovykh resursov i zatrat soiuznykh respublik," *Vestnik statistiki*, no. 3 (1961); L. A. Tarasov, "O sostavlenii balansa"; A. Balashova, V. Vorotnikov and L. Griniakina, "Problemy planovogo balansa natsionalnogo dokhoda soiuznykh respublik," *Planovoe khoziaistvo*, no. 4 (1962); V. Kuts, "Rozpodil natsionalnogo dokhoda cherez derzhavny biudzheth URSS," *Ekonomika Radianskoi Ukrainy* (Kiev) (September-October, 1962); and L. A. Tarasov, "O vliianii ekonomicheskikh svyazei na razmery obshchestvennogo produkta i natsionalnogo dokhoda soiuznoi respubliky," *Nauchnye doklady vysshei shkoly—ekonomicheskie nauki*, no. 6 (1962).
 77. A. Zverev, "Rol gosudarstvennogo biudzheta v raspredelenii obshchestvennogo produkta i natsionalnogo dokhoda," *Voprosy ekonomiki*, no. 6 (1964): 51.
 78. *Natsionalny dokhod Ukrainskoi RSR v period rozhornutoho budivnytstva komunizmu*, 151.
 79. The authors of these calculations admit that for a number of statistical reasons their figures underestimate, rather than overestimate, the actual losses of Ukraine. A recent émigré attempt at a recalculation by means of a more complete statistical coverage has produced a figure of losses of 6.021 billion rubles for the year 1962. These recalculations are debatable, however. See D. Solovei, *Finansovy vyzysk Ukrainy* (Detroit, 1965), 57.
 80. Cf. *Materialy dlia opredeleniia roli Ukrainy v obshchegosudarstvennom biudzhete SSSR v 1913, 1922/23, 1924/25 gg.* (Kharkiv, 1925); V. Dobrogaiev, "Problemy finansovogo balansa Ukrainy," *Khoziaistvo Ukrainy* (Kharkiv), no. 2 (1927); V. S. Myshkis, "Balans narodnogo khoziaistva Ukrainy," *Khoziaistvo Ukrainy*, no. 1 (1928); M. Volobuiev, "Do

- problemy ukrainskoi ekonomiky," *Bilshovyk Ukrainy*, no. 2 and 3 (1928); and *Zvit Narodnoho komisariiatu finansiv URSR pro vykonannia derzhavnoho biudzhetu USRR za 1927/28 r.* (Kharkiv, 1929).
81. Cf., for example, A. Rychytsky, *Do problemy likvidatsii Perezhytkiv kolonialnosti ta natsionalizmu (Vidpovid M. Volobuievu)* (Kharkiv, 1928); also the writings of B. Vynar and D. Solovei, referred to above.
 82. Cf. Ia. Ioffe and G. Lebedev, "Promyshlennost peremeshchaetsia na Vostok," *Puti industrializatsii*, no. 13 (1930); *Za industrializatsiiu Sovetskogo Vostoka*, nos. 1-4 (1932); *Direktivy KPSS i Sovetskogo pravitelstva po khoziaistvennym voprosam* (Moscow, 1958), 4: 846; R. S. Livshits, *Ocherki po razmeshcheniiu promyshlennosti SSSR* (Moscow, 1954); S. P. Tokarev, *Uskorennoe razvitie promyshlennosti vostochnykh raionov SSSR* (Moscow, 1960); A. E. Probst, *Razmeshchenie sotsialisticheskoi promyshlennosti* (Moscow, 1962); and *XXIII siezd KPSS*, 2: 18-21.
 83. *Direktivy KPSS i Sovetskogo pravitelstva po khoziaistvennym voprosam* (Moscow, 1957), 2, 401.
 84. *KPSS v rezoliutsiakh i resheniiakh siezdov, konferentsii i plenumov TsK*, 7th ed. (Moscow, 1960), 4: 459. Also, a faster rate of growth was planned for the "eastern regions" than for the rest of the USSR. See N. A. Mukhitdinov's speech at the Twenty-first Party Congress, in *Izvestiia*, 31 January 1959.
 85. This whole area is sometimes called the "east and southeast" of the USSR. (See *Ekonomika promyshlennosti SSSR: Uchebnik* [Moscow, 1956], 175.) This term is, of course, less misleading than the former. In a few official sources, the "eastern regions" also include the Upper Volga region, in addition to the regions mentioned above. See S. G. Strumilin, ed., *Ekonomicheskaiia zhizn SSSR: Khronika sobytii i faktov 1917-1959* (Moscow, 1961), 415, citing the Gosplan report on the fulfillment of the 1943 economic plan.
 86. *Direktivy KPSS i Sovetskogo pravitelstva*, 2: 403, 575; 3: 8ff.; and 4: 583-4; *KPSS v rezoliutsiakh*, 4: 460-2; and *XXIII siezd KPSS*, 2: 18-22. See also N. K. Beliaiev, *Sotsialisticheskaiia industrializatsiia Zapadnoi Sibiri* (Novosibirsk, 1958); Ia. E. Chadaiev, *Novii etap ekonomicheskogo razvitiia RSFSR* (Moscow, 1959); V. Kistanov, *Budushcheie Sibiri* (Moscow, 1960); *Razvitie proizvoditelnykh sil vostochnoi Sibiri* (Moscow, 1961); and A. I. Zubkov, *Osobennosti razmeshcheniia promyshlennosti RSFSR* (Moscow, 1964). See also the publication of the USSR Academy of Sciences, Siberian Branch, *Sibir v period stroitelstva sotsializma* (Novosibirsk); six issues, containing important economic-historical papers, had been published by 1966.
 87. Rozenfeld, *Opredelenie urovnei razvitiia promyshlennosti v raionakh*, 17.
 88. For more details, see A. Oxenfeldt and V. Holubnychy, *Economic Systems in Action*, 3d ed. (New York, 1965), 93ff.
 89. V. Perlo, *How the Soviet Economy Works: An Interview with A. I. Mikoyan* (New York, 1961), 17-18.
 90. N. S. Khrushchev, "Razvitie ekonomiki SSSR i partiinoe rukovodstvo narodnym khoziaistvom," *Pravda*, 20 November 1962, 5.

91. See G. B. Iakusha, *Osnovy planirovaniia energeticheskikh sistem* (Kiev, 1963); *Ekonomichna efektyvnist kapitalnykh vkladov i vprovadzhennia novoi tekhniki u promyslovosti* (Kiev, 1965), especially 51, 88–9, 101–2, 126–34. In defending the electrification of Ukraine against that of Siberia, Iakusha also points out that the East European socialist countries need to import electric power from Ukraine (*ibid.*, 11, 101). See also the comments of N. S. Khrushchev, in *Pravda*, 30 July 1962. The fight for the extension of electric power development in Ukraine continued even at the Twenty-third CPSU Congress; see V. V. Shcherbytsky's speech, in *XXIII siezd KPSS*, 2: 71.
92. V. F. Rubanik, "K voprosu o putiakh razvitiia sovetskoi elektroenergetiki," *Trudy Kievskogo tekhnologicheskogo instituta pishchevoi promyshlennosti* (Kiev), no. 20 (1959); and V. A. Shelest, "Razvitie i razmeshchenie elektroenergetiki," in *Voprosy razmeshcheniia proizvodstva v SSSR: Sbornik statei* (Moscow, 1965), who tries to find a compromise solution.
93. S. P. Tokarev, *Uskorennoe razvitie promyshlennosti vostochnykh raionov SSSR, 1959–1965* (Moscow, 1960); and L. A. Melentiev, M. A. Styrikovich and E. O. Shteingauz, *Toplivno-energeticheskii balans SSSR* (Moscow, 1962). The latter proposed closing down Donbas coal fields and slowing down the economic development of Ukraine almost to a standstill (174–5, as quoted by Iakusha, *Tekhniko-ekonomicheskie osnovy razvitiia elektroenergetiki*, 102).
94. *KPSS v rezoliutsiakh*, 4: 391.
95. *XXIII siezd KPSS*, 2: 336.
96. In addition to the sources quoted in footnotes 91–5, see two works of the Academy of Sciences of the Ukrainian SSR, Institute of Economics, *Shliakhy pidvyschennia ekonomichnoi efektyvnosti kapitalnykh vkladov u promyslovist Ukrainiskoi RSR* (Kiev, 1967), 10, 15, 22–54; and *Razvitie neftianoi i gazovoi promyshlennosti USSR i effektivnost kapitalnykh vlozhenii* (Kiev, 1964).
97. V. Baievich and V. Skliar, "Bogatstva nede Ukrainy dlia razvitiia khimii," *Pravda*, 5 August 1964, 2.
98. See, for example, S. Petrakov, "Gde vygodneie pererabatyvat khlopok," *Ekonomicheskaiia gazeta*, 29 September 1965, 19; and the speech by R. Kurbanov, Uzbekistan's premier, in *XXIII siezd KPSS*, 2: 222.
99. See the speech by Z. Pukhova, in *XXIII siezd KPSS*, 1: 351.
100. See the speech by V. Iu. Akhundov, in *ibid.*, 1: 375–6.
101. A. Gunia, *O tempakh i proporsiiakh sotsialisticheskogo vosproizvodstva v ekonomike Gruzii* (Tbilisi, 1966), 56–8.
102. S. Malinin, "Nuzhno respublike, vygodno strane," *Ekonomicheskaiia gazeta*, 6 October 1965, 15; A. Diorditsa, "V iedinoi bratskoi semie narodov SSSR," *Sovetskaia Moldavia* (Kishinev), 28 December 1965; Z. Muratov, "Perspektivy razvitiia ekonomiki Sovetskoi Tatarii," *Pravda*, 5 May 1957, 3; and *XXIII siezd KPSS*, 2: 213.
103. See Khrushchev's speech, in *Plenum Tsentralnogo Komiteta*

- Kommunisticheskoi Partii Sovetskogo Soiuza, 18–21 iunია, 1963 goda: Stenograficheskii otchet* (Moscow, 1964), 289. Another vivid example of how decisions were made in Stalin's time within the USSR Gosplan is described in the recollections of Jack Miller, "Soviet Planners in 1936–37," in J. Degras, ed., *Soviet Planning: Essays in Honor of Naum Jasny* (New York, 1964). Of special interest is his description of the Gosplan of Uzbekistan, 127–32.
104. See Khrushchev's speech in *Plenum Tsentralnogo Komiteta KPSS*, 291.
105. See *Pravda*, 20 July 1959, 1.
106. See F. Kotov, "Novye metodicheskie polozheniia k sostavleniiu gosudarstvennogo plana," *Planovoe khoziaistvo*, no. 10 (1960): 32; and "Polozhenie o poriadke vybora raiona i punkta stroitelstva novykh promyshlennykh predpriatii i ob osnovnykh pokazateliakh tekhniko-ekonomicheskogo obosnovaniia razmeshcheniia predpriatii," *Planovoe khoziaistvo*, no. 5 (1962): 92–3. In the international economic relations among the sovereign socialist states almost all capital transfers have been on a loan basis, and with appropriate interest. A contribution on this subject, almost unique in socialist literature, and published by the Czechoslovak Academy of Sciences, is Č. Konečný, *Socialistický mezinárodní úvěr* (Prague, 1964). Inter-regional transfers of investible capital on a loan basis, though interest-free, are being carried out in Yugoslavia today. A special credit fund for the industrialization of the underdeveloped republics of Macedonia and Montenegro and the Kosovo-Metohija autonomous province was established in 1965. See "Zakon o oslobodenju od plaćanja kamate na fondove u privredi," *Službeni list SFRJ* (Belgrade), no. 5 (1965).
107. V. Holubnychy, "Problemy osnovnoi ekonomicheskoi zadachi SSSR," 78.
108. A. S. Moskovskii, "Razvitie promyshlennosti Sibiri v gody vtoroi piatiletki," in *Sibir v period stroitelstva sotsializma* (Novosibirsk) 6 (1966): 139–40; Livshits, "Ocherki po razmeshcheniiu," 225 (see page 222 for 1933–40 figures); and I. S. Koropec'kiy, "The Economics of Investment in Ukrainian Industry, 1928–1937" (unpublished Ph.D. dissertation, Columbia University, 1964), 87.
109. See I. S. Koropec'kiy, "The Development of Soviet Location Theory before the Second World War," *Soviet Studies* (July and October, 1967).
110. *Program of the CPSU*, adopted by the Twenty-second Congress (31 October 1961), Part 2, sec. 4.
111. B. Bukhanevich and M. Sonin, "O mezhraionnom regulirovanii zarabotnoi platy v SSSR," *Voprosy ekonomiki*, no. 1 (1957): 21.
112. The deflator indexes were calculated from the indexes of retail sales in current prices and physical volume of sales for each republic. *Sovetskaia trgovlia: Statisticheskii sbornik* (Moscow, 1964), 31, 47.
113. M. J. Pullen, "Regional Development in the United Kingdom," in W. Birmingham and A. G. Ford, eds., *Planning and Growth in Rich and Poor Countries* (New York, 1965), 118.
114. U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 1966* (Washington, D.C., 1966), 330.

115. See The Chase Manhattan Bank, *The European Markets* (New York, 1964), 33.
116. I. Ia. Matiukha, *Statistika biudzhetrov naseleniia* (Moscow, 1967), 101.
117. A. G. Aganbegian and V. F. Maier, *Zarabotnaia plata v SSSR* (Moscow, 1959), 192.
118. Comparative inter-regional real-income studies were not made officially in the USSR until 1964. Since then they have been made, but none has been published so far. Cf. V. F. Maier, "Nekotorye voprosy metodologii planirovaniia realnykh dokhodov naseleniia," *Planovoe khoziaistvo*, no. 9 (1964): 41.
119. E. Manevich, "Vseobshchnost truda i problemy ratsionalnogo ispolzovaniia rabochei sily v SSSR," *Voprosy ekonomiki*, no. 6 (1965): 26. He cites these figures to explain why people flee from Siberia; in his view the differences in wages are insufficient to balance the cost-of-living differences.
120. V. G. Lopatkin, "Vyravnivanie urovnei roznichnogo tovaroorota po ekonomicheskim raionam SSSR," in *Uchenye zapiski: Politicheskaiia ekonomiiia* (Moscow, 1961), 3: 125.
121. *Ibid.*, 131.
122. In *Vestnik statistiki*, no. 2 (1960): 89–90, there are statistics on urban housing credit outstanding, which also show the same facts, namely, that the non-Russian republics are proportionately much more in debt than the RSFSR.
123. See K. Subbotina, *Narodnoe obrazovanie i biudzhets* (Moscow, 1965), 96, 107.
124. See G. A. Dorokhova, *Upravlenie narodnym obrazovaniem* (Moscow, 1965), 98, 115–16.
125. N. S. Khrushchev, in *XX siezd KPSS: Stenograficheskii otchet* (Moscow, 1956), 1: 89.

5. Teleology of the Macroregions in the Soviet Union's Long Range Plans, 1920–90

The Structure of Soviet Economic Plans

Teleological Nature of the Soviet Economy

A Soviet-type, centrally-planned economic system is a teleological system by nature. It is teleological not only because it was consciously built in accordance with a premeditated doctrine, a preconceived scheme or “model,” but also because it operates in accordance with more or less rationally designed and explicitly stated goals and purposes. The system is directed both by and toward specific goals, which are embodied and expressed in the ultimate targets of a comprehensive and detailed (though not all-embracing) system of economic plans.

These goals are both immanent in the system, and they emanate from it. The system is shaped by the goals because it presumes the necessity of attaining them, and the goals in their turn are shaped and determined by the system because it cannot function without them. It would be a different system if specific goals were different, and the goals would be

different if the system were not what it is. In this system, ends determine means; and means determine ends.

The Multitude of Economic Plans

However, the teleological nature of the Soviet economic system does not mean that it is structured or that it operates as a machine that is well-gearred and tightly fitted all around. It is certainly not a free-wheeling market economy; but the impression widely held by non-specialists that it is run according to one, completely unified, integrated and all-embracing national economic plan is essentially wrong. Such is only its propaganda image, presented in the best style of "Socialist Realism," in which the desirable of the future is taken as if it existed now. Actually, at any given time in some part of the Soviet Union, or in some specific industries or sectors, there are always in operation systems of separate plans that are more or less integrated and sometimes even may be unrelated to each other. They overlap only slightly because they have different time and space spans, are very different in contents, details and structure, and are directed toward different goals. Altogether they can be likened to a temporal-spatial pyramid or to some other layered structure; but this edifice is not symmetrical in any sense, with any imaginable time-space continuum.

With few exceptions, it can be said that at any given time a national *five-year plan* is in operation in the USSR. In practice, however, the country's economy is not exactly run according to this plan. Only once (in 1946) was the five-year plan (for 1946–50) legally promulgated as a federal law, which presumably—though not in fact—made its fulfillment obligatory. The first two five-year plans, 1928–32 and 1933–7, were not formalized as laws; but Joseph Stalin and the party tried hard to enforce their fulfillment. If targets and actual fulfillment are compared exactly, it is clear that they failed.¹ Since 1959, the long-term plans officially have been called "control figures," which means that they are not obligatory at all. They are useful in providing orientation toward goals, but it cannot be said that the Soviet economy is run by them.

In addition to the five-year "control figures," there are still many longer plans of 8, 10, 12, 15 and 20 years duration. These have been called variously "general plans," "perspective plans," and "general schemes of development." Some of them have covered the whole territory of the USSR and (in highly aggregated form) the whole economy; most, however, have had narrower scopes and more specific goals, such as the 20-year plan for the location of productive resources, the 15-year plan for the electrification of railroads, the 10-year plan of general electrification, the 7-, 10- and 12-year plans for housing construction, the 7-year plan for the

development of the chemical industries, the 6-year plan of fish catch in the Far East, and so forth.²

Several features characterize these long-term plans. First, they are never obligatory; and no one ever reports to the public on their degree of fulfillment at the end of the period. It appears as if they are simply forgotten (though this is not true). Second, they are not integrated with the general five-year plans (or the other way around), for even their dates differ from those of the five-year plans. For instance, the Far Eastern fish catch plan was for 1947–52, and that for the development of chemical industries was for 1964–70. Third, in most cases the long-term plans are not subdivided into any shorter period plans.

The operational plans according to which the Soviet economy is actually run at all levels of economic administration (federal, republic, regional, industry and virtually every factory and farm) are the *annual plans*. From 1925–31, annual plans were called “control figures,” and were non-obligatory.³ From then on they were enforced, even without clear legal foundation. Until 1957 annual plans were elaborated and promulgated each year as decrees of the executive branch of the government. Since 1957, with a few interruptions, annual plans have been adopted as laws each December for the forthcoming year by the Supreme Soviets of the USSR and the union republics.⁴ The scope and contents of the union and republic annual plans have been to some extent standardized; however, every year the planning agencies have issued additional instructions to subordinate institutions on how to prepare the plan for the next year. Only a fraction of such instructions has been made public, but there is no doubt that they have made each year’s plan more or less different from that of other years. This is particularly true as far as the territorial cross section of the annual plans is concerned.

The Territorial Plans

Even though the territorial subdivision of the USSR into large economic regions has been relatively stable, specific planning instructions for some years and periods have singled out or otherwise given priority to territorial units, development regions, construction sites and specific cities, completely out of context with the concurrently standard territorial classification. Thus, for example, in the instructions for the 1936 capital construction plan, in addition to the allocation of investments for each standard economic region, there was also an item called “construction at Sochi-Matsesta,”⁵ which was Stalin’s private retreat compound. In the plan of the distribution of equipment, the GULAG NKVD (that is, main administration of the concentration camps) received an allotment for the

“construction of the Moscow-Volga Canal and the White Sea-Baltic Combine.”⁶ It is reported that in the current plans all union republics and economic regions draw up and obtain approval for their plans in the usual manner, but the Far Eastern and Krasnoiarsk “krais,” Tiumen “oblast” and the city of Moscow (which at present are not separate economic regions) receive their territorial plans directly from the USSR Council of Ministers.⁷

At any given time and place, the relationships among existing economic plans can be described as hierarchical, that is, based on institutional subordination and the level and degree of priority. Priority ranks, levels of subordination, and the lines of responsibility and of reporting are, as a rule, spelled out in specific administrative instructions that in the Soviet political-legal system belong to the realm of “administrative law.” As a first approximation, it may be assumed that according to this hierarchical structure the plans of smaller territorial units enter into and are subordinated to the plans of the larger economic regions, and so on up to the all-union (federal) level. This first glance assumption assumes a vertical and horizontal integration of plans to make up the national (all-union) plan for some specific time period, such as one year or five years. However, this vertical-horizontal symmetry is only superficially true. In reality, the contents of the territorial plans on the one hand and of the national (all-union) plans on the other are different, and all too many individual items do not add up to the expected sum totals.

The Published and Unpublished Plans

Plans of relatively regular periods (annual and five-year) have been published irregularly and, as a rule, in very incomplete form. Of the five-year plans for the development of economic regions, the only complete texts ever published were those of the First and Second Five-Year Plans, 1928–32 and 1933–7.⁸ The third plan, for 1938–42, was published only in the abridged form of a resolution of the Twenty-eighth Congress of the Communist Party of the Soviet Union; and the discussion of the regions in it took merely seven and one-half pages.⁹ The Law on the Fourth (1946–50) Plan allocated to the union republics one-half of the 73 pages of its full text, although the regions were not mentioned at all.¹⁰ The fifth (1951–5) and the sixth (1956–60) plans were published only in the form of the “directives” of the Nineteenth and Twentieth Congresses of the CPSU, respectively. The former, 22 pages long, contained no territorial cross section whatsoever—even the republics were disregarded¹¹—while the latter, 65 pages long, had 13 pages allocated to the union republics and none to the regions.¹² Similarly, the Seven-Year Plan for 1959–65 and the Eighth

(1966–70) were published only as the resolutions of the Twenty-first and Twenty-third Congresses of the CPSU, respectively. The former was 93 pages long, 15 of which were concerned with the republics and with some economic regions;¹³ the latter had 61 pages, 14 of which dealt with the republics and with two macroregions.¹⁴ Finally, the current Ninth Five-Year Plan (1971–5) was published by the Gosplan as a full-fledged volume of 450 pages, but the union republics and the macroregions were allotted only 36 pages.¹⁵

There is no doubt, however, that the plans used in practice are considerably larger in scope and contain incomparably more detail than the published versions mentioned above. This is evident, for example, from the fact that officially published volumes of instructions on how to prepare the plans contain several times as many forms of balances, tables and matrixes, as well as empty boxes for target indexes and statistics, than do the published versions of the plans.¹⁶ These instructions also contain a good deal more information on regional planning than do the published plans. The same is also evident from the fact that while the annual union plan for 1941 has not been made public in any form, there is an almost complete text of this plan, including 734 pages of statistics, bearing the imprint “not for public use.”¹⁷ This secret plan was captured by the German troops in the archives of the Smolensk party committee. Its text is marked as an “Appendix” to the “Decree No. 127” of the USSR government and the Central Committee of the CPSU of 17 January 1941, which suggests that it is possible that all the published abridged versions of the plans had similar detailed but secret appendixes, which perhaps even the members of the Supreme Soviet did not see regularly. In the introduction to the one-volume edition of the current five-year plan, N. Baibakov, the Gosplan’s chief, has stated explicitly that the actual five-year plan “is a multi-volume work.”¹⁸ The newest evidence of the existence of secret plans is a published text of the eighth (1966–70) plan of the Ukrainian SSR that is only three and one-half newspaper pages; but one recently published Soviet source refers to “Volume IV, Part 2” of a plan of the same name, the text of which is unpublished.¹⁹

What follows in this chapter is an attempt to distill from the available sources what can be learned about the teleology of the delimitation of economic macroregions in long-term Soviet plans. By macroregions are not meant the union republics; these have their own plans, which are not under study here.

From the Goelro to the Five-Year Plans

“Communism = Soviet Power + Electric Power”

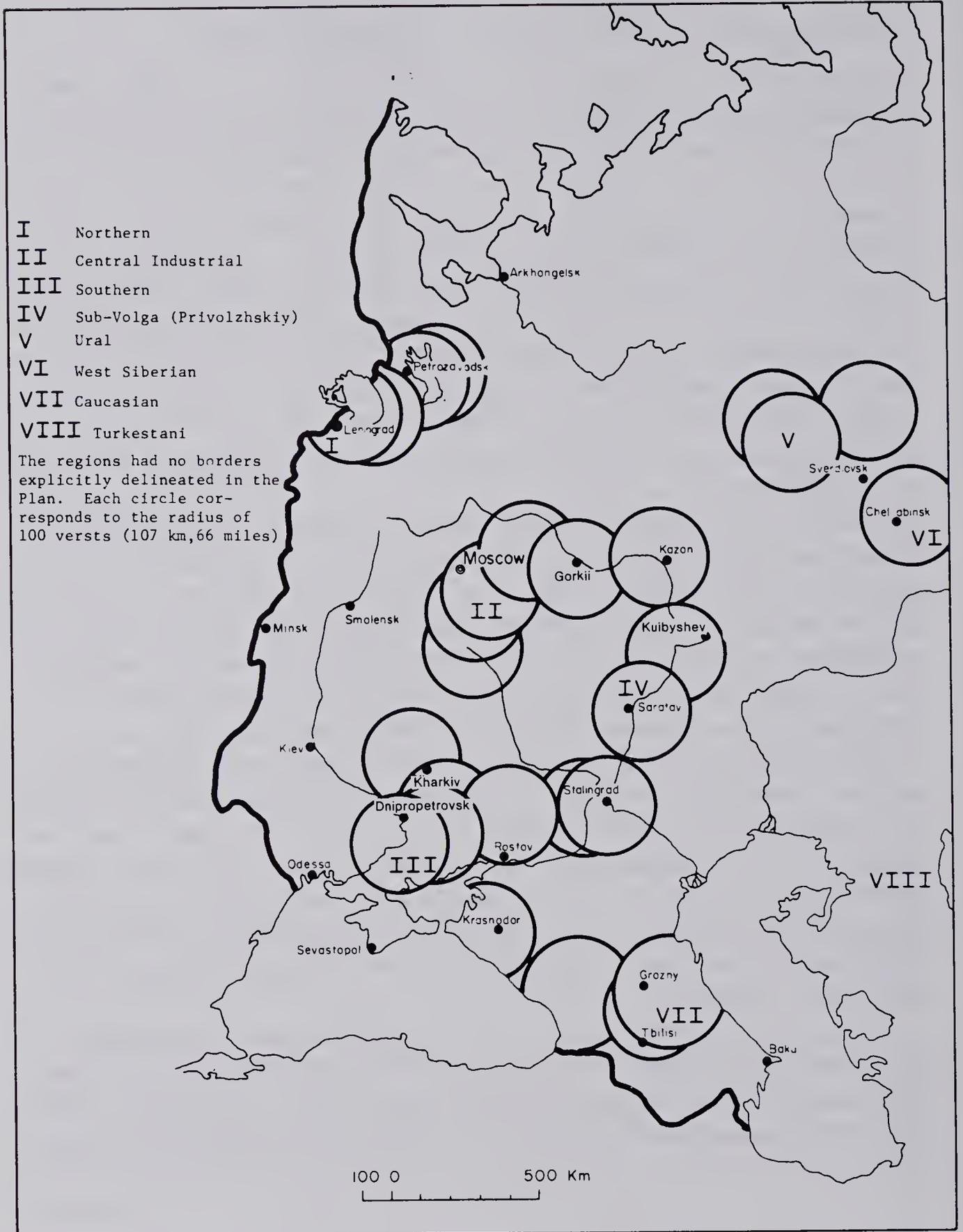
The very first long-range plan in Soviet history was the so-called GOELRO Plan (GOELRO stands for “State Electrification of Russia”), initiated at the end of 1920 and adopted at the end of 1921. It foresaw the construction of thirty electric power stations and was to last “10–15 years, depending on the general course of development of the national economy.”²⁰ In addition, this plan also foresaw electrification of five railroad lines, several river and sea ports, and of agriculture, “particularly, of the south-east of the RSFSR,” meaning the introduction of electric powered ploughs—a mode of those days.²¹ By 1930–5, the GOELRO Plan was fulfilled, overfulfilled, and/or underfulfilled, depending on which portion was analysed. Generally speaking, it was not an efficient and fully rounded plan but an experiment, the first of its kind. The plan was drawn up by engineers, not economists.²²

Vladimir Lenin likened it to the “second programme of the party” in his slogan that “Communism = power of the Soviets + electrification.” From then until his death he was an enthusiastic advocate of “general perspective plans” for ten to twenty years ahead.²³ The USSR Gosplan was established specifically for such long-range planning, and the concept of a “leading link” being the core of every such plan (in the GOELRO Plan, the power stations) also was born from this first experience.²⁴

In the official text of the GOELRO Plan there were mentioned eight regions (“raiony”): Northern, Central Industrial, Southern, Trans-Volga, Ural, West Siberian, Caucasian and Turkestan. However, these eight regions were not delimited or defined in any coherent way. It seems probable that they were taken, simply by name, from the pre-Soviet geographical literature, for in tsarist times geographers and military strategists did produce a considerable literature on the regionalization of the Russian empire.²⁵

As can be seen from Map 1, the thirty electric power stations that the plan proposed to build in two stages, by 1930 and 1935, all had delineated the circles of their potential economic effectiveness according to specific radii. This certainly was an attempt at a teleological delimitation of sorts.

MAP 1 USSR: Plan GOELRO, 1920-30/35



The "Raionizatsiia" and the First Five-Year Plan

With the establishment of the Soviet Union as a federation of national union republics, an administrative reform of local government, known by the name of "regionalization" (*raionizatsiia*) was started in 1923. The reform began with the abolition of tsarist gubernii and their replacement with smaller territorial governmental units called *okrugy* (something like counties), but in 1930 the *okrugy* were abolished; and in their place even smaller territorial units called raiony were introduced. These in turn were amalgamated into larger administrative units called oblasts and *kraii*, subdivisions of the union republics. This system of territorial administration still exists in the USSR today.

The Fifteenth Congress of the CPSU, which adopted the directives on drawing up the First Five-Year Plan on 19 December 1927, resolved that the administrative *raionizatsiia* must be finished in the course of the next five years "in order most fully to embrace the economic life of the country by planning."²⁶ It is thus clear that there was an intention to make all the territorial governmental administrative units the regional economic planning units also. To the extent that the *raionizatsiia* reform actually was carried out, economic regionalization under the First Five-Year Plan was achieved. However, this whole reform was chaotic. Almost all the economic regions (with the exception of the union republics) that resulted must be defined as *microregions*. From the beginning until about 1934, their borders coincided almost exactly with the borders of the *okrugi* (later, raions), oblasts, and *kraii*. This was a sort of geographic regionalization of the vast country, no doubt; but it was above all an administrative regionalization, designed, among other things, also to administer the local economy.

After a protracted political struggle within the party and the rejection of numerous published and unpublished versions of the all-union, republican and oblast draft plans, the final version of the First Five-Year Plan for the USSR, published in 1929 in three thick volumes, did contain a volume entitled the "Subdivision of the Plan by the Regions."²⁷ The regions were for the most part the governmental raiony, in which the union and the autonomous republics were what could be described as the only clearly delimited *macroregions*. Again, as in the GOELRO Plan, several undelineated macroregions were mentioned by their geographic names, but without any exact specifications.

In practice the First Five-Year Plan is well known to have been an utter shambles. For example, it did not foresee the total collectivization of agriculture and the losses in population, agricultural capital and output that resulted from it; and its industrial output targets did not anticipate the drastic reorganization of the administration and planning of industries

that took place. Of significance to our topic, the plan did not foresee the fateful shift in the spatial allocation of resources, capital and labour that occurred after 1930.

The Ural-Kuznetsk Combine Decision

The decision of the Central Committee of the CPSU of 15 May 1930 to build and develop the so-called Ural-Kuznetsk Combine²⁸ was a political and military-strategic decision that was completely out of context with the final version of the all-union First Five-Year Plan. It resulted from Stalin's victory over the Trotskyists, led by Iu. Piatakov in Moscow, and the local economists in the Ukrainian republic, who had advocated the priority of the industrialization of the European parts of the USSR over that of the Urals.²⁹

This decision heralded the beginning of the great Russian *Drang nach Osten*, in the wake of which we live today and which continues to exercise a deep impact on the location of all industries and the regionalization of the Soviet economy.³⁰ The detailed plan of the development of the combine never has been published, and consequently we do not know how well or badly, or how at all, this region was defined and delimited. The purely economic and political aspects of this decision have been well researched,³¹ but a purely locational, economic-geographic study is still needed.

Nor did any published document on the combine indicate any time span for the plan. The original party documents demanded that the combine be built "in the nearest future";³² at the Seventeenth Congress on 26 January 1934 Stalin already reported that the combine's "foundation had been laid down" and "thus we can count that it is no longer a dream but a reality." A few pages later, however, in the same report, Stalin said that it was still the party's "next task . . . to turn the Kuzbas into a second Donbas."³³

In modern Soviet literature it is admitted now that like the GOELRO Plan, the Ural-Kuznetsk Combine Plan was only a "project" (that is, a draft) and that it was drawn up in the form of a "complex inter-branch programme" by the "methods of teleological (*tselevogo*) planning and management, practicable in those days."³⁴ It comes out that those methods consisted merely of appraisals and opinions of experts, probably without any systematic approach of the consecutive evaluation and rejection of alternatives as, for example, in modern DELPHI-type methods. Moreover, even if a detailed programme did exist, it probably never was carried out in the form in which it originally had been conceived. It soon was discovered that both the chemical composition and the costs of the Kuznetsk coals were not adequate for the Ural high quality steel industry. The cost of transporting a ton or kilometre of coal from Karaganda was

17.7 per cent cheaper than that from the Kuzbas; and thus, in the Second Five-Year Plan, resources were rerouted to accelerate development of the Karaganda Coal Basin in Kazakhstan.³⁵

Delimitation of the Macroregion in the Second and Third Five-Year Plans

Economic Teleology and Regionalization in the Second Plan

The drafting of the Second Five-Year Plan for the years 1933–7 was ordered by the party in January 1932, and the plan was adopted on 17 November 1934.³⁶ It was published in one, two-volume version. Its main “leading link” was the technical modernization and accelerated development of the machine-building industries, which meant that the plan was clearly defence oriented.

The second volume of the published version of the plan was entitled “The Plan of Development of the Regions.” At the time of the adoption of the plan, the Seventeenth Congress of the CPSU resolved, among other things, “to complete the economic regionalization of the country as a whole.”³⁷ This was something new and different from the preceding administrative *raionizatsiia*. Discussing the “programme of new construction” in the second plan, the party resolution divided the Soviet Union into three broad territorial subdivisions: (1) “Regions backward with regard to industry” (Middle Volga, Tataria, Northern Caucasus, Central Black Soil Region, Transcaucasia, Karelia, Murmansk *krai*, the Far East, Eastern Siberia “and others”; (2) “national republics and oblasts”—without naming them; and (3) “the old industrial regions”—again not naming them. The resolution called for “broad industrial construction” in category (1), for “intensive cultural construction” in (2), and for “further growth” in area (3). It is, of course, obvious that the delimitation of these three areas was imprecise; they clearly overlapped. The interesting point is that the three areas were assigned different goals.³⁸

The two published volumes of the Second Five-Year Plan contain a total of thirty-two separately numbered economic regions. Their complete list is reproduced in the Notes of Maps 2 and 3.

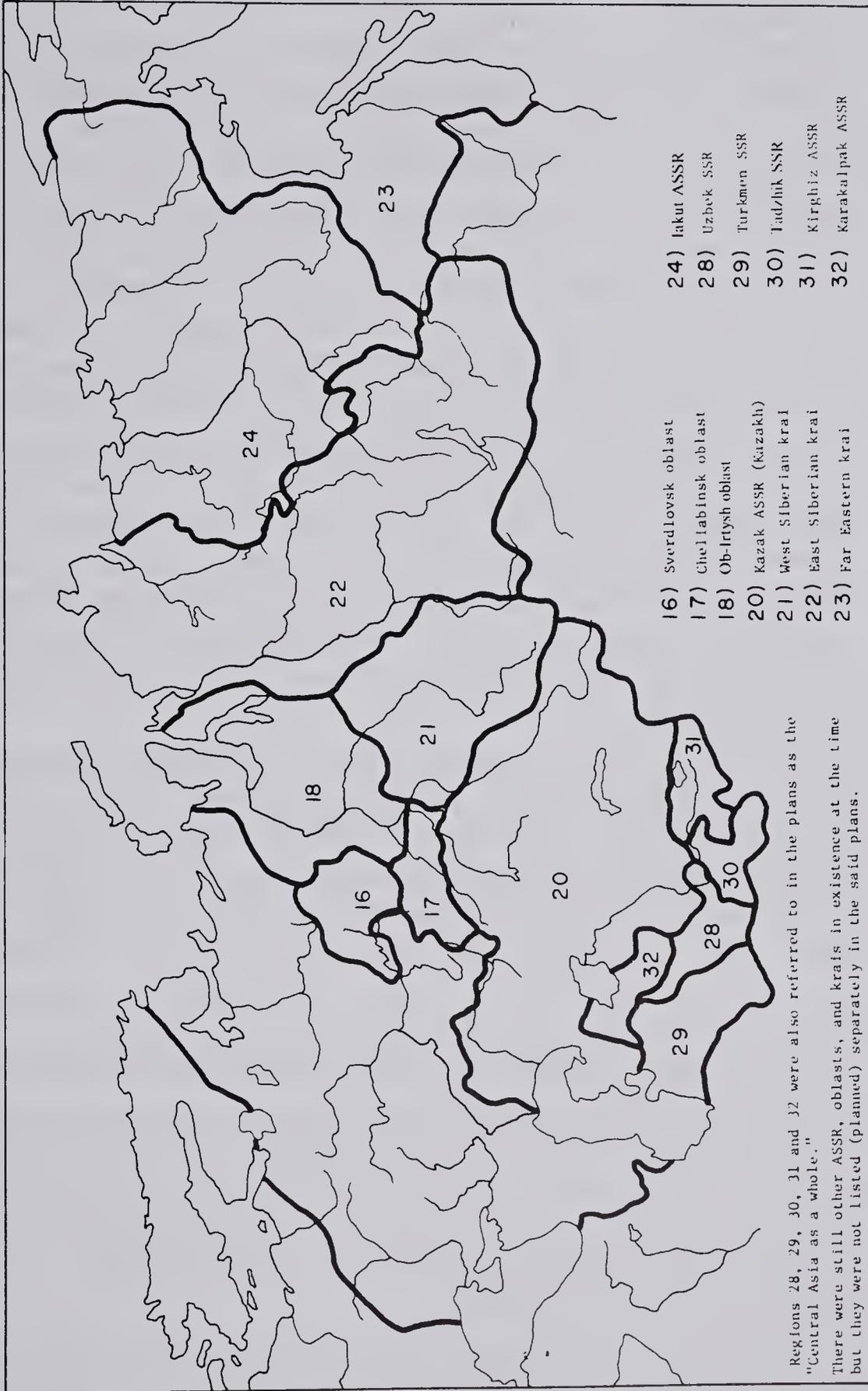
The foremost feature of the thirty-two economic regions of the Second Five-Year Plan is that their borders closely coincide with the political-administrative borders of the *kraii*, oblasts, autonomous and union republics. In many cases, however, an economic region is larger than the one *krai* or oblast after which it may be named and consists of several

MAP 2 Planning Regions in the First and Second Five-Year Plans, 1930-6



SOURCE: *The Soviet Union Year Book*, (U.S. Chamber of Commerce, 1936)

MAP 3 Asiatic Territory of the USSR



SOURCE: *The Soviet Union Year Book*, (U.S. Chamber of Commerce, 1936)

political-administrative units. On Map 2, for example, No. 1, the "Northern *krai*" economic region consists of (a) the Northern *krai* as such, (b) the Komi autonomous oblast, and (c) Murmansk oblast. Economic region No. 11, called Saratov *krai*, includes in addition the Volga-German Autonomous Republic.

The coincidence of the borders of the second plan's economic regions with the borders of the existing political-administrative regions means that these regions were in reality nothing but the administrative planning regions, the territorial units within the hierarchy of the administrative planning pyramid. Their main purpose was the securing of the execution of plans within their territories, which meant in practice the day-to-day management of the nationalized (state-owned) and government-controlled (collective farms and co-operatives) sectors of their regional economies.

That these thirty-two economic regions had no independent purpose of delimitation and existence (except perhaps military) is clearly evident from the fact that even though the accelerated development and completion of construction of the Ural-Kuznetsk Combine was one of the few, topmost "leading links" of the Second Five-Year Plan, the territory of the combine was not assembled into one geographic macroregion, which it was in reality. Rather it was divided among three or four separate "economic regions." On Map 3, these are: No. 21 (West Siberian *krai*), No. 17 (Cheliabinsk oblast), No. 16 (Sverdlovsk oblast) and No. 20 (Kazakh ASSR, that is, Karaganda).

Aside from their administrative borders, the thirty-two economic regions did not have any other methodological delineation given in the plan. In addition to their geographic names and numbers, some of them were identified by a few economic-geographic characteristics, such as their main industries and natural (physical) profiles; but this was done neither on a regular basis nor in accordance with some obvious theoretical preconceptions. One remarkable point is that so significant an indicator as the populations of the regions was not given in the entire second plan. The Gosplan of the USSR admitted in the introduction that the plan "remained unfinished, and, as a result, the work did not find any statistical expression in the parts concerned with the problems of the growth of population, and of labour resources in the country as a whole and in separate regions."³⁹ (This was, of course, an acknowledgement of the disastrous demographic consequences of the collectivization of the countryside, and of the 1932-3 famine.)

In spite of all these shortcomings, the thirty-two economic regions in the second plan were indeed the first step toward a delimitation of economic regions. Even though they were administrative planning regions, they were, at the same time, some sort of economic-geographic regions. Their total was only about one-third that of the total number of oblasts and *kraii*.

Although the thirty-two regions were not larger than average in size, they commonly were larger than the oblasts and therefore can be considered to have been the first *macroregions* in the USSR.

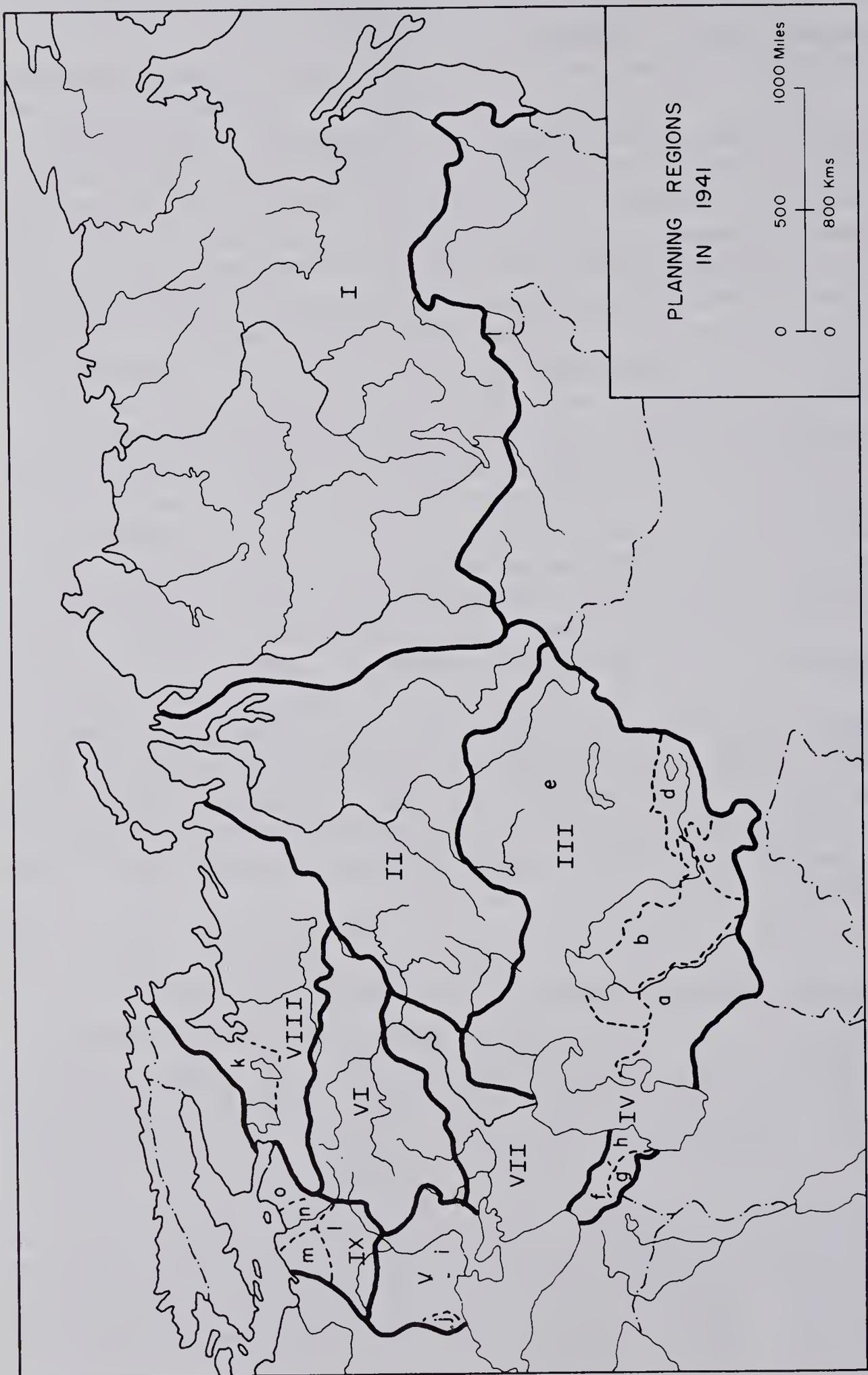
While the published text of the complete second plan did not provide any coherent information on the planning of the economies of the thirty-two regions, some insight into the structure of regional plans is found in the available two volumes of the official USSR Gosplan's instructions on the preparation of annual plans for 1936 and 1937. (The number of economic regions increased from thirty-two to thirty-nine by 1937.) The structure of regional plans is evident from the lists of report forms that the regional planning agencies (the republic Gosplans, oblast and *krai* plans) and various people's commissariats were obliged to submit to the USSR Gosplan for the preparation of annual plans. The composition of agricultural report forms was standard for the country as a whole and for the regions and therefore is not as interesting as the industrial forms.

For the unified annual plan for 1936 for all industries of the USSR, all planning agencies in the administrative pyramid were to submit to the USSR Gosplan 211 statistical items; of these, 24 were aggregate total figures for separate "branches" of industry (with Roman numeral codes), 130 items were called "sub-branches" and numbered by Arabic figures, and 57 were "sub-sub-branches" coded by letters of the alphabet. For the economic regions, however, these same agencies were to submit to the USSR Gosplan only 26 statistical items: 11 in the "Roman" aggregate category, 14 in the "Arabic" subgrouping, and one letter item.⁴⁰ What this difference means is clear: the plan of an economic region, at least in 1936, was about eight times smaller in scope than the plan for the industry of the USSR as a whole. In other words, regional planning techniques and the availability of territorial statistical information obviously were not yet developed.

Economic Regionalization in the Third Five-Year Plan

The Third Five-Year Plan (1938–41) was ordered on 28 April 1937, and the work on it was to be finished by 1 July.⁴¹ Such was supposed to be the tempo amidst Stalin's terror! But the Gosplan was in complete disarray on account of mass arrests and executions of its leaders. The draft of the plan was not presented to the Eighteenth Party Congress until 20 March 1939. Among other things, in the resolution on the Third Five-Year Plan the congress put heavy emphasis on the preparations for possible war, and in this connection mentioned (but did not name) "main economic regions" of the USSR.⁴² The context was such that the term "main" (*osnovnye*) did not imply a contrast with other regions that were secondary. Instead, it

MAP 4 Planning Regions in 1941, USSR



Note to Map 4

This map was drawn on the basis of information contained in the State Plan for the Development of National Economy of the USSR for the year 1941, 651. The territorial chapter of the plan as well as several major unified industrial and sectoral tables (balances) contained the following names, numbers and subdivisions of the planning regions, all of which were transferred to the map.

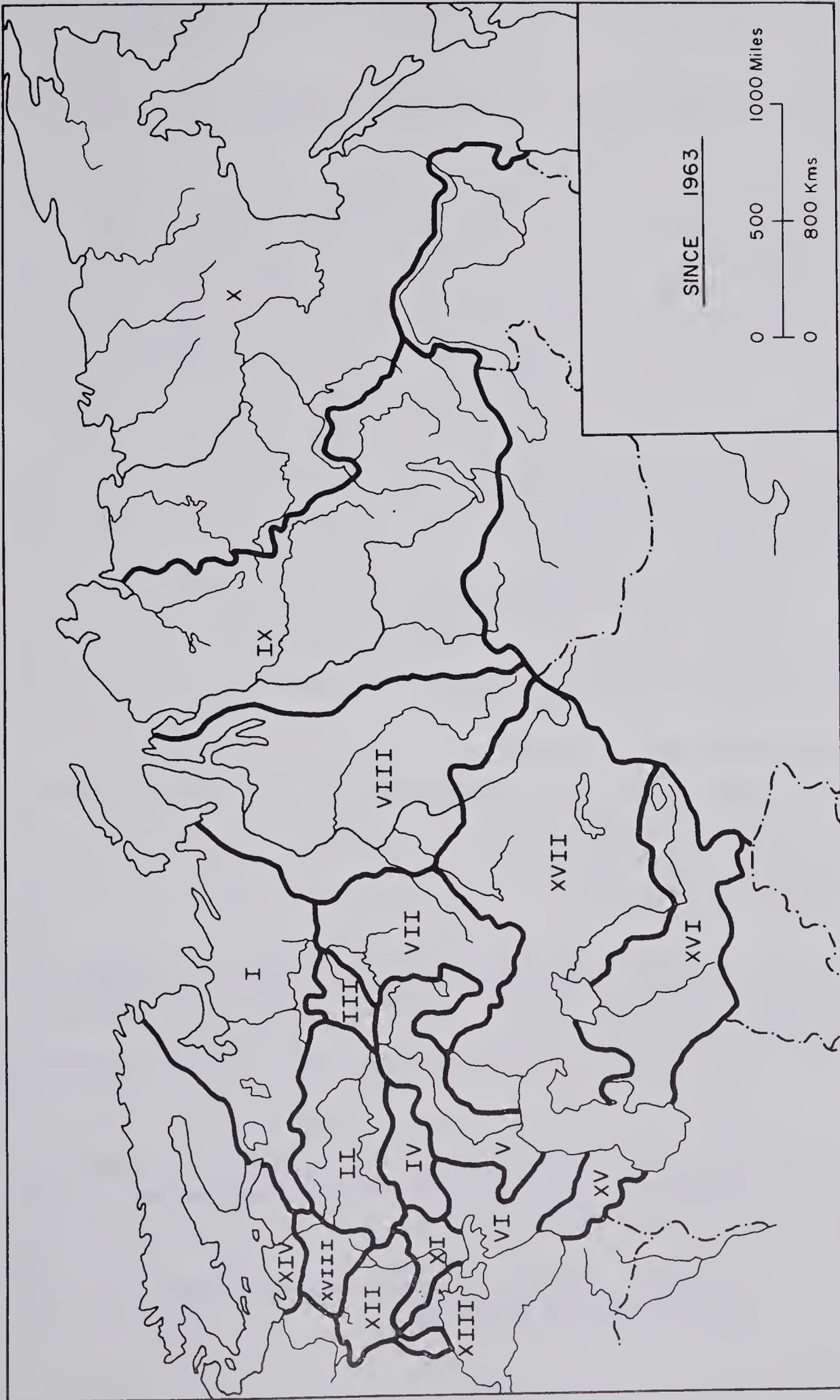
- I. Regions of the Far East and Eastern Siberia
- II. Regions of the Urals and Western Siberia
- III. Regions of Central Asia and Kazakhstan:
 - (a) Turkmen SSR,
 - (b) Uzbek SSR,
 - (c) Tadzhik SSR,
 - (d) Kirghiz SSR,
 - (e) Kazakh SSR,
- IV. Regions of Transcaucasus:
 - (f) Georgian SSR,
 - (g) Armenian SSR,
 - (h) Azerbaidzhan SSR,
- V. Regions of the South
 - (i) Ukrainian SSR,
 - (j) Moldavian SSR
- VI. Regions of the Centre
- VII. Regions of the South East
- VIII. Regions of the North and North West
 - (k) Karelo-Finnish SSR
- IX. Regions of the West
 - (l) Belorussian SSR,
 - (m) Lithuanian SSR,
 - (n) Latvian SSR,
 - (o) Estonian SSR

The use of the plural "regions" implies that there probably were additional territorial sub-divisions in the separate plans of the macro-regions and union republics, but these subdivisions were not included in the federal plan.

probably gave a new *term* to some sort of newly delineated macroregions, because for implicit but obvious reasons of military strategy, the resolution called for “dispersion all over the country (*rassredotochenie po strane*)” of various machine-building, chemical, synthetic rubber, and tire factories, and other bulk goods difficult to transport, specifically in “those large (*krupnykh*) industrial regions, which depend on the haul of such freight from distant places.”⁴³ Thus, one can assume that some sort of macroregionalization of the Soviet economy was in the offing in 1937, and that it was begun in connection with the preparation for war. Except for this party resolution, the plan for industry of the third plan was never published, hence one cannot know what was in it with regard to actual regionalization.

There exists, however, the secret annual plan for 1941, which was drawn up in 1940—before the outbreak of the German-Soviet war. As such it should bear some relationship to the Third Five-Year Plan. The 1941 plan contains a chapter entitled the “Development of Economic Regions.”⁴⁴ Its statistical tables and balances include the list of the “regions and union republics,” which we reproduce in the notes of Map 4. The list consists of 25 names, of which 16 are union republics and 9 are what truly can be described as *macroeconomic regions*. Of the latter, five macroregions (I, II, VI, VII and part of VIII) are regional subdivisions of the Russian Federal Republic, one (III) encompasses four Central Asian union republics and Kazakhstan, one (IV) unites the Ukrainian and the Moldavian republics, and one (IX) does the same with the four western republics; Belorussia, Lithuania, Latvia and Estonia. One macroregion (VIII) joins the northwestern part of the RSFSR with the Karelo-Finnish SSR (see Map 4). (The map itself is not given in the text of the plan, but it was not difficult to draw it from the data available in the plan.) It is noteworthy that the regional statistical tables in the 1941 plan, while referring to every macroregion, use the plural in their designations. The reason is obvious when they speak, for example, about “V. Regions of the south”; for then they proceed to list what they contain: “The Ukrainian SSR; the Moldavian SSR,” and so forth. However, something different is contained in the designation, “II. Regions of the South East.” It clearly means that such macroregions contained within themselves some unnamed microregions. It seems plausible that these microregions were those that were found in the text of the second plan and the annual plans for 1936 and 1937 (Maps 2 and 3). If this hypothesis is correct, then one must conclude that the 1941 *macroregions* were superimposed upon the existing network of the political-administrative planning regions of the past, without abolishing them. The functional relationship between the micro- and macroregions are not known, however.

MAP 5 Macroeconomic Regions since 1963



Note to Map 5

This map delineates the macroeconomic regions established by the “directive organs” of the USSR in November 1962, (*Ekonomicheskie raiony SSSR*, 1st ed. (Moscow, 1965) 18). These were not the first macroregions, as can be seen from Map 4. It is also known, for example, that in the official instructions of the USSR Gosplan on drawing up the national economic Seven-Year Plan for the years 1959–65, issued in 1957 (Comité du Plan d’Etat du Conseil des Ministres de l’URSS, “Données comptables et indicateurs destinés à servir de base au projet de plan perspectif de développement de l’économie nationale de l’URSS pour les années 1959–1965 [Moscow: 1957],” *Cahiers de l’Institut de Science Economique Appliquée* [Paris], no. 107, supplement, serie G, no. 10 (November 1960): 43, 184, 194–7), the territorial plans of 101 “economic-administrative regions” headed by the councils on the national economy (*sovnarkhozy*), were already at that time grouped into 13 macroregions, named as follows:

- I. Regions of the North
- II. Regions of the North-West
- III. Regions of the Centre
- IV. Regions of the Volga
- V. Regions of the Northern Caucasus
- VI. Regions of the Ural
- VII. Regions of Western Siberia
- VIII. Regions of Eastern Siberia
- IX. Regions of the Far East
- X. Regions of Central Asia and Kazakhstan
- XI. Regions of Transcaucasus
- XII. Regions of the South
- XIII. Regions of the West

These macroregions are not reproduced on a separate map because the latter would not look very different from Map 5. Specific differences can be noted as follows, however.

1. The numbering of the macroregions in the 1957 document was somewhat different.
2. Region I was smaller because Region II of 1957 consisted of Kaliningrad, Leningrad, Novgorod, Pskov and Murmansk oblasts, as well as Karelia.
3. Region XIII of 1957 was instead a combined region of the three Baltic republics and Belorussia.

4. Another notable difference from 1963 in 1957 was that the regions of Kazakhstan and the four Central Asian republics were one macroregion.
5. The three Ukrainian macroregions of 1963 (Map 5) were, together with Moldavia, in 1957, one single Region XII.
6. Region X of 1963 was divided in 1957 between the 1957 Regions VIII and IX in that the Yakutian ASSR belonged to Eastern Siberian Region VIII, while the rest was the Far Eastern Region IX. This particular division corresponded precisely to the division of the eastern military regions reproduced in Map 6. Kazakhstan and Central Asia in 1957 (until 1969) also were unified in one Turkestan Military Region. Compare notes to Map 6.

The 1941 plan as a whole contains many thousands of statistical target figures. No one has counted them so far, but from its table of contents it is evident that the plan contains a total of 377 tables and balances. Of these, 22 were top secret and were not in the available text. (From the contents it is clear that they all were military industries tables. It is not known whether or not these 22 tables were in the Smolensk archives text of the plan captured by the Germans. If the latter is the case, then it may mean that even the oblast party committee was not entrusted to know the secrets of the Soviet military.)

Of the remaining 355 tables, the chapter on the "Development of Economic Regions" contains only 30, or a mere 8.5 per cent of the total. This is, then, an approximate "weight" of regional planning in the total USSR plan for 1941. Moreover, the regional tables and balances contain production and distribution targets only for some select basic materials, such as coal, oil, coke, steel, cement, textiles, shoes, timber and the like, but absolutely no data on any machine-building, chemicals, or any other war-oriented products. As far as any aggregates are concerned, only the distribution of capital investments is given per region and republic. (Population data are again not available, which is strange in view of the 1939 census, which preceded it.)

If these 30 tables indeed described the total scope of planning of nine macroregions—and this seems almost certain—then one must conclude that, by 1941, regional economic planning was not yet well developed. The fact that planning targets were not related to the population and/or labour force of the regions is particularly striking. It makes the economic delimitation of the regions almost devoid of any meaning.

But then there is also no evidence that economics alone, or even mainly, was supposed to determine the boundaries of the macroregions. Since the macroregions were not administrative entities and certainly did not manage

their economies, the question comes into the open: what was their actual purpose, if not the economy?

Regionalization and Defence Strategy Before The War: A Hypothesis

Industrial Location and Development Policies

It can be taken as obvious that, in principle, there must be a direct relationship between the delimitation of regions in a large country and the policies aimed at the location of new industries and the development of particular regions. This is especially true in a centrally-planned economy such as the USSR, which is characterized by uneven levels of development in different parts of the country. However, in the official theory of Soviet locational and developmental policies, even though regions were sometimes mentioned in abstract, both the theory and the methodology for a rational or teleological delimitation of economic regions were absent before the Second World War.⁴⁵

All Soviet sources agree that, since about the Tenth and Twelfth Party Congresses (1921 and 1923, respectively), the official locational and developmental policies have been guided, in theory, by the following five basic goals:

1. locating industries closer to both their sources of raw materials and energy, and to the markets for their output;
2. reducing transportation distances and costs;
3. raising the level of economic, social and cultural development of the non-Russian nationalities inhabiting backward border areas, to the level of Central Russia, Ukraine and other industrialized areas;
4. developing the multi-industry, complex, integrated economies of individual republics;
5. strengthening the military defences and capabilities of the USSR.⁴⁶

Except for the last, these goals and their realization have been studied thoroughly and analysed by both Western and Soviet scholars, who are unanimous in concluding that, despite some progress, the first four goals largely have not been achieved. Some students poignantly conclude that these goals could not be realized because they were contradictory or incompatible with each other; therefore, some should have had priority over others.⁴⁷

Of particular interest to our study is the fact that, while resolving to “complete the economic regionalization of the country as a whole” and repeating the first *four* as the goals of the Second Five-Year Plan, the Seventeenth Congress of the CPSU failed to connect these goals with the proposed regionalization.⁴⁸ The congress thus implied that the regionalization of the thirty-two economic regions methodologically had little or nothing to do with locational and developmental policies.

It should be recalled too that the sudden decision to construct and develop the Ural-Kuznetsk Combine, which started the massive diversion of resources to the east of the USSR, also was not connected with any preconceived regionalization. Nor did the Ural-Kuznetsk project fall within the above developmental goals, except (5). While resolving to construct the combine, the Sixteenth Congress of the CPSU in 1930 resolved: “The task of the foremost importance now is a forceful (*forsirovannoe*) development of the branches of industry, which augment the *defence capacity* of the Soviet Union.”⁴⁹ (Emphasis in the text.)

Military Production Plans

Defence considerations and the continuous development and modernization of the armed forces and the war-oriented industries were part and parcel of all Soviet economic thinking from the first decision to industrialize.⁵⁰ In Soviet military literature the war-oriented industries are referred to in such broad denominations as “machine-building, chemical, metallurgical, fuel, energy and some other” industries. Their development had begun during the First Five-Year Plan, but it was during the second plan that their growth was given a real push.⁵¹ On 13 June 1930 and 10 January 1931 the government approved the first three-year plan of rearmament and reorganization of the armed forces, for 1931–3. During 1933 and 1934 it adopted three new plans: on the construction of the navy during 1933–8, the renovation of artillery during 1933–7, and the development of the Air Force during 1935–7.⁵²

It is noteworthy that although these plans ran parallel to the First and Second Five-Year Plans and extended into the Third (navy), their periods did not coincide precisely with those of the five-year plans. Almost nothing

is known about the planning of the Soviet defence industries, for obvious reasons of secrecy. However, the above dates suggest something that sounds almost incredible. Could the defence industry plans have been part and parcel of the five-year plans? Was it not true that the defence industries were not integrated fully with the rest of the Soviet economy? It seems conceivable that the Soviet economy may have been split deliberately into two separate sectors—the civilian and the military—and that the Gosplan did not plan the details of the military, but only those of the civilian sector.

At some level of aggregation of the various resource balances, the civilian sector could have been obligated by the Gosplan to deliver specified quantities of various inputs to the defence industries, but what happened to these afterward was none of the Gosplan's business. The detailed planning of military production could have been done by the appropriate government ministries according to their own plans, as described above. All these questions and hypotheses obviously require further research, but they are suggestive of the reasons for and the purpose of the appearance of the economic regions, inasmuch as the latter cannot be related unequivocally to economic, locational, or developmental planning.

Military Regionalization and the Defence Strategy of Marshal Tukhachevsky

The "Red Bonaparte," Marshal M. N. Tukhachevsky, was deeply disliked and feared by Stalin, Kliment Voroshilov and other self-made civil war commanders of the Red Army. The proposals on the modernization of warfare and the Soviet defence strategy that he developed and advanced from 1926–32 were advanced for his time.⁵³ Only by 1932 did Stalin bow to the ideas of his deputy commissar for defence. Yet even after Stalin executed him in 1937, it was Tukhachevsky's thought that continued to guide Soviet military strategy.

The main points in the Tukhachevsky doctrine that are relevant to our subject matter can be summarized as follows. In the coming war, he thought, the Soviet Union will inevitably be weaker than the coalition of its enemies. Since German and West European strategists relied on comparatively small-sized army corps, Tukhachevsky proposed that the Red Army rely on large numbers of divisions grouped into large-scale armies, each under a single command. Because complete motorization was out of reach for the Soviet armed forces, Tukhachevsky proposed the integration of infantry divisions with armoured corps within the armies. He also assumed the possibility of retreat and the loss of the territory to the enemy "in order to preserve our forces."⁵⁴

In war Tukhachevsky saw the role of the economy as "planned militarization," which "is one of the foundations of our strategy." Industrialization, and particularly electrification, must be planned in such a manner as to "completely change, in military respect, every region" in the areas close to the future fronts. Electric power was seen as easier to deliver to the industries supporting the fronts and needing shorter distances than the railroad supplies of mineral fuels. Since the war will be very mobile, war theatres will "narrowly and tightly come into contact with the whole economic organization," and the lines of defence will "be found there where the boundaries of the regions, which directly feed the war, begin."⁵⁵ Aviation will make railroad supplies completely vulnerable. Hence, automotive and tractor transport will become decisive with regard to supply depots; all sorts of military material warehouses, production and repair shops, and power stations must be spread out and located in every region at short distances from the fronts.⁵⁶

This defence doctrine suggests a hypothesis that the thirty-two economic regions, which appeared during the Second Five-Year Plan (thirty-nine of them by 1937 and twenty-five by 1941), could have been delineated in conjunction with military strategy. Circumstantially, this hypothesis is supported first by the fact that Stalin accepted Tukhachevsky's theory in 1932; and accelerated military production and modernization plans began to be implemented after that date. Also a number of other details, which are otherwise not readily understandable, support the hypothesis. For example, one notes the decision in the second plan to construct seventy-nine small regional electric power stations, which were not technologically the most efficient size, as well as the resolution of the Seventeenth Party Congress that as one of "the most successful accomplishments" of *raionizatsiia* should be counted the creation of a machine and tractor stations (MTS) in every raion.⁵⁷ Evidently the MTS served not only as the planning and political-administrative centres controlling the collective farms but also, as Tukhachevsky wanted, as regional fuel, automotive and tractor depots for war purposes. The decision of the third plan to disperse war-oriented industries all over the country, although adopted after Tukhachevsky's execution, also falls well within the scope of his strategy.

One can also hypothesize that it was from the Tukhachevsky "great armies" strategy that the prewar organization of the large-scale military districts (*okrugs*) originated in the USSR. In 1936, the whole territory of the USSR was apportioned into the following thirteen military districts: (1) Moscow, (2) Leningrad, (3) Belorussia, (4) Kiev, (5) Kharkiv, (6) North Caucasus, (7) Volga, (8) Siberia, (9) Special Army of the Caucasus, (10) Territorial Army of the Ural, (11) Territorial Army of Central Asia, (12) the Trans-Baikal Territorial Army and (13) the Special Army of the Far East. In 1939, a new military district of Kalinin was

added and in 1940 that of Odessa. Thus, there were fifteen vast military territorial organizations at the start of the war.⁵⁸

The question arises, of course, whether there was any functional relationship between these military districts and the economic macroregions that already existed in 1941. The question is difficult to answer. From the names of the districts and of the economic regions one can conclude that their boundaries did not coincide exactly. On the other hand, there seems to have been some functional relationship between the military districts and the military-oriented industries located in their territories. The centralized planning and management authority over such industries was, of course, in the hands of the government in Moscow. Even in peacetime, local representatives of the party's central committee (CC), the secretaries of the republican CC's, and special "instructors" of the CC, together with the top commanders of the military industries of their regions, directed such enterprises and, in fact, signed even the production and delivery orders for their output.⁵⁹ However, there is little doubt that the main purpose for the existence of the military macroregions was purely military and not economic. When war broke out, all supreme political and economic power—not only military—in all the macroregions bordering on the front lines was transferred by decree to the commands of the military districts.⁶⁰ Of course, top party secretaries were now members of these commands by virtue of their position as political commissars.

Macroregions at the Beginning of the War

After seven weeks of chaos following the German attack on the Soviet Union, the government adopted on 16 August 1941 a special Military-Economic Plan for the fourth quarter of 1941 and the whole of 1942. The plan, of course, was not published; but from its description in postwar literature it is known that five particular "regions of the USSR" received top priority in the allocation of all necessary inputs for the maximally accelerated development of military production. These five regions were listed as: "Sub-Volga (Povolzhie), Ural, Western Siberia, Kazakhstan and Central Asia."⁶¹

These regions virtually coincide with the macroregions designated in the above-mentioned secret 1941 plan (Map 4), Sub-Volga being Region VII. This fact seems to lend additional support to the hypothesis that there was a military factor in the delimitation of the prewar macroregions.

In the subsequent years of the war, neither economic plans nor macroregions were referred to again as specifically in the available literature as in 1941. Numerous administrative microregions such as *krai*

and oblasts were mentioned in some agricultural plans, but these are not important for our study.

The Emergence of Thirteen Macroregions, 1954–60

The Postwar Decade

Until Stalin's death and the beginning of the restructuring of the USSR government in 1953–4, the subjects of economic regionalizations and territorial planning had not been prominent in the available Soviet publications. If there were discussions or actions, they remained unpublished.

In this period, long-term economic planning was characterized by an extensive shift of resources from the European parts of the USSR to the east. The objectives of this policy were the development of individual construction sights and projects, "complexes," rather than the delimitation of regions. Even though it has proven to be chaotic and economically wasteful, this policy of the development of the east at maximum speed continues. It has been discussed in some detail by this author in another publication.⁶² The fact that this policy, at least in its first decades, was not related to any rational economic-geographic regionalization of the development areas, contributes additional evidence that in purely economic terms, it was not very sound.

The New Thirteen Macroregions

In 1954 there appeared the first postwar Soviet publications that mentioned that the USSR Gosplan was now delimiting *thirteen* "economic regions" (though not with any specific plans).⁶³ Interestingly, this news was disclosed in a footnote to the preface of a highly-specialized and authoritative monograph on the history of the location of industries in the USSR, a monograph sponsored by the Institute of Economics of the USSR Academy of Sciences. In the entire 360-page monograph on the location of industries not a word more was said about these or any other regions. It seems plausible to assume that this note was added to the volume at the very last moment, and that these thirteen economic regions perhaps did not exist as such before 1954.

The list of the thirteen regions is the same as that reproduced in the Notes to Map 5. It dates from 1957 and is taken from the Gosplan's official instructions on the compilation of the Seven-Year Plan, which had been graciously presented by Khrushchev to a group of visiting French planners.⁶⁴

MAP 6 Military Regions and Heavy Armaments Industries



Note to Map 6

This is not in any way an official map of the super-regions, which have been mentioned in a Soviet publication only as “possible” and only by their names. The map was drawn on the basis of these names, by amalgamating the existing 18 macro-regions of Map 5 as follows:

- Super-region I is the amalgamation of macroregions I, II, IV, XIV and XVIII;
- Super-region II is the amalgamation of macroregions VI, XI, XII, XIII, XV and the Moldavian SSR;
- Super-region III is the amalgamation of macroregions III, V and VII;
- Super-region IV is the amalgamation of macroregions VIII and IX;
- Super-region V is the same as macroregion X;
- Super-region VI is the same as macroregion XVII;
- Super-region VII is the same as macroregion XVI.

The “Roman” numeration of the super-regions is unofficial, as are the “zones” A and B and the boundary between them. In the Soviet publication, they have been referred to only as “East” and “West.” They are explained in the text. The seven circles with arabic numbers indicate the locations of the “large economic complexes” designated for development by the year 1990. They are official and are discussed in the text.

The same thirteen macroregions of 1954 are incorporated into the text of the Seven-Year Plan,⁶⁵ where their list includes all the provinces (oblasts and *kraii*) as well as 101 microregions known as “economic and administrative regions” ruled by the councils of the national economy (*sovnarkhozy*). The 1954 list of the oblasts, *kraii*, and the republics comprising each of the thirteen macroregions is essentially the same as the list of the 1957 regions. This fact seems to indicate that Khrushchev’s 1957 decentralization reform and the establishment of the microregional *sovnarkhozy* according to a “territorial principle” of administration, was really not as sudden a reform as it appeared to be at the time. There was some kind of preparation for it dating back at least to 1954, and this preparation involved the delimitation of the thirteen macroregions. On the other hand, the recentralization of the microeconomic *sovnarkhozy* into “amalgamated *sovnarkhozy*” that took place in 1961–2 was probably also not as unprecedented as it appeared at the time, because the thirteen macroregions had been part of the all-union and republican economic plans since 1954, at least.

Macroregions as the Statistical Reporting Units

In the officially published documents describing the Fourth (1946–50), the Fifth (1951–5), and the Sixth (1956–60) Five-Year Plans and the Seven-Year Plan (1959–65), which replaced the discarded Sixth Five-Year Plan, macroeconomic regions are not referred to as such.⁶⁶ With the exception of the Fifth Five-Year Plan, which had no territorial cross section at all, all the plans had territorial cross sections based only on the union republics. From the preceding discussion it is evident, however, that the macroregions did exist and were part of the planning procedure. This fact indicates once more that what is published as a “plan” is not the same thing as the real, operational plan, which remains unpublished.

Additional evidence that the geographically delimited macroeconomic regions did exist in the 1950s and later derives from the annual statistical handbooks, which began to be more or less regularly published after 1956 by the Central Statistical Administration (CSA) of the USSR and the RSFSR and later by the other union republics. (From 1940–55, as is well known, there was a complete statistical blackout in the USSR.)

In the first postwar statistical annuals of the CSA's of both the USSR and the RSFSR, regional statistical data for the year 1956 were reported for several branches of both industry and agriculture, but only for nine macroregions of the RSFSR (North, Northwest, Centre, Povolzhie, Northern Caucasus, Ural, western Siberia, eastern Siberia and the Far East).⁶⁷ In the RSFSR handbook such data were given retrospectively for the years 1940, 1950 and 1955, in addition to 1956, and each macroregion was defined in terms of the oblasts, *kraii* and the ASSR's that comprised them, thus making the boundaries of the macroregions identical with those of the governmental administrative units.⁶⁸

Likewise, in the USSR CSA handbooks for 1958 and 1959 (none was published in 1957), macroregions were given only for the RSFSR and not for any other republic.⁶⁹ This time, however, statistical data for the RSFSR macroregions were reported only for agriculture and forestry. Moreover, in 1958, the macroregion called Centre was replaced by Central Non-Black Soil Zone and the Central Black Soil Zone. In 1959, the Non-Black Soil regions disappeared, the Centre region was restored, and a new Volgo-Viatka macroregion was added. Thus there were ten macroregions in the RSFSR in 1958, and eleven in 1959. In 1960 in the USSR handbooks, the RSFSR macroregion called North disappeared; the number of the RSFSR regions has since been stabilized at ten.⁷⁰ However, in the RSFSR handbooks in addition to the ten macroregions, “the regions of Extreme North (beyond the Arctic Circle)” continued to be listed as a separate statistical reporting unit until 1963.⁷¹

In the USSR handbook for 1960 three new macroregions appeared for the first time within the Ukrainian SSR (Donetsko-Pridneprovskii, Southwestern, and Southern), thus making the total number of all macroregions thirteen. At the same time they were renamed "large (*krupnye*) economic regions of the USSR," and statistical data were reported not only for agriculture but also for some branches of industry.⁷²

Thus it is clear that during the whole period of the existence of the decentralized *sovnarkhozy*, macroeconomic regions continued to exist both as planning and as statistical reporting units. It is puzzling, however, that even though by 1960 their total number in the whole USSR came to be the same (thirteen), the planning and the statistical macroregions throughout this period were not identical. In the Seven-Year Plan, as delineated in 1957, there were only nine macroregions within the RSFSR (as in the 1956 statistical handbooks), while the other four were delimited as follows: X. Central Asia and Kazakhstan; XI. Transcaucasus; XII. The South (which combined all Ukraine and Moldavia); and XIII. The West (which combined Belorussia and the three Baltic republics).⁷³ In the statistical handbooks these four macroregions did not exist, and the total came to thirteen in 1960 only as a result of the division of Ukraine into three macroregions.

Perhaps this discrepancy can be interpreted as follows. Even though highly centralized, the Central Statistical Administration of the USSR is based on the separate Central Statistical Administrations of the republics. In their reports to Moscow, the latter furnished data for their separate republics that were published unaltered in the statistical handbooks. Ukraine and Moldavia, Belorussia and Lithuania, even though they were parts of the combined planning macroregions, reported to the Central Statistical Administration in Moscow through their own, separate, republican CSA's as separate republics and not as macroregions. This, then, means that the planning macroregions were more important operationally than were the statistical macroregions. Of what this importance consisted is another question.

The Transitional Period, 1961-2

In the USSR statistical annual for the year 1961, there appeared a new classification of the "large economic regions of the USSR, as of the beginning of 1962." There were nineteen of them this time, and they were designated as follows: (1) North-Western; (2) Central; (3) Volgo-Viatka; (4) Central Black Soil; (5) Povolzhie; (6) North Caucasus; (7) Ural; (8) western Siberia; (9) eastern Siberia; (10) Far East. These ten regions were within the RSFSR. Then came three regions within Ukraine:

(11) Donetsko-Pridneprovskii; (12) South-Western; and (13) Southern. Next came (14) Western region, consisting of Lithuania, Latvia and Estonia; (15) Transcaucasian region, consisting of Georgia, Azerbaidzhan and Armenia; (16) Central Asian region, consisting of Uzbekistan, Kirghizia, Tadzhikistan and Turkmenia; (17) Kazakhstan region; (18) Belorussian SSR; and (19) Moldavian SSR. Unlike the others, the last two were described as “economic administrative regions.”⁷⁴

Whether these nineteen were not only statistical (reporting) but also planning regions is not known, but that seems probable. By then the Seven-Year Plan had run into trouble, and subsequently its targets were reduced several times. Also the planning and management of the microeconomic *sovnarkhozy* started to be recentralized. In the next USSR statistical annual (1962), no macroregions were delimited at all! Then, in 1963, they reappeared, but only eighteen of them.⁷⁵ They are delineated on Map 5, and as such they still exist today.

The Present 18 Macroregions

The Regions with Planning Commissions

In November 1962, “directive” organs of the USSR delineated and established a network of eighteen macroeconomic regions, which still exist today (see Map 5 and Tables 1 and 2). Initially they were established as a superstructure over fifty microeconomic regions,⁷⁶ embracing specific oblasts, *kraii*, and the autonomous and union republics listed in Table 1 called “large (*krupnye*) regions.” In 1965, the fifty microregions disappeared from the literature; the eighteen macroregions now are called simply “economic regions of the USSR.”⁷⁷ The suffix “of the USSR” implies their all-union significance, even though the nature of this significance is not clear.

Like all previous macroregions, the present eighteen are planning entities; but unlike previous ones, each of the present ones is headed by an institution, a “regional planning commission.” However, these commissions have only consultative and no administrative functions.⁷⁸ According to official instructions, they are supposed to receive for comment the copies of the draft plan proposals of the oblast Gosplans and of all enterprises located in their territories, the originals of which are sent to the republic and union Gosplans. They are directed from above by the Gosplans of the union republics (it is this fact that makes their “of the USSR” designation dubious). The republican Gosplans instruct these regional planning

TABLE 1 USSR: Economic Regions and Macroregions Since 1963

Macroregion	Microregion	Composition of the Microregion	Territory (thousand sq. km.)	Population on 1 January 1963 (million)
I	(1) Murmansk	Murmansk oblast	144.9	0.6
	(2) Northwestern	Archangelsk oblast and Karelian ASSR	759.7	2.0
II	(3) Leningrad	Leningrad, Novgorod, Pskov, and Vologda oblasts	342.3	7.9
	(4) Komi	Komi ASSR	415.9	0.9
	(5) Moscow city	City of Moscow	...	6.3
	(6) Moscow	Kalinin, Moscow, Riazan, and Smolensk oblasts	220.7	9.4
III	(7) Upper Volga	Vladimir, Ivanova, Kostroma, and Iaroslav oblasts	149.4	5.1
	(8) Sub-Oka	Briansk, Kaluga, Orel and Tula oblasts	115.1	5.4
	(9) Volga-Viatka	Gorky and Kirov oblasts; Mari, Morovian and Chuvash ASSR	263.2	8.3

IV	(10)	Central Black Soil	Belgorod, Voronezh, Kursk, Lipetsk and Tambov oblasts	167.7	8.0
V	(11)	Sub-Volga	Penza, Saratov and Ulianovsk oblasts	180.7	5.0
	(12)	Middle Volga	Kuibyshev oblast; Bashkir and Tatar ASSR	265.3	9.1
	(13)	Lower Volga	Astrakhan and Volgograd oblasts; Kalmyk ASSR	234.1	3.0
VI	(14)	North Caucasus	Rostov oblast; Krasnodar and Stavropol krais; Dagestan, Kabardino-Balkar, North Ossetian, and Chechen-Ingush ASSR	355.1	12.8
VII	(15)	Western Ural	Perm oblast; Udmurtian ASSR	202.8	4.5
	(16)	Middle Ural	Sverdlovsk and Tiumen oblasts	1,630.1	5.4
	(17)	Southern Ural	Kurgan, Orenburg and Cheliabinsk oblasts	282.8	6.2
VIII	(18)	Western Siberian	Novosibirsk, Omsk and Tomsk oblasts	634.6	5.0
	(19)	Kuzbass	Altai Krai; Kemerovo oblast	357.2	5.8
IX	(20)	Krasnoyarsk	Krasnoyarsk krai; Tuvinian ASSR	2,572.1	3.0
	(21)	East Siberian	Irkutsk and Chita oblasts; Buriat ASSR	1,550.7	4.0
X	(22)	Northeastern	Magadan oblast and Yakut ASSR	4,302.3	0.9
	(23)	Khabarovsk	Amur oblast; Khabarovsk krai	1,188.3	1.9
	(24)	Far Eastern	Primorski krai; Sakhalin and Kamchatka oblasts	725.3	2.3

XI	(25)	Donetsk	Donetsk and Luhansk oblasts	53.2	7.2
	(26)	Sub-Dnieper	Dnipropetrovsk, Zaporozhiia and Kirovohrad oblasts	83.2	5.8
XII	(27)	Kharkiv	Kharkiv, Poltava and Sumy oblasts	84.8	5.8
	(28)	Kiev	Kiev, Zhytomyr, Cherkassy and Chernihiv oblasts	110.8	7.7
	(29)	Podolian	Vinnitsa, Khmelnytsky, Ternopil and Chernivtsi oblasts	69.4	5.7
	(30)	Lviv	Lviv, Volyn, Transcarpathian, Ivano-Frankivsk and Rivne oblasts	88.8	6.4
XIII	(31)	Black Sea	Odessa, Crimean, Nikolaev and Kherson oblasts	110.8	5.5
	(32)	Lithuanian	Lithuanian SSR	65.2	2.9
XV	(33)	Latvian	Kaliningrad oblast	15.1	0.6
	(34)	Estonian	Latvian SSR	63.7	2.2
	(35)	Georgian	Estonian SSR	45.1	1.2
	(36)	Azerbaijani	Georgian SSR	69.7	4.4
XVI	(37)	Armenian	Azerbaijani SSR	86.6	4.2
	(38)	Uzbek	Armenian SSR	29.8	2.0
	(39)	Kirghiz	Uzbek SSR	449.6	9.5
	(40)	Turkmenian	Kirghiz SSR	198.5	2.4
	(41)	Tadzhik	Turkmen SSR	488.1	1.7
			Tadzhik SSR	143.1	2.3

VXII	(42)	Alma-Ata	Alma-Ata oblast	227.6	1.7
	(43)	East-Kazakhstan	East Kazakhstan oblast	97.3	0.8
	(44)	Semipalatinsk	Semipalatinsk oblast	179.6	0.6
	(45)	Karaganda	Karaganda oblast	394.7	1.4
	(46)	Virgin lands	Kokchetav, Kustanai, Pavlodar, North Kazakhstan and Tselinograd oblasts	600.0	3.6
	(47)	West Kazakhstan	Guriev, Uralsk and Aktiubinsk oblasts	729.6	1.3
XVIII	(48)	South Kazakhstan	Chimkent, Kzyl-Orda and Dzhabul oblasts	486.4	1.9
	(49)	Belorussian	Belorussian SSR	207.6	8.4
	(50)	Moldavian ^a	Moldavian SSR	33.7	3.2

SOURCE: *Ekonomicheskie raiony SSR*, 1st ed., (Moscow, 1965), 19–20. A map *ibid.*, 22, contains the border of these regions enclosed within the borders of 18 macroregions, reproduced here in Map 5. The second (1969) edition of vol. 26, 21, contains the map of the 18 macroregions, but does not refer to the 50 microregions. One may conclude, therefore, that the 50 microregions are no longer operative or are not public knowledge. The 18 macroregions do still exist today. Compare, for example, *Metodicheskie ukazaniia k sostavleniiu gosudarstvennogo plana razvitiia narodnogo khoziaistva SSR*, (Moscow, 1969), 674–5.

^a Moldavian economic region was not part of any macroregion for reasons unknown.

commissions to draft economic plans for their macroregions, but with their scope of targets smaller (*boleie uzkiei krug*) than that of the republic's plans.⁷⁹

However, all this is true only in theory. In practice there have been frequent complaints on the part of the republic's Gosplans (of the RSFSR and Ukraine, in particular) that it often has been impossible for them to draw up territorial economic plans.⁸⁰ This is because since 1965 the union ministries and their enterprises in the territories of the republics and macroregions have tended not to report their operational data, statistics and draft plans to the republic's Gosplans on time, if at all. The USSR Gosplan's instructions imply too, that all territorial plans, including those of the union republics, must be compiled "first of all" for the five-year-plan periods.⁸¹ The operational annual plans are considered implicitly to be less important than the industrial branch and ministerial (*vedomstvennye*) plans. Yet, in the territorial cross section chapter of the published version of the current Ninth Five-Year Plan (1971-5), the plans for the macroregions are mentioned only for the Russian Federation and identified not by any statistical targets but merely by a few major construction sites ("development complexes").⁸² (Of course, the published version of the plan is not necessarily the actual operational text of the plan, which probably remains unpublished.)

In the regularly published reports of the Central Statistical Administrations of the USSR and the union republics on the fulfillment of economic plans, the macroregions are not identified at all.⁸³ It is only in the annual statistical handbooks of the CSAs of the USSR and the republics, as well as in various research monographs published by the Gosplans and the Academies of Sciences, that the eighteen macroregions are identified fully by their names and delimited statistically and cartographically. However, even these data are meagre.

On the eighteen macroregions, we possess statistical information only of a very general and purely descriptive character, which tells us little if anything about specific rationale behind their delimitation. These statistics, on the size of the territory of each macroregion and on its population in the years 1940, 1959, 1963, 1972 (territory being constant), as well as on a few economic characteristics common to all the regions (total freight transportation traffic, electric power output, and the per capital rates of growth of industrial production) are reproduced in Tables 1, 2 and 3, designed to characterize the macroregions within their boundaries on Map. 5.⁸⁴

Delimitational Analysis and Discussion

Not many meaningful analytical results can be obtained from such meagre statistical data as are available, except for the following. The familiar synthetic co-efficients of geographic association,⁸⁵ computed from the percentage shares in Table 2, indicate that when, in turn, the population, total freight traffic and electric power output of each macroregion are correlated with their territories, their values come out as 0.45, 0.48 and 0.51, respectively. This is interpreted as meaning that, on the average, there is relatively little correspondence between the territories of the macroregions and these three variables.

On the other hand, if we measure traffic against population, electric power against population, and traffic against electric power, the co-efficients of geographic association for the macroregions come out as 0.81, 0.78 and 0.85, respectively. This implies a slightly more efficient correlation than that with territory. However, since these co-efficients, too, are all smaller than 0.90, even they cannot be thought of as fitting each other well enough.

An analysis of the territory and population statistics in Tables 2 and 3 clearly shows that the eighteen macroregions varied greatly in size, in population density and in population growth from 1940–72. It is clear that their borders were not delimited with the aim to make the regions more or less equal in those respects. And this is natural, since one could not expect easy equalization in the territory-population ratios between the sparsely inhabited vastness of Siberia and Kazakhstan, on the one hand, and of the European USSR, on the other. Of some interest is the long-range migratory process from regions III and IV, and to some extent regions II, XII and XVIII, to regions XVII, XVI and X, although, of course, not only migration but also natural growth of the population has been involved. Perhaps of greater interest is a look at the population among the fifty microregions in Table 1. It is evident that the microregions were delimited more equally by population.

In Table 2, freight traffic and electric power production can be taken as approximate indexes of the economic weight of each macroregion in the Soviet economy. The simple reasoning behind this proposal is that almost everything that is being produced must be transported, and therefore freight traffic reflects regional production levels, and electric power is the driving force of modern industry and therefore serves as an index of the level of industrialization. This is particularly true in the case of the macroregions because power is not yet shipped in large quantities over long distances and hence is consumed locally, for the most part. No doubt this reasoning is open to criticism, but unfortunately no data are available that would allow a better approximation of the economic weight of these regions.

TABLE 2 Characteristics of Map 5: Territory, Population and Electrical Output

Region on Map 5	Territory (thousand sq. km.)	Population (in thousands)				Percentage Share in Total			
		As of 1 January 1940	As of 15 January 1959	As of 1 January 1972	Territory	Population 1972	Total Freight Traffic 1970	Interregion Traffic 1970	Electricity Output 1971
I	1,662.8	11,204	10,865	12,350	7.47	5.02	7.77	8.95	4.77
II	485.1	27,044	25,718	27,871	2.18	11.32	8.67	8.60	10.83
III	263.3	8,848	8,252	8,306	1.19	3.38	2.44	1.62	1.87
IV	167.7	9,093	7,769	7,925	0.76	3.22	2.66	1.93	1.11
V	680.0	15,649	15,975	18,672	3.06	7.58	7.63	6.52	10.85
VI	355.1	10,494	11,601	14,641	1.60	5.95	5.10	4.36	3.94
VII	680.4	10,520	14,184	15,163	3.06	6.16	10.06	9.50	11.45
VIII	2,427.2	9,177	11,252	12,140	10.90	4.93	7.36	7.64	5.76
IX	4,122.8	4,914	6,473	7,579	18.50	3.08	4.24	4.65	10.13
X	6,215.9	3,155	4,834	6,040	27.90	2.46	3.34	4.44	1.93
XI	220.9	16,387	17,766	20,369	1.00	8.27	16.90	19.41	14.04
XII	269.5	19,982	19,028	20,924	1.21	8.50	5.46	4.60	3.83
XIII	113.3	4,971	5,075	6,585	0.51	2.68	1.86	1.78	0.84
XIV	189.1	5,865	6,612	7,752	0.85	3.15	2.68	2.40	3.12
XV	186.1	8,206	9,505	12,721	0.84	5.17	2.91	3.24	3.63
XVI	1,277.1	10,906	13,682	20,989	5.74	8.53	2.84	3.12	3.80
XVII	2,717.3	6,148	9,295	13,470	12.20	5.47	5.31	5.05	4.72
XVIII	207.6	9,046	8,056	9,142	0.94	3.72	2.28	1.90	2.31

SOURCE: Narodnoe khoziaistvo SSSR 1922-1972 gg. Iubileinyi statisticheskii ezhegodnik (Moscow, 1972), 12, 532ff; Narodnoe khoziaistvo RSFSR v 1971 godu. Statisticheskii ezhegodnik (Moscow, 1972), 60; Narodnoe gospodarstvo Ukrainsskoi RSR v 1971 rotsi. Iuvileinyi statystychnyi shchorichnyk (Kiev, 1972), 90; Ukrainsskaia SSR: Ekonomicheskie raiony (Moscow, 1972), 70; Transport i sviaz SSSR. Statisticheskii sbornik (Moscow, 1972), 68-71; Pribaltiiskii ekonomicheskii raion (Moscow, 1970), 79.

In terms of freight traffic and electric power output per region, it is evident from Table 2 that the most highly developed of all the macroregions in the Soviet Union is region XI, the Donetsko-Pridneprovskii region of the Ukrainian SSR. It is also a self-contained region in the sense that it has the highest rate of intra-regional traffic in the USSR. This is explained by the fact that it is a very heavy producer of coal, iron and manganese ores, iron and steel metal, chemicals, and heavy machinery. It is also possible that a uranium enrichment centre, which requires a lot of electric power, is located in this region.

If Table 2 is approximately representative of the levels of economic development and the concentration of industries in the territory of the Soviet Union, then the picture that the tables provide is not an even one. There are three or four macroregions of very heavy weight in the Soviet economy (regions XI, VII, II and V). This indicates an unequal concentration of industries over the USSR territory and makes the centres of the Soviet economy vulnerable in case of nuclear war.

The ratio of intra-regional to extra-regional traffic in Table 3 has been calculated as a balance of "exports" over "imports," and includes the intra-regional traffic of Table 2 in its total. As such, it can be interpreted as an index of the inter-regional integration of each region with the rest of the country. The average ratio of intra- to extra-regional traffic for all the eighteen regions combined comes out as approximately 30:70 per cent, indicating a high rate of economic integration of the Soviet economy as measured by "exports" from each region to the rest of the economy. On the other hand, this same ratio can also be interpreted as indicating that the macroregions are far from being self-contained or self-sufficient territories. They depend greatly on transport to them and from them. If they were designed to be more or less self-supporting economies (for the purpose of functioning independently in case of war, for example), this goal—if it is a goal—has not been achieved yet. Only the Far East (region X) can be said to be relatively independent of the rest of the USSR.

In Table 3 freight traffic by all major means of transportation (except the pipelines) in tons per square kilometre of the territory of the region, reflects great variations because of the greatly unequal sizes of the regions and the great differences in the density of railroad and river traffic. The Donbas Region XI comes out on top again because of its high density of railroads and heavy freight traffic in coal and metals. All other regions trail far behind the Donbas, with the Far East, Eastern Siberia and Kazakhstan (regions X, IX and XVII, respectively) being understandably at the bottom of the table.

TABLE 3 Characteristics of Map 5: Transport and Industry

Region on Map 5	Density (man/sq. km.)		Index of Regional Growth		Ratio of Urban to Rural,		Total Freight Traffic ^a (ton/sq. km.) 1970	Transport		Industry Average Annual (compounded percent) Rate of Growth of Gross Industrial Output, (per capita 1940-71)
	1940	1972	1940-72	1972	1972	Ratio of Intra- to Extraregional Traffic, 1970				
I	6.7	7.4	110.2	75:25	308	37:63	6.43			
II	55.7	57.5	103.1	73:27	1,178	32:68	6.82			
III	33.6	31.5	93.9	55:45	610	21:79	9.34			
IV	54.2	47.3	87.2	43:57	1,046	23:77	8.63			
V	23.0	27.5	119.3	59:41	740	27:73	10.18			
VI	29.6	41.2	139.5	51:49	947	27:73	6.04			
VII	15.5	22.3	144.1	71:29	975	30:70	8.32			
VIII	3.8	5.0	132.3	63:37	200	33:67	9.43			
IX	1.2	1.8	154.2	64:36	68	35:65	7.88			
X	0.5	1.0	191.4	73:27	35	42:58	5.56			

XI	74.2	92.2	124.3	72:28	5,045	36:64	5.96
XII	74.1	77.6	104.7	41:59	1,334	27:73	8.40
XIII	43.9	58.1	132.5	59:41	1,079	30:70	6.74
XIV	31.0	41.0	132.2	61:39	933	28:72	10.61
XV	44.1	68.4	155.0	52:48	1,029	35:65	5.69
XVI	8.5	16.4	192.5	39:61	147	35:65	5.66
XVII	2.3	5.0	219.1	52:48	129	30:70	7.41
XVIII	43.6	44.0	101.1	46:54	723	27:73	8.68

SOURCE: *Narodnoe khoziaistvo SSSR 1922-1972 gg. Iubileinyi statisticheskii ezhegodnik* (Moscow, 1972), 12, 16-18, 135; *Narodnoe khoziaistvo RSFSR v 1971 godu. Statisticheskii ezhegodnik* (Moscow, 1972), 12-14; *Narodne gospodarstvo Ukrainskoi RSR v 1971 rotsi. Iuvileynyi statystychnyi shchorichnyk* (Kiev, 1972), 11; *Transport i sviaz SSSR. Statisticheskii sbornik* (Moscow, 1972), 68-71.

^a Freight traffic includes transportation by railroads, river and seagoing vessels only. Moldavian SSR is not included. Index of population growth, 1940=100.

The Transportation Factor

Map 5 and the freight traffic statistics suggest strongly that one of the major rationales behind the delimitation of the eighteen macroeconomic regions must have been the existing railroad-river transportation system.⁸⁶ This hypothesis seems to be supported by the following brief study of the organization of the Soviet railroad system. The total trunk-lines railroad system of the Soviet Union is apportioned today among twenty-five separate administrations, called "railroads." Their areas of operation do not coincide exactly with the eighteen macroeconomic regions, but the overlapping is sufficiently close.⁸⁷ Macroeconomic region I encloses two railroads, called October and Northern; region II lies within the operation area of one, Moscow Railroad. The same goes for regions III, IV, V and VI, each of which has one railroad system: Gorkii, South-Eastern, Privolzhskaia and North Caucasian, respectively. Region VII, the Urals, is served by three railroads: Kuibyshev, South Ural and Sverdlovsk. Regions VIII and X have one railroad each: West Siberian and Far Eastern, respectively; region IX has two: East Siberian and Trans-Baikal. In Ukraine, region XI is served by three railroads: Donetsk, Southern (Kharkiv) and Pridneprovsk; region XII has two: South-Western (Kiev) and Lviv; region XIII—only one, Odessa-Kishinev, which joins the Moldavian SSR with region XIII. The remaining regions XIV, XV, XVI, XVII and XVIII are served by one railroad each: Pribaltic, Transcaucasian, Central Asian, Kazakh and Belorussian, respectively.

Further examination of Map 5 leaves one with the impression that most of the macroregions of the USSR have been delineated in such a manner that across each region runs a big navigable river. Thus there are Lena and Amur in region X; Ienisei in region IX; Ob in region VIII, Syr-Daria's navigable portion in its south, and the navigable portion of the Ural River in its west; the Volga and its tributary, the Kama, run in the midst of the highly industrialized region V; the navigable upper reaches of Kama begin in the Urals, region VII; the Volga's own head and its navigable tributaries, the Moskva and Oka, lie in the middle of region II. Region I is crossed in the middle by the navigable Northern Dvina, its smaller tributary, the Vychegda, and the north-running but intermittently navigable river Pechora. The heavily trafficked river Svir connects Leningrad and the Gulf of Finland with Lakes Ladoga and Onega in region I, through Shesna and the Moskva-Volga Canal with regions II and V. Finally, the western Dvina crisscrosses region XIV, as does the Neman, connecting this region, through the Berezina Canal, with region XVIII and then, down the Dnieper, with regions XII, XI and XIII, and the Black Sea.

In spite of the well-known heavy reliance of the Soviet economy on railroads for the transportation of freight, the relative technical-economic inefficiency of this means of transport, as well as its military strategic inefficiency, must be kept in mind in appraising its role in the unification and integration of the macroregions. The main element in the inefficiency of Soviet railroads is that their cost-distances are short. Why this is so is a question into which we cannot go here; perhaps, because trains are too big and heavy, tracks too wide, and so on.⁸⁸ According to the latest statistics the average distance one ton of freight was carried by rail in 1970 was 902 kilometres; to deliver it to its destination took an average of 88.8 hours (without loading and unloading); so that its average speed of travel was only slightly more than 10 kilometres per hour.⁸⁹ These statistics relate, by the way, to the trunk railways (*magistralnye*), not to all other railroads, which are certainly less efficient. For comparison, in the United States in 1969 the average distance a ton of freight travelled on all types of railroads was 778 kilometres, and no one called U. S. railroads efficient. Accordingly, only 38.6 per cent of all freight in the United States was carried by the railroads, whereas in the USSR that same figure was 78.2 per cent. Moreover, according to Soviet information, in 1970 less than 30 per cent of all Soviet railroads had double tracks.⁹⁰ With these data it is possible to make a crude efficiency test of the delimitation of Soviet macroregions in terms of the cost-time-distance of railroad transport of freight.

Assuming that the average distance of 902 tons per kilometre was also cost-justified on the average, the area served by such a cost-covered railroad should have a radius of 902 kilometres and be equal to πr^2 , or 2.56 million square kilometres. Taking the area of the macroregions from Table 2, it is evident that in terms of the present average cost-distance gauge, regions IX, X and XVII are too large; and region VIII barely meets the standard. If a third dimension, time, is taken into consideration, and the standard is taken to be a maximum one kilometre per day (twenty-four hours), then the distance-time areas maximally permissible would be 187,038 square kilometres. In terms of this gauge, only the regions IV, XIII, XIV and XV can be described as efficient; regions XI and XVIII are marginal; and the rest are definitely inefficient.

These are, however, crude assumptions about the circular radii of time-distance-cost areas delimiting Soviet transportation capabilities. They may be taken as workable assumptions only for the European parts of the USSR, minus the North, plus the Urals. Siberia and Kazakhstan, down to Central Asia, still are connected by only one railroad. Heavy railroad traffic prevails only in western Siberia (region VIII) on a relatively short sector between the Kuzbas and the Urals (the old Ural-Kuznetsk Combine).⁹¹ On an average navigable river in the RSFSR in 1970, it took

228 hours to deliver a ton of freight the distance of 912 kilometres.⁹² In the vast Russian Federal Republic in 1972, there were only 82,000 kilometres of highways suitable for truck traffic, plus 151,000 kilometres of other roads described as having some kind of "hard cover."⁹³

Some Conclusions and Questions

It is probable that the planning commissions of the macroregions and the Gosplan possess more statistical information on their regions than they publish, and consequently their delimitational analysis is more sophisticated than ours. On the other hand, it is also certain that their information also is limited; and the methods of analysis are not very advanced. This is evident, for example, from the fact that the regional inter-industry input-output balances are not yet computed. It has been reported that such input-output tables are being now computed for the first time, for the year 1972, in the union republics; whereas for the macroregions they are only contemplated for some unspecified future date.⁹⁴ Obviously, if data were available, such balances would have been calculated; and their analytical usefulness would have been great.

The testimony of Soviet planners can be quoted to the same effect. One top USSR Gosplan official who has been involved personally in spatial planning states: "The absence of detailed projects, researched materials, and feasibility studies for long-range periods does not make it possible to talk with sufficient grounds about locations, and even specific regions of the location of enterprises.... It is extremely difficult to give even a generalized characteristic for every region which is delimited in the annual and five-year plans."⁹⁵

The above discussion and analysis suggest no other conclusion but that as planning entities, in the purely economic sense, the eighteen macroregions are not yet impressive tools. Their economic planning functions still are obscure. The available data for finding the rationale for the delimitation of specific regions are insufficient, but it is evident that the territorial association of the regions with their population and the economy is negative. The transportation factor seems to have played a positive (but not efficient) role in the delimitation of the regions. Thus the teleology of the eighteen macroregions begs many questions and is therefore open to further hypotheses. One such hypothesis, the military factor, is explored in the next section. But before discussing it, a new proposal raised recently by Soviet territorial planners should be noted.

The Proposed Seven Super-regions by 1990

In connection with the elaboration of the 1971–5 Five-Year Plan, the CPSU Central Committee instructed the USSR Gosplan to work out a prognostic “General Scheme for the Location of Productive Resources for the 1971–1980 Period.” In 1972 new instructions were issued to extend the “general scheme” to the period 1976–90. Little was published about these schemes, yet they have aroused much methodological criticism and dissatisfaction in the Soviet Union. All this was critically reviewed by the present author in another paper.⁹⁶

Almost nothing was said in the Soviet literature on the subject of the delimitation of regions in connection with the 1971–80 scheme; only the location of the development sites was discussed in terms of “new industrial complexes.” In connection with the scheme’s extension to the 1976–90 period, however, a novel and unexpected proposal to delimitate *seven* super-regions on the territory of the USSR has been published. This may not be an officially approved project yet, but it originates from the USSR Gosplan.⁹⁷

The seven proposed super-regions are called (I) North and Centre of the European part of the USSR; (II) South of the European part; (III) Ural and Volga; (IV) Siberia; (V) Far East; (VI) Kazakhstan; and (VII) Central Asia. In Map 6 we have drawn the boundaries of these super-regions on the basis of their names by adding up the relevant territories of the existing eighteen macroregions of Map 5. This consolidation of the existing eighteen macroregions is the author’s and therefore hypothetical; no Soviet map of the proposed seven super-regions has been published yet.

The author of the proposed seven super-regions, V. Pavlenko, a deputy chief of a department in the USSR Gosplan, has suggested that these super-regions could be amalgamated “in the case of need” into two “zones,” called “Western” and “Eastern.”⁹⁸ Their purpose is unknown but presumably is related to some physical or natural condition. In Map 6 one such possible division into two zones, A and B, is assumed to run close to the permafrost borderline, south of which some agriculture is possible.⁹⁹ This division is not precisely “West” versus “East,” but Zone A does include the areas presently designated in Soviet economic legislation as the “regions of the North and their equivalents.” In these, various costs are permitted by law to be higher than in the rest of the USSR—for example, incentive wages and bonuses, resettlement allowances, construction cost subsidies, accelerated capital depreciation allowances and such.¹⁰⁰ In other words, Zone A on Map 6 may be taken to represent the “East” in the Soviet long-range plans. If this assumption about the east-west division is correct, then Pavlenko’s delimitation proposal is indeed meaningful.

However, he could have had something else in mind, since he qualified his suggestion by an "in case of need."

On the assumption that the aggregation of the present eighteen macroregions into seven super-regions in Map 6 is approximately correct, the co-efficients of geographic association have been computed from the aggregate data in Table 4. The co-efficients of association of the territory

TABLE 4 Characteristics of Map 6

Super-region on Map 6	Territory (thousand sq. km.)	Population 1972 (thousand)	Percentage Share in Total	
			Total Freight Traffic 1970	Electric Power Output 1971
I	2,690.8	65,040	24.06	22.14
II	1,174.1	78,910	32.23	26.28
III	1,623.7	42,141	20.13	24.17
IV	6,550.0	19,719	11.60	15.89
V	6,215.9	6,040	3.34	1.93
VI	2,717.3	13,470	5.31	4.72
VII	1,277.1	20,989	2.84	3.80

SOURCE: Compiled by author.

Data in this table derive from those in Tables 2 and 3. The method of derivation of the super-regions is given in the notes to Map 6.

of the super-regions with other indicators came out to be inadequate; for example, the one for territory and population was only 0.46. However, the other association co-efficients showed an improvement, as compared with those of the eighteen macroregions. Total freight traffic versus population came out as 0.92, electricity output versus population 0.84, and freight traffic against electricity 0.90. This improvement in the co-efficients was to be expected, however, because the smaller the number of geographic areas (and hence the larger their areas), the closer the co-efficient will be to unity. As said before, it is a crude measure, but the available data do not lend themselves to more refined analysis. In any case, for whatever these measures are worth, they do indicate the super-regions may fit better the location of the population, the transportation of goods, and the production of power within their limits than did the eighteen macroregions.

Nuclear War Defence Strategy: A Hypothesis Continued

The Soviet "Military-Industrial Complex"

Western political scientists and students of Soviet military affairs are now unanimous in their opinion that the Soviet "military-industrial complex" has considerable influence on Soviet domestic politics and policies. This has been put most strongly and probably most accurately by B. Lewytzkyj, who has suggested that no significant policy decision is now taken in the Kremlin prior to full consultation with and the maximum consent of the military.¹⁰¹ The question here is when this relationship began. R. L. Garthoff seems prepared to go back to the end of 1959, for before that the "Zhukov affair" had shattered the military establishment and probably had tarnished it in the eyes of the party leadership.¹⁰² In American military circles, on the other hand, the acquisition of nuclear weapons by the USSR raised the estimates of the power and influence of the Soviet military on Soviet policies as far back as 1951–2.¹⁰³

In general, however, there can be hardly any doubt that Soviet economic and military planning are intertwined closely. In economic textbooks and the writings of Soviet civilian economists, this fact is often not recognized, but Soviet military literature is full of unequivocal statements such as "*All work on the planning of the national economy is inseparably connected with the tasks of the country's defence. In the unity of economic and defence tasks consists the peculiarity of all economic plans.*"¹⁰⁴

Benchmark Years in Macroregionalization

From the previous discussion it appears that the military, particularly the defence strategy of Marshal Tukhachevsky, did play a significant, perhaps decisive, role in the delimitation of the macroregions in the 1930s and early 1940s. It seems worthwhile to continue exploring the possible role of this factor in the postwar period. As said above, between the end of the war and 1954, macroeconomic regions did not figure in Soviet published sources. Then, in an unusual footnote to an academic monograph and in the 1957 official instructions for the Seven-Year Plan, thirteen macroregions reappeared without any explanation.

Whether or not it be coincidence, both American and Soviet military writers agree that a new military situation, the nuclear "balance of terror," emerged in 1954.¹⁰⁵ According to an official Soviet Defence Ministry's history, "at the beginning of 1954" the USSR armed forces "began

studying" nuclear weapons "under conditions of their use," for by that time they "already possessed nuclear weapons of various [destructive] power, including hydrogen bombs."¹⁰⁶ The same military history also notes that beginning with 1954 radical changes began to develop in Soviet military strategy, though it does not explain their nature. By implication, however, they certainly were related to nuclear warfare.

It was also in 1954 that the United States assumed for the first time that the USSR was able to start and win a nuclear war against the United States by knocking out U. S. strategic air bases with one strike.¹⁰⁷ This was the beginning of U. S. strategic defence planning, which involves, among other things, the territorial delimitation of regions vulnerable to Soviet strikes. It is only logical that the USSR should have begun some such territorial defence planning too. It could not be otherwise.

The Soviet-American nuclear arms race that ensued culminated in 1958–60 in the development and deployment of nuclear-tipped intermediate and intercontinental ballistic missiles. In 1961, a new, separate branch of the Soviet armed forces, the Strategic Rocket Forces, was established; and in 1962 Soviet missiles were deployed in Cuba.

It was in 1963 that serious consideration first was given in the United States to the feasibility of constructing an anti-ballistic missile (ABM) defence system; at the same time a similar debate started in the USSR. Any plan of deployment of nuclear anti-missile missiles required territorial planning and the delimitation of macroregions for this kind of defence. The American debate concerning the ABM was opened to the public when President Lyndon Johnson revealed his plan for the so-called "thin" territorial ABM system, the "Sentinel System."¹⁰⁸ After the first phase of the Strategic Arms Limitation Treaty (SALT) negotiations with the USSR, President Richard Nixon proposed a "thinner" one, the so-called "Safeguard System." The first ABM system was supposed to have fourteen anti-missile locations across the United States, all of them actively deployed; the second was to have only twelve sites, of which only two would be active. What is important to our subject, however, is the fact that the first ABM system was delineated by fourteen macroregions, covering the whole territory of the United States; the second was based on a map of twelve such macroregions, covering almost all U. S. territory, except the small southern tips of Texas and Louisiana. Both maps of these nuclear defence macroregions, based on official U. S. Department of Defense information, were published and discussed widely in the United States.¹⁰⁹

Volens nolens, an analogy with the delimitation of the Soviet eighteen macroregions in 1963, begs for consideration. If the ABM planning were not the only rationale for the delimitation of these eighteen regions, it is at least highly probable that it had something to do with it.

The Strategic Controversy Between Marshals Sokolovsky and Malinovsky

From 1954–63, the overall military strategy of the USSR underwent a profound change. Between the end of the war and 1960, the strategy was based, in most respects, on the experience gained in the Second World War. Atomic war was assumed, but mostly on the tactical level, with aviation and artillery being the carriers of the atomic weapons. The establishment, in and after 1957 of the 101–108 microregional economic *sovnarkhozy*, had among its “foremost tasks,” according to Soviet military sources, “dispersion of the most important industrial establishments and the formation of their duplicates (*dubliorov*)” all over the territory of the USSR.¹¹⁰ Empowered to solve this particular task was the highly centralized system of the Localized Anti-Aircraft Defence (MPVO), which was part of the management of every *sovnarkhoz*. The shortage of such “duplicate plants” at the start of the Second World War and the overconcentration of some key defence industries in very few locations was also noted.¹¹¹ From this and other evidence it appears that, among other goals, the microregional *sovnarkhozy* were to serve the same strategic purposes as did the macroregions before the Second World War. However by 1959, *sovnarkhozy* came under heavy criticism by no less a figure than the minister of the armaments industries, B. Vannikov, for producing obsolete technology,¹¹² and for duplicating it in the dispersed plants. This was one of the major reasons for the recentralization of the *sovnarkhoz* system and was the beginning of the end of the microeconomic regionalization.

During 1958–60, a fierce internal strategic debate developed among the top echelons of the Soviet military. It has been discussed to some extent by B. Lewytzkyj,¹¹³ but it still deserves more thorough attention from historians and political scientists than can be afforded here. In summary it appears that, as a result of the debate, Khrushchev came out openly against most of his military men and espoused a new doctrine, which completely depreciated all conventional weapons and methods of warfare. In his speech before the USSR Supreme Soviet on 14 January 1960, he proclaimed the air force, the navy and the armoured troops obsolete and almost good for nothing and put his faith only in land- and submarine-based missiles armed with nuclear warheads. In addition he favoured the restoration of the system of territorial armies that had existed in the 1920s and early 1930s and which was thought to be similar to the Chinese communal guerrilla forces, being formed at the time.¹¹⁴

In most respects the new Khrushchevian military doctrine displayed strong affinity to a monograph, *The Military Strategy*, edited and authored by Marshal V. D. Sokolovsky, who until April 1960 was chief of

the general staff of the USSR and the first deputy minister of defence.¹¹⁵ (The minister of defence after 1957 was Marshal R. Ia. Malinovsky.)

In his strategy, Sokolovsky assumed that the future war would be a short but massive, all-out nuclear missile clash; and, from the start, it would be on a large scale in terms of the territories and people involved. Sokolovsky rejected small, highly-mobile armed forces in favour of mass armies. He was not sure of the prospects of victory in such a war. He assumed the possible loss of territory to the advancing enemy, and as a result the defensive aspect of his strategy came out weakly. He believed that the first strike was more significant than defence, and the initial period of the war would be overwhelmingly decisive. He called for "extreme decisiveness" (*krainiuu reshitel'nost*) at the beginning of the war, thus implying the importance of the first strike.¹¹⁶

As to defence strategy, Sokolovsky's may be described only as that of a "pre-emptive defence," which means maximum prior economic-military build-up and preparedness, far in anticipation of the war. He said,

The ability of the country's economy to mass-produce military hardware, especially nuclear missile weapons and to outproduce the enemy in modern means of the armed struggle, determines the material preconditions for victory. The decisive factor in the outcome of the future war is the ability of the economy today to secure maximum capacity for the Armed Forces to inflict a destructive strike on the aggressor at the very start of the war [emphasis in original].¹¹⁷

Since Sokolovsky did not foresee any "local" or "small" wars but rather a short war on a colossal scale and did not believe much in the possibilities of defence, it may be hypothesized that he also did not favour the Khrushchevian microregional *sovnarkhozy* or his thoughts on the territorial home-guard-type armies. He could have been in favour of the macroregions, even though he did not say this in his book.

However Sokolovsky's macrowar strategy, as well as Khrushchev's vagaries about the lack of usefulness of conventional weapons and warfare, to a significant extent were not acceptable to those of the Soviet military who expressed the consensus at the Twenty-second Congress of the CPSU. Sokolovsky had lost his top jobs by then, even though he continued to be influential, and some aspects of his doctrine were accepted later. At the Twenty-second Congress, on 23 October 1961, Marshal Malinovsky, while crediting Khrushchev personally with the creation of the new Strategic Rocket Forces, postulated his own doctrine, which is still valid today: ". . . . We are all coming to the conclusion that ultimate victory over the aggressor can be achieved only as a result of combined (*sovmestnykh*) operations of all types of the armed forces"—that is, including the

conventional ones.¹¹⁸ Malinovsky supported his argument by reference to the possibility of “local wars,” not just atomic ones; implying that such wars, too, can involve the USSR and its bloc’s territory.

The official Soviet history of the armed forces notes the end of 1961 as the period of the beginning of reconstruction of all armed forces on the basis of a “new theory” as well as a new organizational structure. It credits the October 1964 plenary session of the CPSU Central Committee, which removed Khrushchev from power, with “exceptionally beneficial consequences” for Soviet military power.¹¹⁹

The Post-Khrushchevian Military Doctrine

The controversy that partly was revealed in the statements by Marshals Sokolovsky and Malinovsky has not ended yet, however. Some Soviet military writers continue to espouse the point that “different wars are possible” as far as their time-space continuum is concerned and insist that it is necessary to be prepared “not only for a global, nuclear-missile war.”¹²⁰ Others see only a holocaust with “mass destruction” on “vast territories,” there being “no borderline between the rear and the front.”¹²¹ Leonid Brezhnev expressed himself at least once, in 1966, in completely Sokolovskian-Khrushchevian terms,¹²² but lately he has been much more subdued.

These declarations and debate seem to relate to the “Chinese question,” however. According to American appraisals of the Soviet post-Khrushchevian (1969) military posture and strategy, the latter was predominantly defensive toward the United States, but with some offensive propensities and capabilities toward Western Europe, the Middle and Near East.¹²³ Under the Malinovsky military doctrine, the USSR has been bound to a strategy of maximum survival in case of war, rather than to an all-out initiative against the West, and hence a probable suicide.

But the possibility of war with China is a new matter. According to the dissident Soviet communist sources, a debate about a “preventive” nuclear strike option against China was in full swing in the CPSU Politburo and the USSR General Staff in 1969,¹²⁴ but it is most probable that it began earlier. The Chinese “claims” to Russian territory are well known and documented, of course; and they go far back, perhaps to Mao Tse Tung’s visit to Moscow in 1950. Much less known is the fact that, in an official deposition by the Soviet government presented to the Chinese government in Peking on 13 June 1969, the Soviet Union put out a “claim” to almost one-quarter of the present territory of China, to “everything to the north of the Great Chinese Wall.”¹²⁵ Somehow this fact did not attract as much attention among Western scholars and journalists as did the Chinese

claims against Soviet territory.

In 1969 the Soviet leaders presumably decided against a pre-emptive nuclear attack on China, for it probably would not have resulted in a sure victory for the USSR. Thus conventional armed forces came back strongly into the Soviet strategic equation. The war with China, if it ever happens, would be a sort of "local war," fought mainly by the land forces and probably on both sides of the frontier.

In the most recent piece of writing on the present Soviet military strategy (1973), the chief of the USSR general staff, V. Kulikov, has informed his readers¹²⁶ that a "strategic attack" has been "approved" by the present Soviet military theorists as the "main and decisive type of operation for the Soviet army."¹²⁷ It is obvious that such an attack strategy is not defensive and that it can be aimed only at China, the Near and Middle East, and Western Europe.

Toward the United States, however, Soviet military strategy continues to be basically defensive. Yet it is noteworthy that, since Khrushchev's time, the view that both the United States and the USSR would perish if they plunge into a nuclear missile war is no longer present in the Soviet military literature. (In civilian literature and general propaganda it is still mentioned from time to time.) After Khrushchev was overthrown, the military proclaimed the viewpoint of "mutual suicide" as "defeatist."¹²⁸ Today's theory holds that if the USSR prepares well in advance, the nuclear missile war can be won.

Economic-Geographic Regionalization for Nuclear Defence

The Soviet assumption of the possibility of victory in a nuclear missiles war rests now on an elaborate nuclear defence preparedness strategy. This strategy assumes that, at the beginning of atomic war, the losses of the military economic potential may exceed one-half of the country's national income¹²⁹ and that the armed forces may lose six to eight times more of their total hardware than in the whole of the Second World War,¹³⁰ as well as 60 to 85 per cent of the aircraft, in the first two weeks. The defence against this is advance preparation for the evacuation of the urban population from the cities to prearranged shelters and camps in the countryside, at the distance of about 200 kilometres from the possible nuclear target areas. From there, it is assumed, it should take not more than four to five hours of travel for the workers to get back to the cities if need be—that is, if the cities were not completely destroyed. These measures should save up to 50 per cent of the manpower and population.¹³¹

As far as the military economic potential is concerned, the Soviet defence strategy takes the position that the most feasible defence is (1) to

produce and accumulate well in advance the maximum possible stockpile of weapons, raw materials, fuel, electric power generating capacity and such and to disperse these as widely as possible over the USSR territory; and (2) to prepare in advance for the ability to reconstruct the military power of the troops that would survive the enemy's strikes.¹³²

In more specific terms, the Soviet nuclear defence strategy conceives of two primary tasks that must be carried out in advance of the eventual war. The first task is to achieve a "geographic dispersion" of production facilities and stockpile sites in different "economic regions,"¹³³ particularly the dispersion of electric power facilities and of the "specialized and permanent (*kadrovoi*) war industries." This is to be achieved "through the correct territorial location of production facilities and the formation of the complex economic regions."¹³⁴ Presumably, if communications between the regions and between them and the capital were destroyed by the missile strikes, each region would still be able to function for a time independently of the rest of the country. A military-economic infrastructure, developed in advance of the war in every region, also should help them to survive as long as possible.

Thus, a clear link between the present economic regionalization of the USSR and its nuclear defence strategy is evident. Since the quoted references to the "economic regions" date from 1967-8, there can be little doubt that those are the eighteen macroregions. No other economic regions were in existence at that time.

The second major defence strategy task is the development of widespread transportation facilities. Since it is to be expected that the railroad junctions will be targets of missile strikes, other means of transportation should be developed.¹³⁵ These are water, particularly river transport, automotive and aircraft transport, and a "network of powerful pipelines carrying fuel and gas." The automobile, airplane and water transport also would maximize the mobility of troops and of military resources, such as launching pads for missiles.¹³⁶ All these and similar measures should insure that about 50 per cent of the military-economic capacity (in terms of national income) would be saved after about two weeks of a nuclear war.

Delimitation of the Military Districts

In addition to the economic macroregions, there also continue to exist in the USSR the administrative military macroregions, known as the "military districts" (*voienny okrug*). On the eve of the Second World War, the total number of these districts was 16 (one area was called a "front").¹³⁷ In 1946 there were 21 military districts in the USSR; 19 in

1955; in 1961, there were 17; and from 1962–9, there were 15.¹³⁸ Since 1969, there have been 16 military districts.¹³⁹

The boundaries of these military macroregions are a state secret. However, their names (see notes for Map 7), as well as the names of their commanders, often have been identified in the Soviet press and generally are known. Map 7 draws the 16 districts and is based on secondary sources; it must not be viewed as absolutely certain.¹⁴⁰ Its boundaries presumably reflect the post-1969, or the present, delimitation. The main assumption on which these boundaries were drawn is that, as before the Second World War, the military districts enclose and overlap with, the governmental administrative borders of the republics, oblasts and *kraii*, and not with some physical geographic landforms and natural terrain barriers. This assumption is justified by frequent statements in Soviet sources that the military districts are administrative units, and by the absence of statements to the contrary. It must be admitted that this is not entirely convincing evidence. Some significant strategic role probably is assigned to these districts, for otherwise why is there so much secrecy about their boundaries?

According to the latest (1971) definition, a military district is a “territorial unit of all branches of the armed forces (*territorialnoe obshchevoiskovoe obedinenie*) under one single commander, responsible directly to the minister of defence of the USSR.¹⁴¹ In an earlier (1960) definition, though still embracing all branches of the armed forces, the military district was called the “highest military administrative-territorial unit.”¹⁴² Absence of the term “highest” from the latest definition could imply that there still exist other military territorial delimitations (areas) for some specialized armed forces, such as those of the air defence command; but this is not certain.

In a teleological sense the purpose of a military district today is to unify the operational command of all military units (*chastei*) of all branches of the armed services located or deployed in the territory of the district, in both peace and war. Thus the strategic significance of the districts is obvious. In addition to operational tasks, the district command also exercises authority over the mobilization of the draftees in its territory, over military schools, and various other local military institutions; measures “connected with the preparation of the country for defence” are also under its jurisdiction.¹⁴³ However, the latter probably refers to the civil defence, and not to the planning and management of the defence industries located in the districts. The defence plants and factories certainly are planned and managed from Moscow. The governments of the union republics definitely have been deprived of such functions since 1965.¹⁴⁴ Whether the republic and/or oblast party committees possess supervisory powers over them, as they did earlier, is not known. Perhaps the district

MAP 7 Proposed Super-Regions for the Period, 1970-90



Note to Map 7

For obvious reasons, this map is merely the first approximation of its theme. The boundaries of the military regions may or may not be obsolete and/or somewhat inexact: no map of them has been published in the USSR since 1933. The names of the regions and their command seats are well known, however. They are (numbering is not official) as follows:

1. Moscow Military Okrug (Moscow)
2. Leningrad Military Okrug (Leningrad)
3. Baltic Military Okrug (Riga)
4. Belorussian Military Okrug (Minsk)
5. Kiev Military Okrug (Kiev)
6. Carpathian Military Okrug (Lviv)
7. Odessa Military Okrug (Odessa)
8. North Caucasian Military Okrug (Rostov)
9. Transcaucasian Military Okrug (Rostov)
10. Volga Military Okrug (Kuibyshev)
11. Ural Military Okrug (Sverdlovsk)
12. Siberian Military Okrug (Novosibirsk)
13. Trans-Baikal Military Okrug (Chita)
14. Far Eastern Military Okrug (Khabarovsk)
15. Central Asian Military Okrug (Alma-Ata)
16. Turkestan Military Okrug (Tashkent)

The Central Asian Military Okrug was first mentioned in 1969 (*Kazakhstanskaia pravda*, 2 November 1969). How it was carved out from the traditional Turkestan Okrug is particularly uncertain. "Groups" of troop units stationed abroad are four in Eastern Europe (in Hungary, Czechoslovakia, East Germany and Poland) and two or three in Mongolia. The location of heavy armaments industries mentioned on Map 6 is approximate and incomplete. It could be made more exact on the basis of indirect but positive identifications, but such precision was not deemed necessary for our purposes. The planning and management of armaments industries is not subordinated to the commands of the military regions; the relationship is only that of partial supply and demand. It is fair to assume that local defence plants probably supply local military commands to the maximum extent possible.

commanders have retained some measures of control over the arms industries in their districts, as they did before, but no evidence has been found to support this hypothesis either. However, if the present military districts also exercise command over the troops of the air defence protecting these industries, which is plausible, then there must be some direct rapport between the districts and the defence industries located on their territory.

The question is whether the sixteen military districts and the eighteen macroeconomic regions somehow are related functionally. The first to raise this question was Nikolai Galay in 1962. By simply comparing maps of districts that existed at that time, he concluded that the comparison "clearly shows the great extent to which considerations of military strategy determined the boundaries of the new enlarged economic regions, which on the whole coincide with those of the military districts."¹⁴⁵ Galay was writing under the fresh impression made by the enlargement of *sovnarkhozy* and sought an explanation for the delimitation of the macroregions. To compare them with the military districts was a logical thing to do.

Galay's conclusions that the new economic macroregions were related to the emerging new Soviet military strategy clearly is supported by the findings in this chapter, however circumstantial they may be. However, his conclusion that the boundaries of the macroregions and of the military districts "on the whole coincide" is unwarranted. Neither his maps of 1962, nor the comparison of Maps 5 and 7 warrant such a conclusion. The difference between the territories of the economic macroregions and of the military districts are too great. In terms of square kilometres, the two delimitations coincide by not more than 50 per cent.

It must be recalled, however, that this conclusion is based on the assumptions that boundaries of the military districts on Map 7 are accurate. There is no certainty about this. Perhaps they do coincide more closely with the boundaries of the economic macroregions. One important unknown is the question whether the Soviet air defence command has its own regionalization, for in view of its novel technological nature (missile defence) and the location of the sites it is called to defend, this regionalization could be different from that inherited by the military districts from the prewar times. But there is no answer to this question yet.

Notes

1. Compare, for example, E. Zaleski, *Planification de la croissance et fluctuations économique en U.R.S.S. (1918–1932)* (Paris: CEDES, 1962), 322–7; also D. Hodgman, *Soviet Industrial Production 1928–1951* (Cambridge, Mass.: Harvard University Press, 1954); N. Jasny, *Soviet Industrialization 1928–52* (Chicago: Chicago University Press, 1961).
2. *Resheniia partii i pravitelstva po khoziaistvennym voprosam* (Moscow, 1967–72), 1: 290; 3: 519; 5: 438. Compare also I. Yevenko, *Planning in the USSR* (Moscow, 19??), 65.
3. *Ekonomicheskaiia zhizn SSSR: Khronika sobytii i faktov 1917–1959* (Moscow, 1961), 241.
4. *Ibid.*, 608 and 762.
5. *Ukazaniia i formy k sostavleniiu narodno-khoziaistvennogo plana na 1936 god* (Moscow, 1935), 475.
6. *Ibid.*, 474.
7. *Planovoe khoziaistvo*, no. 5 (1973): 4.
8. *Piatiletanii plan narodno-khoziaistvennogo stroitelstva SSSR 3* (Moscow, 1929), and *Vtoroi piatiletnii plan razvitiia narodnogo khoziaistva SSSR (1933–1937 gg) 2* (Moscow, 1934).
9. *Resheniia partii i pravitelstva*, 2: 692–700.
10. *Ibid.*, 3: 289–319.
11. *Ibid.*, 715–38.
12. *KPSS v rezoliutsiakh i resheniakh siezdov, konferentsii i plenumov TsK* (Moscow, 1967–1972), 7: 169–79.
13. *Vneocherednoi XXI siezd KPSS: Stenograficheskii otchet* (Moscow, 1959), 2: 507–22.
14. *XXIII siezd KPSS: Stenograficheskii otchet* (Moscow, 1966), 2: 362–77.
15. *Gosudarstvennyi piatiletnii plan razvitiia narodnogo khoziaistva SSSR na 1971–1975 gody* (Moscow, 1972), 245–81.
16. Compare, for example, *Metodicheskie ukazaniia k sostavleniiu gosudarstvennogo plana razvitiia narodnogo khoziaistva SSSR* (Moscow, 1969); also *Ukazaniia i formy*.
17. *Gosudarstvennyi plan razvitiia narodnogo khoziaistva SSSR na 1941 god, Prilozhenie k postanovleniiu SNK SSSR i TsK VKP(b) No. 127 ot 17 ianvaria 1941 g. Ne podlezhyt oglasheniiu* (Baltimore, Md.: Universal Lithographers: American Council of Learned Societies Reprints, Russian Series no. 30).
18. *Gosudarstvennyi piatiletnii plan . . . na 1971–1975 gody*, 14.
19. *Statystychnye vyvchennia struktury kapitalnykh vkladov* (Kiev, 1970), 112. Compare also N. Jasny, "The Secret 1941 Uzbek Economic Plan," *Soviet Studies* 13, no. 4 (April 1962).

20. *Resheniia partii i pravitelstva*, 1: 290–2.
21. *Ibid.*, 291.
22. N. Jasny, "Soviet 'Perspective' Planning," in N. Jasny, *Essays on the Soviet Economy*, Series 1, no. 63 (Munich: Institute for the Study of the USSR, 1962), 187.
23. G. M. Sorokin, L. M. Volodarsky et al., *Shagi piatiletok* (Moscow, 1968), 14, 18.
24. *Ibid.*, 16, 25.
25. *Bibliografiia po voprosam razmeshcheniia i raionirovaniia promyshlennosti SSSR (1901–1957)* (Moscow, 1960).
26. *Resheniia partii i pravitelstva*, 1: 675.
27. *Piatiletanii plan 3*.
28. *Resheniia partii i pravitelstva*, 2: 202.
29. I. S. Koropec'kyj, *Location Problems in Soviet Industry Before World War II: The Case of the Ukraine* (Chapel Hill: University of North Carolina Press, 1971), 193 ff. Compare also V. Holubnychy, "Piatakov Iurii," in *Naukove tovarystvo im. Shevchenka, Entsyklopediia ukrainoznavstva* (Paris-New York: Vyd Molode zhyttia, 1973), 2/7: 2425; and Zaleski, *Planification de la croissance*, 151.
30. V. Holubnychy, "Spatial Efficiency in the Soviet Economy," in V. N. Bandera and Z. L. Melnyk, *The Soviet Economy in Regional Perspective* (New York: Praeger Publishers, 1973), 9–15.
31. Compare literature cited in Koropec'kyj, *Location Problems*, and Holubnychy, "Spatial Efficiency."
32. *Resheniia partii i pravitelstva*, 2: 202.
33. I. V. Stalin, *Sochineniia* (Moscow, 1951), 13: 307, 316.
34. A. P. Dubnov, A. A. Kin and B. P. Orlov, "Programno-tselevoi podkhod k osvoeniiu novykh territorii," *Izvestiia Sibirskogo otdeleniia Akademii nauk SSSR: Seriiia obshchestvennykh nauk* (Novosibirsk) 1, no. 1 (1972): 81.
35. T. T. Mustafin, *Diatelnost KPSS po sozdaniiu tretei ugolnoi bazy SSSR (1930–1940)* (Moscow, 1962), 10, 22.
36. *Ekonomicheskaiia zhizn SSSR*, 306.
37. *Resheniia partii i pravitelstva*, 2: 457.
38. *Ibid.*, 457.
39. *Vtoroi piatiletnii plan razvitiia narodnogo khoziaistva SSSR*, 1: 5.
40. *Ukazaniia i formy*, 338.
41. *Ekonomicheskaiia zhizn SSSR*, 38.
42. *Resheniia partii i pravitelstva*, 2: 693.
43. *Ibid.*, 681, 693–7.
44. *Gosudarstvennyi plan razvitiia . . . na 1941 god*, 649 ff.
45. This does not mean that Soviet economic geographers were not busy in their work. For example, I. G. Aleksandrov, N. N. Kolosovsky, V. S. Nemchinov and a dozen other leaders in the field published important theoretical pieces, but they were usually not accepted by the party and government as official. Compare, for example, N. N. Kolosovsky, *Teoriia ekonomicheskogo*

- raionirovaniia* (Moscow, 1969), 96–102, 129–31.
46. Compare, for example, P. I. Liashchenko, *Istoriia narodnogo khoziaistva SSR* (Moscow, 1956), 3: 502. Liashchenko's addition of "economic regions" to the union republics in goal (4) is of postwar origin.
 47. *Ibid.*, 504; I. S. Koropec'kiy, "The Development of Soviet Location Theory before the Second World War," *Soviet Studies* (July and October 1967); V. Holubnychy, "Some Economic Aspects of Relations Among the Soviet Republics," in E. Goldhagen, ed., *Ethnic Minorities in the Soviet Union* (New York: Praeger Publishers, 1968); also V. N. Bandera and Z. L. Melnyk, eds., *Soviet Economy in Regional Perspective*.
 48. *Resheniia partii i pravitelstva*, 2: 457.
 49. *Ibid.*, 221.
 50. A. Erlich, *The Soviet Industrialization Debate, 1924–1928* (Cambridge, Mass.: Harvard University Press, 1960), 28, 51, 167–8.
 51. P. V. Sokolov, ed., *Voiенно-ekonomicheskie voprosy v kurse politekonomii* (Moscow, 1968), 194–6, 246.
 52. *50 let vooruzhennykh sil SSSR* (Moscow, 1968), 197. Compare also *Istoriia Kommunisticheskoi Partii Sovetskogo Soiuza* (Moscow, 1971), 4, Book 2: 397–9.
 53. M. N. Tukhachevsky, *Izbrannye proizvedeniia* (Moscow, 1964), 1: 12–20.
 54. *Ibid.*, 257–9.
 55. *Ibid.*, 250–1.
 56. *Ibid.*, 2: 191–2.
 57. *Resheniia partii i pravitelstva*, 2: 454, 462.
 58. M. Garder, *Histoire de l'armée soviétique* (Paris: Plon, 1959), 108, 126, 130.
 59. *Eshelony idut na vostok* (Moscow, 1966), 37. Compare also *KPSS v rezoliutsiakh i resheniakh*, 5: 423, 463.
 60. *Resheniia partii i pravitelstva*, 3: 35.
 61. N. Voznesensky, *Voiennaia ekonomika SSSR v period otechestvennoi voiny* (Moscow, 1948), 38–40.
 62. Holubnychy, "Spatial Efficiency in the Soviet Economy."
 63. R. S. Livshits, *Ocherki po razmeshcheniiu promyshlennosti SSSR* (Moscow, 1954), 4–5.
 64. Comité du Plan d'Etat du Conseil des Ministres de l'URSS, "Données comptables et indicateurs destiné à servir de base au projet de plan perspectif de développement de l'économie nationale de l'URSS pour les années 1959–1965." (Moscow: 1957), *Cahiers de l'Institut de Science Economique Appliquée* (Paris), no. 107, supplement, série G, no. 10 (November 1960).
 65. *Ibid.*, 194–7.
 66. *Resheniia partii i pravitelstva*, 3: 289 ff., 715 ff.; *KPSS v rezoliutsiakh*, 7: 166 ff.; *Vneocherednoi XXI siezd KPSS*, 2: 507 ff.
 67. *Narodnoe khoziaistvo SSSR v 1956 godu: Statisticheskii iezhegodnik* (Moscow, 1957), 69 ff.
 68. *Narodnoe khoziaistvo RSFSR: Statisticheskii sbornik* (Moscow, 1957), 11–42.

69. *Narodnoe khoziaistvo SSSR v 1958 godu*, 458 ff. Similarly, *Narodnoe khoziaistvo SSSR v. 1959 godu*, 224 ff.
70. *Ibid.*, 259.
71. *Narodnoe khoziaistvo RSFSR v 1961 godu*, 24–67.
72. *Narodnoe khoziaistvo SSSR v 1960 godu*, 259 ff.
73. Comité du Plan d'Etat, 194–7.
74. *Narodnoe khoziaistvo SSSR v 1961 godu: Statisticheskii iezhegodnik* (Moscow, 1962), 122, 132.
75. *Ibid.*, 59 ff. Compare also *Narodnoe khoziaistvo SSSR v 1964 godu*, 129; *Narodnoe khoziaistvo SSSR v 1965 godu*, 128 ff.
76. *Ekonomicheskie raiony SSSR* (Moscow, 1965), 3, 18–20, and map on 22.
77. Compare, for example, *Narodnoe khoziaistvo SSSR v 1965 godu: Statisticheskii iezhegodnik*, 128.
78. P. Lomako, "Sovety po koordinatsii i planirovaniuu pristupili k rabote" *Pravda*, 28 February 1962.
79. *Metodicheskie ukazaniia*, 672–5.
80. A. Shulman, "Problemy tsentralizovannogo i territorialnogo planirovaniia," *Planovoe khoziaistvo*, no. 5 (May 1967): 18: 27. The whole subject of inadequacy of Soviet territorial and regional planning also is discussed aptly in a Polish monograph: J. Pawlik, *Galeziowy i terytorialny system zarzadzania przemyslem i budownictwem w ZSRR* (Krakow, 1968), 144–8.
81. *Metodicheskie ukazaniie*, 673.
82. *Gosudarstvennyi piatiletnii plan . . . na 1971–1975 gody*, 253–61.
83. Compare, for example, *SSSR i soiuznye respubliki: Soobshcheniia TsSU SSSR i TsSU soiuznykh respublik ob itogakh vypolneniia gosudarstvennogo plana razvitiia narodnogo khoziaistva v 1971 godu* (Moscow, 1972).
84. Similar statistical description of the macroregions, dating to the years 1960–1, is found in *Dimensions of Soviet Economic Power*, Hearings, Together with the Compilation of Studies Prepared for the Joint Economic Committee, Congress of the United States, 87th Cong., 2d sess. (Washington, D.C., 1962), 705–32. It is not reproduced here as it is easily accessible.
85. The co-efficients of geographic association were derived as follows. Percentage shares of each of the eighteen regions were computed from the absolute totals of each of the four variables. Next, differences (plus or minus) were computed for each pair of corresponding shares; sums of the positive and negative differences were found for each of the four variables. Then these sums were subtracted from 100, and what came out was converted to index numbers. If the percentage distributions of two variables were identical, the co-efficient of association would be one. The greater the difference between the corresponding pairs of percentage shares, the closer the co-efficients would come to zero, indicating lack of association. Needless to say, these co-efficients are a crude measure. If more statistical series were available, indexes of concentration could be computed; and they would be more interesting.

86. Very good transportation maps, with traffic weight scales, are found in M. I. Galitskii, S. K. Danilov and A. I. Korneiev, *Ekonomicheskaiia geografiia transporta SSSR* (Moscow, 1965).
87. *Ibid.*, 178 ff.
88. Compare H. Hunter, *Soviet Transportation Experience* (Washington: Brookings Institution, 1968).
89. *Transport i sviaz SSSR: Statisticheskii sbornik* (Moscow, 1972), 128.
90. *Bolshaia sovetskaia entsiklopediia* (Moscow, 1972), 9: 133, 139-40.
91. Galitsky et al., 69.
92. *Transport i sviaz*, 173.
93. *Narodnoe khoziaistvo RSFSR v 1971 godu: Statisticheskii iezhegodnik* (Moscow, 1972), 273.
94. L. Volodarsky, "Statistika i ekonomicheskaiia teoriia," *Voprosy ekonomiki* (Moscow), no. 6 (June 1974): 12.
95. V. Pavlenko, "Territorialny aspekt dolgosrochnogo plana," *Planovoe khoziaistvo*, no. 5 (May 1973): 11.
96. Holubnychy, in Bandera and Melnyk, eds., *Soviet Economy in Regional Perspective*.
97. Pavlenko, "Territorialnyi aspekt dolgosrochnogo plana," 11.
98. *Ibid.*
99. D. I. Shashko, *Agroklimaticheskoe raionirovanie SSSR* (Moscow, 1967), 222-5.
100. *Metodicheskie rekomendatsii po raschetam effektivnosti kapitalnykh vlozhenii pri razrabotke otraslevogo plana kapitalnogo stroitelstva* (Moscow, 1967).
101. B. Lewytzkyj, *Die Marschalle und die Politik: Eine Untersuchung ueber den Stellenwert des Militaers innerhalb des sowjetischen Systems seit dem Sturz Chruschtschews* (Cologne: Markus Verlag, 1971), 63.
102. R. L. Garthoff, "Khrushchev and the Military," in A. Dallin and A. F. Westin, eds., *Politics in the Soviet Union* (New York: Harcourt, Brace and World, 1966), 255.
103. R. G. Head, E. J. Rokke, and R. F. Rosser, eds., *American Defense Policy* (Baltimore: Johns Hopkins Press, 1973), 452-3, 647.
104. Sokolov, ed., *Voiенno-ekonomicheskii voprosy v kurse politekonomii*, 212. (Emphasis added.)
105. Head et al., *American Defense Policy*, 109.
106. *50 let vooruzhennykh sil SSSR*, 502.
107. Head et al., *American Defense Policy*, 113.
108. *Ibid.*, 476-8.
109. H. F. York, "Military Technology and National Security," *Scientific American* 221, no. 2 (August 1969): 10.
110. K. G. Kotlukov, K. S. Ogloblin and A. I. Sgilevsky, *Ot MPVO-k grazhdanskoi oborone* (Moscow, 1968), 62.
111. I. E. Chadaiev, *Ekonomika SSSR v period Velikoi otechestvennoi voiny* (Moscow, 1965), 59.

112. *Plenum Tsentralnogo Komiteta KPSS, 24–29.VI.1959 g. Stenograficheskii otchet* (Moscow, 1959) 696–7.
113. Lewytskyj, *Die Marschaele und die Politik*, 17–19.
114. *Ibid.*
115. V. D. Sokolovsky, ed., *Voiennaia strategiia* (Moscow, 1963).
116. *Ibid.*, 233, 251–2, 256, 260.
117. *Ibid.*, 261.
118. *XXII siezd KPSS, 17–31.X.1961 g. Stenograficheskii otchet* (Moscow, 1962), 2, 112.
119. *50 let vooruzhennykh sil SSSR*, 503.
120. Iu. Vlasevich, “Sovremennaia voina i ekonomika,” *Kommunist vooruzhennykh sil* (Moscow), no. 12 (July 1967): 30.
121. Kotlukov et al., *Ot MPVO-k grazhdanskoi oborone*, 66.
122. L. Brezhnev, *Dokladi, rechi i statii* (Sofia, 1969), 1: 651–2. (This is a Bulgarian edition of Brezhnev’s paper. The Russian edition, which came out later, does not contain this speech.)
123. Head et al. *American Defense Policy*, 285 and *passim*.
124. *Politicheskii dnevnik 1964–1970* (Amsterdam: Fond im. Gertsena, 1972), 630 ff.
125. “Lieh-ning chu-i, hai-shih she-hiu-ti-kuo chu-i: Chi-nien wei-ta Lieh-ning tan-sheng i-pai chou-nien” (Leninism or Social Imperialism: Remember Great Lenin’s Hundredth Anniversary), *Hung Ch’i* (Red Flag) (Peking), no. 5 (1970): 16. [I am grateful to Lydia Holubnychy for helping me to use this Chinese primary source. However, the same documentation is also found in Russian, in the supplement to the Peking monthly *Kitai na stroike* (April 1970): 11, 15.]
126. V. Kulikov, “Sovetskie vooruzhennye sily i voiennaia nauka” *Kommunist* (Moscow), no. 3 (February 1973): 83.
127. In addition to the army, which consists of the land (ground) forces, as described, the Soviet armed forces have had four other “branches” since 1961. They are the navy, which includes marines; the air force, which comprises only the strategic, long-range aircraft, bombers and interceptors; the strategic rocket forces, which manage only the intercontinental ballistic missiles and the space vehicles; and the air defence command, which manages all the homeland defences of both the economy and the home-based military bases.
128. Lewytskyj, *Die Marschaele und die Politik*, 23.
129. Sokolov, ed., *Voiенно-ekonomicheskie voprosy v kurse politekonomii*, 203.
130. V. I. Chuikov, *Grazhdanskaia oborona v raketnoiadernoi voine* (Moscow, 1968), 22.
131. N. I. Akimov and V. G. Iliin, *Grazhdanskaia oborona na obiektakh selskokhoziaistvennogo proizvodstva* (Moscow, 1973), 141–3.
132. Kulikov, “Sovetskie vooruzhennye sily,” 86.
133. Vlasevich, “Sovremennaia voina i ekonomika,” 32.
134. Sokolov, ed., *Voiенно-ekonomicheskie voprosy v kurse politekonomii*, 211–2, 221.

135. Chuikov, *Grazhdanskaia oborona v raketnoiadernoi voine*, 24–5.
136. Vlasevich, “Sovremennaia voina i ekonomika,” 32–3. See also N. I. Sushko and T. P. Kondratkov, eds., *Metodologicheskie problemy voiennoi teorii i praktiki* (Moscow, 1966), 299–300.
137. *Bolshaia sovetskaia entsikopediia*, 5: 248.
138. N. Galay, “The Economic and Military Division of the USSR,” *Bulletin* (Institute for the Study of the USSR, Munich) 9, no. 12 (December 1962): 31; N. Galay, “The Soviet Armed Forces and the Twenty-Second Party Congress,” *Bulletin* 9, no. 1 (January 1962): 9; E. K. Keefe et al., *Area Handbook for the Soviet Union* (Washington, D.C.: Government Printing Office, 1971), 584.
139. Lewytzkij, *Die Marschaelle und die Politik*, 59.
140. *Ibid.*; and Galay, “The Economic and Military Division of the USSR.”
141. *Bolshaia sovetskaia entsiklopediia*, 5: 248. On the fact that the term “*obshchevoiskovoe*” means “of all the branches of armed forces,” see, for example, S. I. Ozhegov, *Slovar russkogo iazyka* (Moscow, 1953), 392.
142. *Ukrainska radianska entsykopediia* (Kiev, 1960), 2: 448.
143. *Bolshaia sovetskaia entsiklopediia*, 5; 248.
144. Compare *Metodicheskie ukazaniia*, 673.
145. Galay, “The Economic and Military Division of the USSR,” 30.

6. The Present State of Cybernetics and Republic-Level Economic Planning

I. The State of Theoretical Cybernetics

1. The Beginnings

Cybernetics began to develop in Ukraine a bit earlier than in the rest of the Soviet Union. The year 1947 is given as its birthdate, which is ten to twelve years behind its beginnings in the West. The main stimulus came from practical needs of military defence¹ and the confluence of theoretical automatics and mathematics,² both of which had long and successful development in Ukraine in the past. Theoretical cybernetics began as an attempt at designing, during 1947–50 of an analogue machine for combinatorial modelling and automatic solution of linear equations up to the eighth degree. Such a machine was built at a laboratory of the Electrotechnical Institute of the Ukrainian Academy of Sciences under academician S. O. Lebedev. This laboratory then became specialized in discrete computer technology, and later, in 1957, was upgraded into the Computer Centre, and finally, in 1961, into the Institute of Cybernetics of the Academy.³

In 1949–51, in the Lebedev laboratory, they built the first electronic-tube-mini-computer “MESM,” which is claimed to be not only the first computer in the USSR, but also in continental Europe.⁴ It was an experimental machine, designed for testing the theories of computation and of building such machines. It served as such for the construction, in 1952, of the first Soviet large-scale “BESM” computer (with 4,000 tubes) at the Moscow Institute of Precision Mechanics of the Academy of Sciences of the USSR.⁵ All six series of the “BESM” that have been built so far were used mostly for military defence and space research purposes. They were practically hand-made, cumbersome and relatively slow, but served their purpose well. “BESM-6” was considered in the West as comparable with all but the most powerful American machines for a while.⁶

Until the end of 1957 relatively little was conspicuous about cybernetics in Ukraine, perhaps because all its efforts were in the service of the military. More conspicuous were the Computer Centres in Moscow (established in 1955) and Tbilisi, Georgia (1955). Then, in December 1957, a Computer Centre of the Ukrainian Academy of Sciences was created with V. M. Hlushkov at the head, and various branches of cybernetics began to bloom in the open. The Computer Centre served not only the various institutes of the academy, but also directed the designing of new computers and trained personnel in its *aspirantura*. New machines were developed: a universal computer, “Kiev,” in 1959 (its second version was installed at the nuclear research centre at Dubna);⁷ the specialized medium scale “SESM”; the quasi analogue computer “EMSS-7,” which was later produced serially, etc.⁸

The emphasis in designing was put, however, not on data processing computers and peripheral equipment, as was the case in the West, but on computers suitable only for scientific and engineering research and for control of technological processes. “Kiev” was used, for example, for control of steel casting via telegraph. At the time this was a common policy for the whole USSR and also the main reason why the USSR had been lagging so far behind the West in the uses of computers in economic planning and business management.⁹

The first broad decision on development and production of “experimental models” of computers and systems “for automation of production processes” in the USSR was the decree of the USSR Council of Ministers of 5 April 1962.¹⁰ It obligated the Council of Ministers of the RSFSR, Ukraine, Belorussia, Georgia and Azerbaidzhan, as well as ten USSR state committees and ministries, to carry out appropriate research, development and production work during 1962–5. The USSR State Committee for radio-electronics was made responsible for the quality of electronic computers. A large number of ministries and state committees were instructed to organize laboratories for mathematical description of

their production and technological processes. Scientific research institutes for this purpose were established in Perm and Tbilisi, while in Ukraine construction of an electronic computer plant was decreed to be carried out during 1962–4 in Kiev. Ukraine was also to produce the magnetic tapes and ferroink for the computers.¹¹

However, all these measures still had nothing to do with the application of computers for planning and economic management. Mathematical economics as a science was still struggling for recognition, which came only—and that only partially—as late as 1964, when the Lenin Prize was bestowed upon the three musketeers of mathematical economics, V. S. Nemchinov, L. V. Kantorovich and V. V. Novozhilov.

In Ukraine theoretical economic cybernetics dates from 1960,¹² when it began to develop at the Academy of Sciences under V. S. Mykhalevych. Its scope had the following three subdivisions: (1) theory of economic systems and models, including econometric information and semiotics, including analysis of decision processes; and (3) theory of economic controls and management.¹³ However, publications in the field of economic cybernetics did not come to full bloom until 1965 when the bi-monthly journal *Kibernetika* (in Russian) appeared under the editorship of V. M. Hlushkov. This journal is translated into English in the United States.¹⁴ Since then Kiev has become the centre of the Soviet Union's theoretical cybernetics.

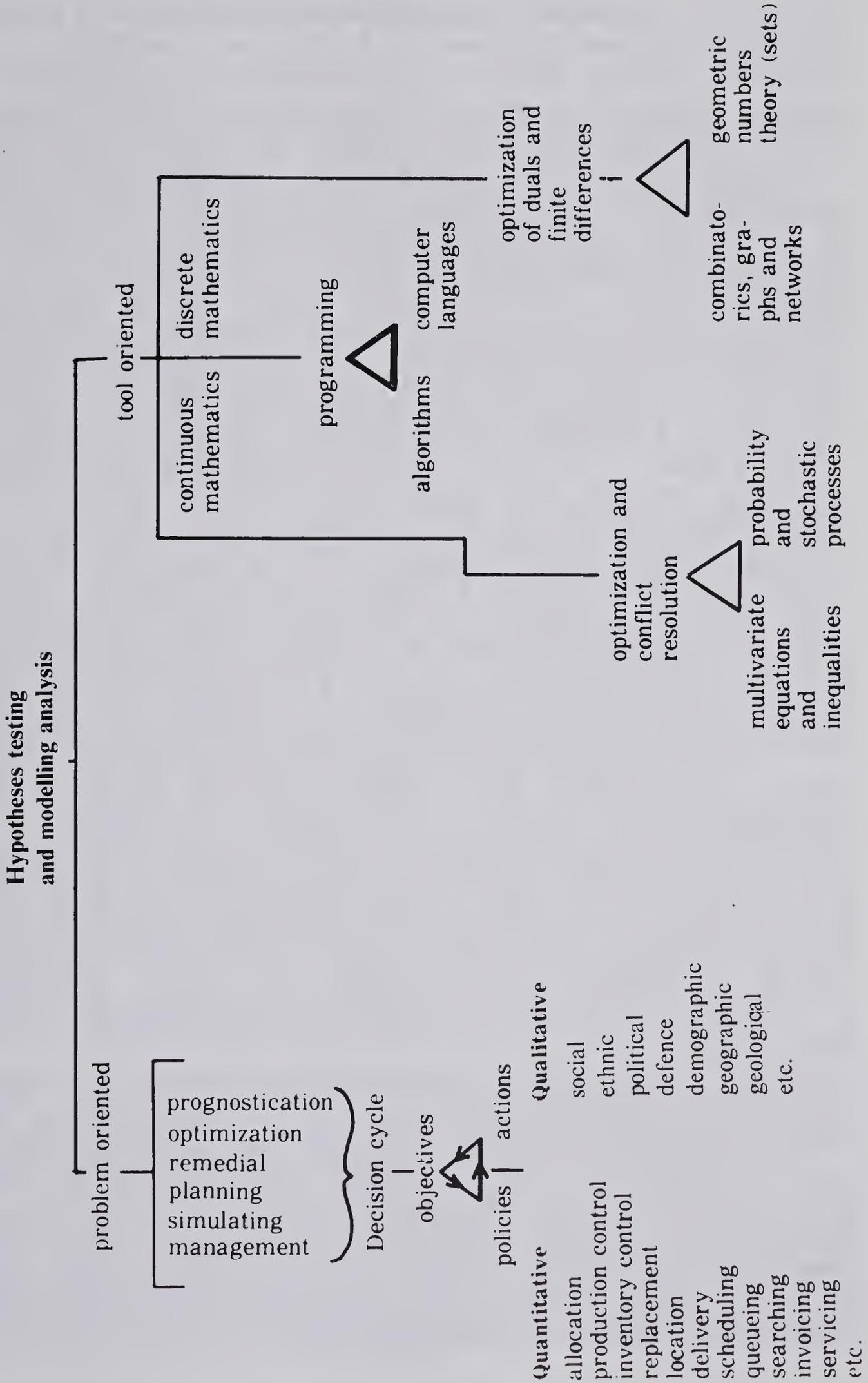
The Institute of Cybernetics of the Academy of Sciences of the Ukrainian SSR was created in 1961. By the end of 1966 it had already thirty-two departments, grouped into four sectors: (1) theoretical cybernetics and computational methods, headed by V. M. Hlushkov, who is also the institute's director; (2) specialized computer technology and technical cybernetics, headed by G. Ie. Pukhov; (3) economic cybernetics and systems techniques, headed by V. S. Mykhalevych; and (4) biological cybernetics, headed by M. M. Amosov.¹⁵

2. The Scope and Structure of Theoretical Economic Cybernetics

On the basis of research papers that have been published in *Kibernetika* and in other publications of the Ukrainian Academy of Sciences,¹⁶ the scope and structure of economic cybernetics is described in Figure 1. It compares well with similar data about Western cybernetics, and is certainly at the world level.¹⁷

Some titles selected from *Kibernetika* more or less at random may also illustrate what really exciting topics have been under discussion. For example: I. I. Ieremin, "On Convex Programming Problems with Inconsistent

FIGURE 1. THE TYPES OF RESEARCH DONE BY ECONOMIC CYBERNETICS



Constraints”; U. I. Rizhikov, “On a Store Control Problem with Demand Distribution Parameter Unknown”; V. L. Makarov, “One Model of the Concurrent Economic Balance”—with reference to the Arrow-Debreu model; I. A. Krass, I. A. Poletaev, “Co-operation in Leontief’s Models”; B. N. Pshenichny “A Dual Method in Extremal Problems”; L. D. Driuchenko, V. V. Ivanov, V. E. Truten, “Reducing the Long-Term prediction Problem to the Problems of Linear Integer Programming”; M. S. Nikolsky, “One Non-Linear Pursuit Problem”; N. N. Moiseev, “Hierarchical Structures and Game Theory”; G. Ts. Dziubenko, “Linear Differential Games with Information Delay”; A. M. Andronov, “Single-Server Bulk-Servicing System with Finite Number of Demands”; I. A. Zak, “Models and Methods of Constructing Compromised Plans in Problems of Mathematical Programming with Several Objective Functions”; A. I. Iastremsky, “Some Properties of Stochastic Analogue of Leontief’s Model”; A. B. Pevny, “Speed of Convergence of Some Methods of Finding Minimax and Saddle Points”; V. M. Hlushkov, “On Prognostication Based on Expert Estimates”; F. L. Chernousko, “On Weighting Factors in Expert Estimates”; X.(sic) B. Tupchienko, “Optimal Control of Poisson Process”; V. I. Zhukovsky, “On the Differential Game Theory with Integral Payoff”; V. A. Iemelichev, “Discrete Optimization: Sequential Schemes of Solution”; S. G. Antimonov, “Problems of Optimal Management for Economic Co-operation”; A. A. Chikrii, “On One Class of Linear Discrete Games of Quality”; M. I. Vaitsman, A. G. Shmidt, “The Principle of Maximum for Discrete Economic Processes Over the Infinite Time Interval”; B. G. Mirkin, “On One Axiom of the Mathematical Utility Theory”; Iu. M. Iermoliev, V. P. Gulenko, “The Finite Difference Method in Optimal Control Problems”; D. I. Golenko, N. A. Levin, “Some Questions of Optimization of Many-Topic Investigations in Network PERT and Control PERT with Reference to Several Resources”; V. S. Mykhalevych, “The Method of Sequential Analysis of variants for Determination of Optimal Solutions”; V. V. Shkurba, “Computational Schemes for Solving Scheduling Theory Problems”; etc.

In fact it is difficult to find a topic that has been discussed in the world mathematical economics which has not been at least touched upon by the Ukrainian economic cyberneticists.¹⁸ However, one detrimental thing is clearly noticeable: the work of economic cybernetics has not been practice-oriented. It has been highly abstract, quite remote from practical application in the everyday business of a computerized economy. The probable reason is, of course, that that economy has not been computerized yet. Moreover, as yet they do not seem to have found a system of evaluation of the usefulness of their own research work.¹⁹

II. The State of Computer Technology

1. *Designing of the machines*

Computers are classified into "generations" as follows: the first generation used vacuum tubes; the second used transistors; the third relies on miniature integrated circuitry; and the fourth uses pipeline processing.

The second generation of computers was introduced in the USSR when in 1961 the Institute of Cybernetics of the Ukrainian Academy built the first fully transistorized machine called "Dnipro."²⁰ In the United States the second generation came into being in 1958. Since 1962 the "Dnipro" has been produced serially and in quantities that presumably permitted the USSR to outproduce "some capitalist countries"²¹ at least for a while. The "Dnipro" has been used mainly to control technological and production processes in metallurgy, shipbuilding and chemical industries.²² The "Dnipro" is a medium-size computer.

Next in the second generation came two Institute of Cybernetics' mini-computers called "Promin" (1962) and "Mir" (1964).²³ They are serially produced at the second Ukrainian computer plant at Severodonetsk, and are used in engineering designing work.²⁴ These two computers were the only ones in the whole USSR awarded the sign of state standard (GOST) as of 1 January 1972.²⁵ The GOST is awarded only to such products that are adjudged to be on the world technological level. This means that all other Soviet computers, by recognition of Soviet authorities, were not up to the world standards by that date.

Ivan Berenyi has estimated that by 1970, in the USSR and Eastern Europe fewer than 5 per cent were computers of the third generation, whereas some 35 to 38 per cent were still the first-generation machines, the rest being of the second generation. In the U. S. and Western Europe at the same time, 60 to 80 per cent of the computers belonged to the third generation, the remainder being of the second generation.²⁶ Berenyi's Soviet data may have been somewhat overstated, especially in view of the above-mentioned GOST qualifications. The 5 per cent third-generation computers were probably imported into the USSR, rather than produced there, because one of the first calls for the development of third-generation computers stems from August 1971,²⁷ and the first Soviet-produced third generation computers were exhibited in Moscow only in May 1973.²⁸

An American estimate of 1966 stated that "the USSR lags about five years behind the United States in the use of computers for data processing."²⁹ This was said at the time of the second-generation computers. Our data quoted above indicate that (not in data processing, but in the technological process control) the gap was actually only three years. Later,

however, that gap substantially increased, as the switch was made (in the West) to the third generation. Today's estimate by R.C. Seamans, Jr., president of the U.S. National Academy of Engineering, is that the USSR has computers "still not as advanced as the equipment that we were using 10 years ago."³⁰ Fourth-generation computerization is now in full swing in the United States and Western Europe, whereas in the USSR it is still in the design stage.³¹

The main reason the USSR has bogged down at the switch to the third generation seems not to have been the lack of knowledge of integrated circuitry. According to Berenyi, between 1969 and 1972 the USSR placed order for importation of fifteen third-generation computers from the United Kingdom, France, Italy and West Germany.³² Presumably, the orders were filled. Also, the IBM Trade Corporation, after first refusing the Soviet order for the 360/40 model agreed to sell it the 360/50 model.³³ Lately also, the Monsanto Company of the U.S.,³⁴ the Control Data Corporation,³⁵ and the Sperry-Rand Corporation³⁶ entered into agreements with the USSR to supply it with advanced computer technology. It may be that the Western export controls only slowed down somewhat the acquisition of third-generation technology by the Soviet Union.

The main reason for Soviet slowness seems to have been the different directions that the development and application of the second and third-generation computers took from the beginning in the USSR and in the West. In the West, particularly the United States, huge demand for the data processing computers has arisen in the economy. Computers came to be applied in almost every phase of business activity from market research to accounting and record-keeping. There was no such demand in the USSR, where computers were mainly used in scientific and engineering research and for control of production processes. This is particularly evident from the fact that Soviet computers usually lacked high operational speeds, large internal and external memory systems, input-output peripheral equipment, and similar things that characterize data processing computers and not computers of other purposes.³⁷ The USSR has also had little experience in the linking of computer systems and in telecommunications.³⁸

2. Production and installation

Soviet statistics on production and installation of computers undoubtedly belong to the category of "state secrets." They have been officially divulged in a very confusing aggregate form, first as the total ruble production figures of "automation instruments, computing technology and spare parts" (*pribory, sredstva avtomatizatsii i vychislitelnoi tekhniki*),

and recently as those of the “means of computing technology and spare parts” (*sredstva vychislitelnoi tekhniki*). But what is “computing technology” (*vychislitelnaia tekhnika*)? According to one authoritative source, it includes not only computers, but also the calculators, adding machines, logarithmic rules, and abacuses!³⁹ Whether the statistical definition of “computing technology” is the same is not known, but it cannot be excluded, because according to one official statistical handbook “computing technology” was being produced in the USSR in 1940.⁴⁰

The latest figures on production of “computing technology and spare parts” in the USSR and the RSFSR (in million rubles of 1967 prices) has been divulged as follows:⁴¹

	USSR	RSFSR
1967	260.8	n.d.
1970	709.7	372.0
1971	879.4	459.0
1972	1213.5	633.0

This means that between 1967 and 1972 production of “computing technology” grew in the USSR at an annual rate of 36 per cent! This is quite an impressive showing, especially if one takes into account the American estimate that between 1958 and 1965 the rate of growth was only 29.3 per cent, as compared to 21.3 per cent at the same time for the United States.⁴²

For the Ukrainian SSR official production figures for the “computing technology and spare parts” (apart from “instruments of automation”) have been divulged only for 1972 and 1973. The report on the fulfillment of the 1973 plan stated that the output in 1973 was 232 million rubles and that this was 122 per cent of 1972.⁴³ This is, however, probably not in the 1967, but in the 1972 prices, which makes the figures not comparable with those of the USSR and the RSFSR.⁴⁴

Together with the “instruments of automation,” production of “computing technology and spare parts” was distributed in 1971 as indicated in the table below.⁴⁵ This territorial distribution probably reflects production of computers in the republics today, except that the share of the RSFSR, as the figures quoted above show, may be smaller—only about 52 per cent of the USSR (in 1967 prices).

Can the ruble production figures of “computing technology and spare parts” be somehow translated into absolute numbers of computers produced? An experiment in this can be made with the help of the official figures on the exports of “electronic computers and parts.” It has been reported that in 1968 the USSR exported 16 complete computers at an

	Million rubles	Per cent of the USSR
USSR	3,487	100.0
RSFSR	2,089	59.9
Ukraine	717	20.6
Belorussia	318	9.1
Armenia	66	1.9

average price of 462,375 rubles apiece;⁴⁶ and in 1969—28 computers at 499,965 rubles apiece.⁴⁷ Assuming that these export prices were not too different from the constant 1967 prices, by dividing the ruble production figures by these average prices, we obtain the following approximate figures on production of some “average” computers in the USSR:

1967	542
1970	1,475
1971	1,828
1972	2,522

It is also known that the USSR imported during 1970, 1971 and 1972, 26, 32 and 22 complete computers respectively.⁴⁸ Assuming an autarkic foreign trade policy with regard to computers especially, and that foreign trade amounted to from 1 to 5 per cent of production at home, the above foreign trade data suggest that the USSR's production level between 1968 and 1972 was about 550—2,750 computers a year. This finding seems to square with the above. (Ukraine's part in the USSR's production should be about 20 per cent.)

These calculations may be compared with other Western estimates of Soviet production of computers. Without showing how the figures were arrived at, they assumed production level for the end of the 1960s to be around 1,000 computers a year,⁴⁹ and for the year 1970—2,000.⁵⁰

The installed park of computers in the USSR was estimated to be 5,500 as of January 1970⁵¹ and 6,000 as of 1970,⁵² of which 3,500 were operating in the economy.⁵³ It is also not known how these figures were arrived at. Computers “in the economy” presumably exclude not only those used by the military, but also those used in scientific establishments. The number of military computers is probably not known at all, and is excluded altogether.

On the latter assumption, these figures can be cross-checked against the following data. Ie. Sokolsky, the chief of administration of computer

projects at the Central Statistical Administration of the Ukrainian SSR reported that “close to 800 various computers were used in the national economy” of the Ukrainian republic in January 1972.⁵⁴ Assuming that this is 19 to 20 per cent of the whole USSR (for example, the number of employees in planning and record-keeping in Ukraine in the 1970 census was 19.3 per cent of the USSR),⁵⁵ the total computer population in the whole Soviet Union should have been 4,000—4,210 on the same date. Thus Western estimates of the number of Soviet computers “in the economy” seem to be verified.

It may also be worth noting that at the time of the national debate, in 1966, over the installation of the proposed network of computer centres in the Central Statistical Administration of the USSR (of which more below), Academician A. Dorodnitsyn had estimated that more than 4,000 medium to large-size computers would be required to put such a network to work.⁵⁶ The goal was 1970 and skepticism was expressed whether this would be possible to achieve.⁵⁷ It seems now that by 1972 they might have achieved this goal, but by small-size computers. The number of large-size computers still seems to be small because, according to the Soviet Ukrainian press, their number in the economy of the republic at the beginning of 1969 was only 84.⁵⁸

To estimate the relative level of development of computerization of the Soviet economy, it is necessary to compare the Soviet park of computers with those of other countries. Computer statistics in the United States and in the United Kingdom are imprecise because there are too many computers; the markets for mini-computers, especially, are presently flooded. In 1970 it was estimated that there were 70,000 computers in operation in the United States, with 18,000 additionally installed per year.⁵⁹ In the United Kingdom in 1972 there were an estimated 8,000 computers in operation, specifically excluding small computers.⁶⁰ Assuming that, in 1972, the USSR had 4,000 of them in its economy, Ukraine 800, the following table illustrates their relative standing.⁶¹ On the per capita basis the table makes it obvious that the Soviet Union still ranks among the underdeveloped economies with regards to computerization—on a level with Brazil and Mexico. Even Spain and Yugoslavia are well ahead of it.

These data relate explicitly to the uses of computers in the economy. If, however, one objected that some of the computers in the USSR for scientific research cannot be clearly distinguished from their uses in the economy, still nothing would change significantly in these conclusions, even if the the number of Soviet computers were doubled.

	Total number of computers in the economy	Number of computers per one million of the population
West Germany	46,078	743
France	16,348	327
Japan	12,809	121
Netherlands	5,219	389
Italy	4,620	85
USSR	4,000	16
Spain	3,700	107
Switzerland	2,500	397
Sweden	2,020	245
Australia	1,594	123
Brazil	1,219	13
Yugoslavia	1,054	51
<i>Ukraine</i>	800	17
Mexico	694	14
Israel	293	93

3. The Uses of Computers

The same Ie. Sokolsky who revealed that there were 800 computers installed in the Ukrainian economy in 1972, said about their utilization the following: "Theoretically, the computer can and should run 20 hours per day, excluding preventive maintenance. Yet the loading of all computers which were used in the republic was on the average 11.6 hours per day,"⁶² that is, only 58 per cent of capacity! He attributed this fact to the sloppy work of unskilled programmers, insufficient demand for computer time, and lack of general knowledge of what computers can do on the part of their users. In 1971, according to his survey, in the computer centres of various ministries and departments of the republic alone, "15,800 hours of computer time were lost owing to the lack of work."⁶³

In another piece of official criticism it has been pointed out that computers are used currently only as bookkeeping and accounting machines, and not for an analysis of operations, prognostication, or choice among alternative decisions. As a result of lack of know-how, the print-outs are used excessively and customers get 10-20 times more paper back from the machine than if the machine were not used at all.⁶⁴

Of course, these deficiencies in the use of computers are not unknown in the West: they also plague Western computer centres and Western users of computers, though, undoubtedly, the idleness of the computers is not as large as 42 per cent here. Western computer centres would go bankrupt with such idleness.

However, such a widespread lack of know-how in the uses of computers as is indicated in the USSR confirms that conclusion reached earlier in this paper, viz., that theoretical cybernetics, despite its high quality, has not been practice-oriented. Training of Soviet computer programmers is also extremely deficient. Sokolsky says that out of nearly 10,000 people in Ukraine who service computer centres, only a little more than 4,000 have a higher education.⁶⁵ Moreover, many Soviet computers have been designed in such a manner that they cannot accept instructions in automatic programming languages, and computers have not been provided with the input-output equipment needed for the use of automatic languages. Hence, programmers have to prepare instructions in numerical form, and this is a redundant and time-consuming process.

For the first time, in October 1969 *Pravda* reported that courses to train specialists in applied cybernetics and computational techniques were being set up at Soviet higher and technical schools.⁶⁶ In 1971 it reported that engineering schools in Ukraine included such courses into their programmes.⁶⁷

III The Struggle for Computerization of the Economy

1. *The Economic Reform and the Unified System of Statistical Computer Centres*

As with every other major decision in the Soviet economy, the decision to begin computerization had to pass through a process of protracted political struggle, in which its proponents had to overcome stiff resistance. The struggle for computerization began with the end of, and failure of, Khrushchev's decentralization reforms. Already in 1962, for example, an author reported a successful experiment at the Computer Centre of the State Economic Council of the USSR (*Gosekonomsovet*) to simulate on computers the computer planning and management of a large machine-building factory; he declared unequivocally that "that action proves the possibility of *centralized* determination of productive capacities in industry."⁶⁸

Early in the debate over the preparation of the 1966 economic reform, V. M. Hlushkov of the Ukrainian Institute of Cybernetics was reported to have come to the conclusion that "the preservation of the existing system of economic planning and management until 1980 will require the employment of the entire adult population ... in the sphere of planning and management. And since that is impossible, it is necessary to limit the

surging information about the national economy.”⁶⁹ Hlushkov proposed the speedy establishment of a system of statistical computer centres all over the economy. His proposal did not emphasize the need for centralization in the computerized planning and management of the whole economy of the Soviet Union, even though he imagined the system to be based on the present lines of economic administration, viz., union, ministries, republics, etc. But Hlushkov clearly advocated the reduction in information flows, and thus his proposed system was designed to fit into the proposed economic reforms, advocated by Kosygin, which would reduce the number of centrally determined targets in the plans and would raise the role of profit and of bonuses in the fulfillment of the plans.⁷⁰

On the eve of the adoption of the 1966 economic reforms the ranks of the economic cyberneticists and mathematicians were divided. V. Hlushkov and N. Fedorenko led those who advocated the establishment of the network of computer centres along the lines of the present economic administration, which combined both elements, centralization and decentralization. V. F. Pugachev led those who proposed increased centralization, with planned targets assigned for all goods to every enterprise. At the same time, the cyberneticists and mathematical economists were strongly opposed by a powerful group of conservative economists with some knowledge of mathematics (A. Boiarsky, A. Kats et al.), who opposed introduction of mathematical techniques into planning and management altogether and advocated the preservation of the existing system. The theoretical lines in this debate have been aptly discussed in the West,⁷¹ except that political consequences of this debate were not noted.

There is, however, strong evidence that some sort of political struggle took place around these issues just before the Twenty-third CPSU Congress. On 20 February 1966 *Pravda* published the draft of the CC CPSU directives on the 1966–70 Five-Year Plan, and there was nothing in it about the introduction of computers into the economy. On 6 March 1966, however, the CC CPSU and the USSR Council of Ministers adopted the decree concerning the establishment of the unified system of computer centres, (it is discussed below). Then on 8 April 1966, the Twenty-third CPSU Congress adopted its final directives on the five-year plan. In them nothing was said about the unified system of computer centres, but a paragraph was inserted (as compared to *Pravda*'s text of the draft), which called for “broad utilization of electronic computers in planning of the national economy and in management of production, transportation, commerce and scientific research.”⁷²

Since this congress adopted the 1966 economic reform and since it did not mention the unified system, nor put out any targets for its establishment, it seems plausible to conclude that there was opposition to

the unified system at the congress, coming, perhaps, from the side of economic reformers who might have feared that the unified system would result in overcentralization of planning and management. From the stenographic report of the congress, if it is complete, it also appears that the proponents of computerization were not allowed to address the congress.

Yet at the time of the congress V. N. Starovsky, chief of the Central Statistical Administration, published a report in the press explaining the decree on the establishment of the unified system of statistical computing centres.⁷³ In it he announced that by 1970, within the existing network of the state statistical administration, computer centres and matching calculating stations would be established in all union republics, *kraii* and oblasts as well as more than 650 machine calculating stations in administrative raions and cities. Even though this network had as its purpose mechanization of statistical reporting, rather than of planning and management, its structure implied a step toward victory for the Hlushkov-Fedorenko concept, since the system was to be territorial, and not along the ministerial lines as proposed by Pugachev and others. Of course, this was not yet supposed to be a fully computerized system as foreseen by Hlushkov—obviously because there were not enough computers. But the skeleton of the possible future system was already laid down.

But the fact that the party congress did not support the new network explicitly might have been ominous. The decree establishing the system, as it was published later,⁷⁴ omitted mentioning the 650 target figure for the year 1970, though it placed heavy emphasis on the fact that the system was to include computerized centres. There is some evidence, however, that the system—although fully established by now—was not completed exactly on target.

2. The Inter-Congress Period of Flux

The period between the Twenty-third and Twenty-fourth CPSU Congresses, 1966–71, was characterized by the piecemeal progress of economic reform, when one industry after another was decreed to be transferred to the reform basis. At the same time, computerization of the economy also proceeded in piecemeal fashion. There were special decrees directing computerization of individual ministries, such as that of the metallurgical plants of the Ministries of Ferrous and Non-Ferrous Metallurgy.⁷⁵ But not all such decrees were made public. The Ministry of Instruments, Means of Automation and Management Systems was made responsible for co-ordination of production and installation of computers,

and in 1970 it acquired for this purpose its first five-year plan.⁷⁶ In 1971 there was also an interesting decree providing for contractual agreements among ministries and their enterprises about the transfer of new technology among them,⁷⁷ computers presumably included. This decree provided for agreements in prices, delivery dates, etc. It appears from it that various customers could not order new technology from producers in accordance with their own decisions. If so, this explains the piecemeal character of computerization that was going on.

On 29 August 1969, the Council of Ministers of the USSR selected the city of Leningrad and the Leningrad oblast for the establishment of the first experimental "automatic management system" (Russian abbreviation: ASU) of industry, agriculture and municipal economy.⁷⁸ All major industrial enterprises were to establish "interconnected computing centres" (*kustovye vychislitelnye tsentry*) by the end of 1972. Ten state farms were to have a computer centre in the city of Pushkin. The municipal economy of Leningrad was to be computerized as a unit. Scientific supervision over the establishment of the ASU was vested in the Leningrad branch of the USSR Academy of Sciences. Similar experimental ASUs were established also in other parts of the country, though without publicity.

In Ukraine, by 1972, more than 100 such automatic management systems and subsystems were in operation.⁷⁹ In 1969, B. Paton, president of the Ukrainian Academy of Sciences, announced plans for the creation of an Institute of Economic Cybernetics within the Economic Division of the academy.⁸⁰ Its functions would have been to create, in industries and individual enterprises, complex automatic systems for management of production, work and administration, and to work out methods of optimum development of enterprises. This announcement, however, was premature: for some reason the institute was not established. Perhaps it was in connection with this failure that P. Shelest, the Communist Party of Ukraine's first secretary at the time, while discussing scientific management in *Pravda*, called for "taking better care of local peculiarities" in the development of automatic systems of management.⁸¹

This reference to local peculiarities was quite unusual, and clearly implied some sort of struggle between Ukraine and Moscow even in this area. Further light on the political nature of this struggle was recently thrown by a demand for the establishment, within the system of "ASU-science," of a separate Ukrainian Geological Information and Computer Centre. The author of this demand, V. Sidorov,⁸² explained that there were two wings in the approach to the "ASU-Science": those who advocated a "regional" approach and those whom he called "fundamentalists." Whoever they are, they are not "regionalists" and are

therefore, probably, centralizers. The geological computer centre has not yet been established.

3. Decisions of the Twenty-Fourth Party Congress

By the time the Twenty-fourth CPSU Congress convened on 20 March–9 April 1972, it became clear that the devotees of computerization of the economy had won a decisive victory over their opponents. The congress came out fully in favour of computerization. The only problem remaining now was how and when.

In his report to the congress, in connection with the discussion of planning, Brezhnev spoke out in favour of the methods of “economico-mathematical model-building” and “systematic analysis.” These methods should be used “to speed up creation of the (*otraslevye*) systems of automatic management (ASU) while keeping in mind that, eventually, we must create a state-wide (*obshchegosudarstvennuu*) automatic system for collection and analysis of information.” For this, said Brezhnev, we need not only “appropriate technology” but also “skilled personnel.”⁸³

By the “eventually” he probably meant the year 1980. Of greatest significance, however, was his reference to “branch” ASUs; the territorial remained unmentioned. Also his reference to a “state-wide” system left the republics unmentioned. All this probably means that, at the moment, centralization concepts of computerization, like that of Pugachev, have won the upper hand over the concept of Hlushkov-Fedorenko. But this may only reflect Brezhnev’s personal preferences for the time being—however significant they are, no doubt.

In his report to the congress on the 1971–5 Five-Year Plan, Kosygin added the following: “Automatic management systems (ASU) are now successfully used in a number of ministries and in many enterprises. Computer centres have been established at the Gosplan, Gosnab, Central Statistical Administration and a number of other administrations (*vedomstv*). During the next five years it has been proposed to make operational not less than 1,600 automatic systems of management of enterprises and organizations in industry, agriculture, communications, trade and transportation.”⁸⁴

From the nuances of Kosygin’s speech and from his emphasis on computerization of the enterprises, he appeared to be more pragmatic than Brezhnev; or at least he spoke of the short run, rather than the “eventual future.” In his speech to the congress M. V. Keldysh, the president of the USSR Academy of Sciences, was more empirical than anyone else. He reminded his audience that “we must multiply our efforts to develop more advanced equipment” than was currently available; that “we must bring

about” that the “machines are produced in centralized complexes, including the electronic processors, advanced auxiliary equipment, and with mathematical supplies” he also called for “radical acceleration of the growth of the means of communication.”⁸⁵ In other words, he made all this a precondition for the success of the development of computerized management.

The Twenty-fourth Congress resolved in its directives for the 1971–5 Five-Year Plan the following:⁸⁶ (1) to continue developing theoretical and applied cybernetics for use in the economy; (2) to achieve production of all computers, including mini-computers and means of communication, and of complete systems, including all the input and output equipment and standard programmes; (3) increase production of the “means of computing technology” 2.4 times, including that of computers 2.6 times; (4) achieve serial production of “a new complex of electronic computers based on integrated schemes” (i.e., third generation); (5) create a complex of technical means of automatization of registration, collection, storage and transmission of information; and (6) new technical means for a unified automatic communications network on a nation-wide basis.

The above-mentioned means of “computing technology” obviously include not only computers but also calculators, adding machines, accounting and bookkeeping machines, etc. In the actual text of the five-year plan that was published later,⁸⁷ the planned growth of production of the “means of computing technology” was increased from 2.4 to 2.8 times, while the production figure for computers remained the same—2.6 times.

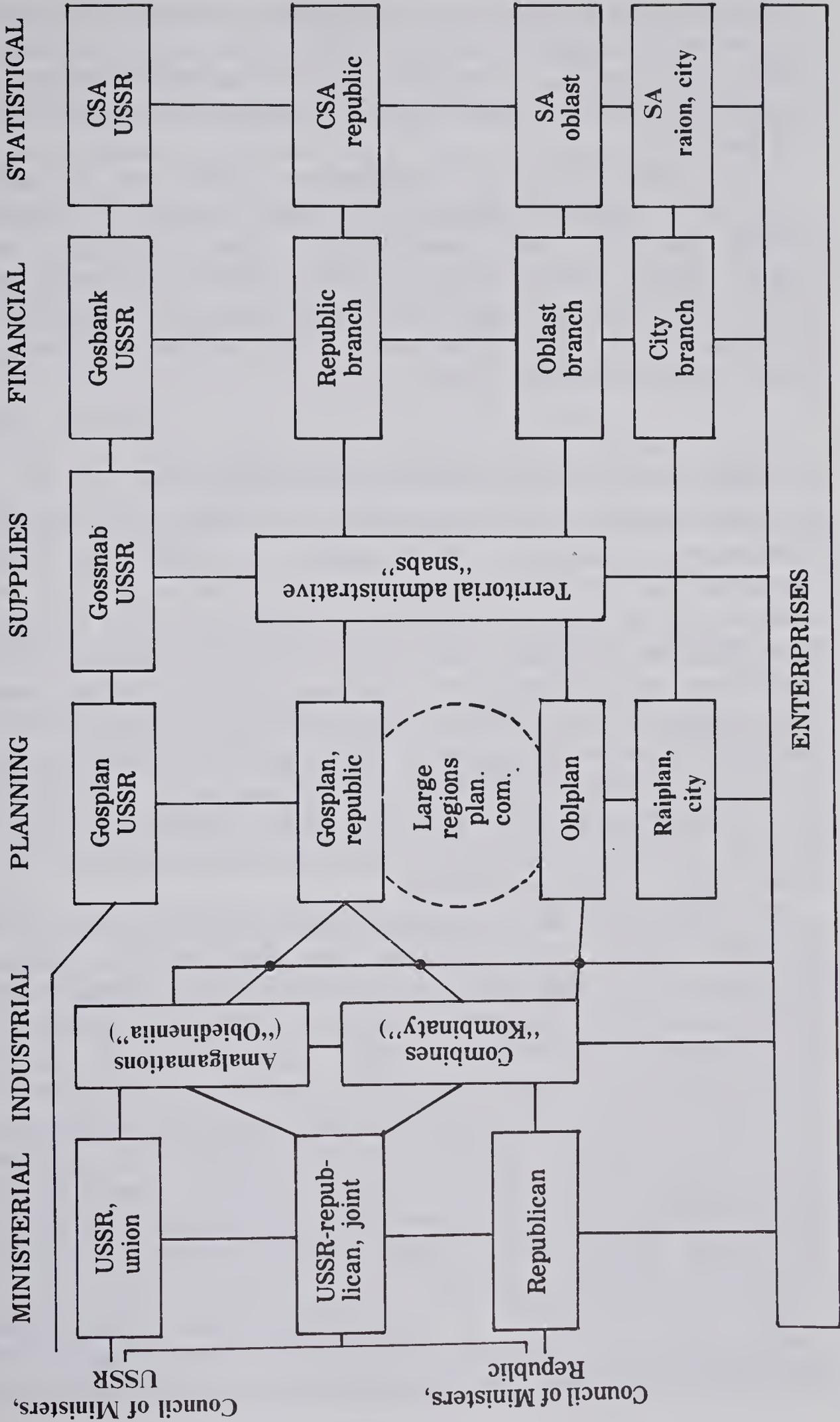
The plan also foresees “increased application of economico-mathematical methods and contemporary computer technology” in planning,⁸⁸ although in the introduction to the plan’s text it is admitted that, for this plan, computers were used in two cases only: in the calculation of capital investment material balances (in money terms) and in the fuel-energy balance calculations.⁸⁹

IV. The Automatization of Planning and Management

1. The Existing System of Economic Controls

Figure 2 represents a schematic rendering of the present system of controls over Soviet industrial enterprises. It incorporates the results of the latest extension of the economic reform to the ministerial level: abolition of main administration (*glavki*) of the ministries and the consolidation and merger of small and medium enterprises into new organizations—combines

FIGURE 2
CONTEMPORARY SYSTEM OF CONTROLS
OVER SOVIET INDUSTRIAL ENTERPRISES



(*kombinaty*) and amalgamations (*obedineniia*). Vertically in Figure 2 are represented the so-called branch controls. The maze is as amazing as always. There are five to six lines of vertical subordination alone, which necessitates tremendous paper work and makes very slow flow of information inevitable.

It is against this kind of cumbersome system that the cybernetic revolution is potentially directed. The computerization of the economic controls has been finally recognized by Soviet leaders for two main reasons. Firstly, because of the increasing difficulty of coping with the flood of information that accompanies economic growth; secondly, because of the growing conviction that mathematical methods and tools can be highly useful in economic controls.

2. ASU—Automatic Systems of Management

An ASU consists of (a) systematic use of mathematical methods and standardized procedures, (b) automatic machines and computing technology, and (c) decision-making with their aid at different levels of controls over the economy.⁹⁰ As Kosygin mentioned at the Twenty-fourth Party Congress, ASUs are used now in a number of ministries and many enterprises, but individually in a disjointed manner. He also mentioned that computer centres exist in all upper echelons of the Gosplan, Gosstab and the CSA, presumably, down to the republic level. Curiously, he failed to mention the existence of ASU in the financial sector—at the banks and at the Ministry of Finance—and it seems that, indeed, in contrast to the situation in the West, this sector is least computerized of all in the Soviet Union, except, perhaps, agriculture.

The 1,600 ASUs that are planned to be operational in the USSR by 1975 will still be largely disjointed. It is only by 1980, according to Brezhnev, that a GASU—State Automatic System of Management—will unify all the ASUs into something like one single system. This unification will presumably be achieved through the use of large third- and fourth-generation computers through a system of time-sharing, which makes it possible for many individual ASUs in remote locations to use the same huge machine simultaneously via terminals and telephone or telegraph lines. Various dispersed computers and data banks will also be linked together, so that widely-separated installations could share data. Information will thus become widely accessible, and with it controls over knowledge and decision-making.

The term “automatic” or “automatized” may appear somewhat confusing. It does *not* mean that the system will run as one single machine with operations reduced to pushing buttons. Not at all! All decisions at all

levels will still be made by men, no doubt. It is only the *procedures* for decision-making that will be, it is hoped, "automatized," that is, systematized and standardized, and controlled by computers. "Controlled" implies checking and rechecking for correctness of decisions for their accord with standard procedures. As a result, human decisions will, it is hoped, become more accurate, more precise, more rational and quicker.

At least in the initial stages of implementation, ASUs do not make relations within the existing systems of decision-making easier. On the contrary, such relations become more complicated.⁹¹ Nevertheless, studies show that the use of ASUs pays. At a typical industrial enterprise in Ukraine a study has found that the use of ASU resulted in the following: 7–10 per cent increase in production due to optimal planning; 15–20 per cent reduction of inventories; 5–8 per cent reduction in the time of circulation of variable capital; and 10–15 per cent reduction in defective output and the cost of fines therefrom. In general, it is asserted that investment into the ASU is 2–3 times more effective than into any other part of the enterprise.⁹²

3. ASPR—Automatic System of Calculations of the Plan

The ASU for the purposes of planning has been dubbed ASPR, or *Avtomatizirovannaiia sistema planovykh raschetov* (Automatized system of planning calculations). In the system of management of the economy it will cap the ASUs. The work on the ASPR began in 1966, and by May 1972, the first stage of the work was finished. But to finish the whole system, still "several years" and the third generation of computers were still required.⁹³

The work on the ASPR has been directed by the Computer Centre of the Gosplan of the USSR, with more than one hundred scientific institutions participating.⁹⁴ What has been accomplished so far is described as a standardized system of operations consisting of three stages: (1) manual calculation of the plan's target with the help of desk calculators, which is checked for errors twice; (2) feeding these calculations into automatic printing calculators, which permit variation of different versions of the plan; and (3) calculation and documentation on printing calculators of several alternative versions of the final plan, ready for choice and decision-making.⁹⁵ This is then the standard procedure in the Gosplan of the USSR and the republics. As is evident, at this first stage of the ASPR computers are not used—obviously because they are not available yet for such a general use.

In its ultimate form "the ASPR will function on the basis of the mutually interconnected *models of optimal planning* of the socialist

national economy," a complex of which "must be co-ordinated for all classes of tasks of national economic planning and secured by the appropriate mechanism of the realization of plans...." "... The basic, skeletal economico-mathematical model of the ASPR in all kinds of plans and at all levels and stages of national-economic planning must be the *intersectoral balance*, in its various modifications and cross-sections, including territorial and financial."⁹⁶

The underlined points speak for themselves. The "appropriate mechanism for the realization of plans" is still a big question mark in the ASPR: should the "optimal plans" be enforced as before, or should a system of economic incentives be developed to guide the economy toward their realization? The inclusion of the territorial and financial plans is an admission of weaknesses that still plague the ASPR. The quoted editorial of the *Planovoe khoziaistvo* admits, among other things, that "lately, the circle of the theoretical as well as applied studies for the creation of models of territorial planning has narrowed, which is due, obviously, to the underestimation of its significance."⁹⁷ Obviously, viz., *ochevidno*, indeed.

4. Operational Planning Models Today

Soviet planners have already acquired considerable experience with relatively large but *ex post* intersectoral and inter-branch input-output models both on the USSR level⁹⁸ and specifically in Ukraine.⁹⁹ *Ex ante* operational planning projections are more difficult to develop, and they are still in the nascent state. But it is on these *ex ante* intersectoral input-output models that the whole ASPR system will rest.

According to the project,¹⁰⁰ the ASPR system will consist of more than 800 subsystems and "hundreds of millions" of indices.¹⁰¹ There will be more than 300 branch subsystems of the USSR Gosplan and of the Gosplans of the union republics. At the core there will be forty sectoral subsystems of the Gosplan of the USSR. The implementation of the ASPR is to begin in 1977.¹⁰²

By 1972, however, only a dynamic eighteen-branch intersectoral model was operational, which was used in drawing up the Ninth (1971–5) Five-Year Plan of the USSR.¹⁰³ For the Ukrainian five-year plan an eleven-variable model was used, based on the 1959–68 statistical returns and extrapolated to 1975.¹⁰⁴ No such *ex ante* models have been reported for other republics so far. However, in the ASPR project, the Ukrainian and Lithuanian republics were designated as responsible for developing the ASPR system for the union republics: Ukraine with the oblast subdivisions and Lithuania without them.¹⁰⁵ The Lithuanian mathematical economists

have already published their model.¹⁰⁶ At the core of the model they have used simulation of a plan.

V. Problems in Republic-Level Planning

1. *The Legacy of the 1966 Economic Reform*

After Khrushchev's 1957–64 territorial management system was abandoned and the centralized ministerial rule was restored, republican economies were not completely subordinated to Moscow's direct rule comparable to Stalin's day. Because of the growth of these economies, such a complete subordination was no longer possible.

After the 1966 reform industries located in the territory of the Ukrainian republic, for example, were subordinated to more than one hundred separate ministries and departments, but Union subordination accounted for only slightly more than one quarter of all the industries. The share of Union enterprises in the gross industrial output of the republic in 1967 was 30.5 per cent, the share in capital investments—about 21 per cent.¹⁰⁷ Hence, the rest of the Ukrainian economy was to be directly planned by the Gosplan in Kiev. The same was also the case in other republics.

However, numerous complaints indicate that the republic-level planning was grossly inhibited by the dearth of information coming from the Union organizations. A member of the Ukrainian Gosplan stated bluntly, for example, that because Union organizations do not furnish data to the Ukrainian Gosplan on time, nor in full scope, efficient and rational planning at the republic level is made thus practically impossible.¹⁰⁸ Practically the same was stated by a member of the RSFSR Gosplan, too.¹⁰⁹ Recently a member of the Uzbek Gosplan suggested that the relations between republic Gosplans and the Union organization be placed on legal footing: they should be mutually obliged by law to furnish each with other all the necessary data.¹¹⁰

The issues are clearly political, however. The bias against republican planning is embedded even in the official instructions from the Union Gosplan on how to prepare the plans. In principle, the structure of the republican plans is identified with the All-Union plans (except for the defence sector), but the said instructions suggest that all territorial plans should be first of all five-year plans, rather than annual, which really matter most.¹¹¹ As a result it seems certain that the republican annual plans today are second-hand documents, patched up from bits and pieces of information, and are definitely not so balanced as they should be.

2. *The New Vertical Integration of Industries*

New complications in republic-level planning have arisen recently from the decision of the party and government to eliminate, during 1973–5, the multi-tier structure of the management of branches of industry, and to establish, instead of ministerial departments (*glavki*), industrial amalgamations (*obedineniia*) and combines (*kombinaty*).¹¹² Instead of the multi-tier structure, two and three-tier structure has been introduced (see Figure 2) through the merger of small and medium-scale enterprises into large amalgamations and combines.

The elimination of the ministerial departments, on one hand, and of the small, backward enterprises, on the other, is undoubtedly economically justified. However, there is also a strong element of centralization embedded in this reform. It is evident from the fact that, as an editorial in *Kommunist* points out, amalgamations and combines should not be limited in their organization by the currently existing boundaries of the territorial administrative units.¹¹³ In other words, All-Union amalgamations can cross the boundaries of the republics and be supra-republican; combines can cross the boundaries of the oblasts, etc. The impression is that the editorial actively advocates such centralization, which would diminish the prerogatives of the local organs of government. And this is certainly not the only example of the centralization bias in the Brezhnev administration.

3. *Computerization and Centralization of Economic Administration*

The question that arises at this juncture is whether or not computerization leads to more centralization in economic controls, rather than to less.

In its nature, cybernetics is the science of *optimal controls*. Control necessarily means some sort of a hierarchical structure, triangular with a peak point. But optimal means minimax, or maximin—a sort of average among the extremes, any movement from which will distort the equilibrium. Hence, ideally, cybernetics should not be conducive to overcentralization; neither should it be conducive to excessive decentralization of controls. It should produce an optimal relationship between the centralized and decentralized controls through an appropriate disaggregation of aggregate decisions.

In practice, however, at the start of the introduction of computers, the trend is toward centralization. This conclusion derives not from the Soviet Union, but from the West. In the local governments of the United Kingdom the use of computers began spontaneously, but then had to be nationally centralized for better efficiency.¹¹⁴ The same trend toward centralization in local governments' use of computers was noted in the

United States.¹¹⁵ In the non-governmental structures, such as the corporation and other business enterprises, and in scientific organizations, the trend is the same.

That this trend has been induced by computer technology, there is no doubt. The third-generation computers—not to speak of the fourth—made time-sharing and pipelining economically more efficient than the use of disjointed, “independent” computers. Whether there was also an admixture of supra-local government and corporate politics is also a plausible question. Wider and more precise information that comes with the linked computers means better knowledge, and an appetite for better knowledge, at the centre.

Such was the experience with the initial stage of computerization in the West, and this experience is probably even more valid for the Soviet Union. But this is, probably, a temporary experience. With more computers available, the optimal satiation point for information hunger may be reached at the centre, and decentralization may follow as with the law of diminishing returns. After all, not all information can fit into given computers. When information will be generated by computers there may be too much of it, and the computer channels will be glutted. Selection will become necessary, and, therefore, disaggregation and decentralization.

As an American study of modern trends in the corporate management concludes,¹¹⁶

It is easy to think of examples where authority now dispersed might be efficiently reconcentrated at the top with the aid of computers. But such reconcentration is not the main trend in organization today. Since the new information technology began coming into use in the Fifties, the trend toward decentralization has probably been accelerated, indicating that there were better reasons for decentralization than the lack of instant information at headquarters. Computers can be used to reinforce either a centralizing policy or its opposite; the probability increases that decentralization will in the coming decades be carried to lengths unheard of ten years ago.

VI. Some Conclusions for the Theory of Economic Systems

1. Computers and the Evolution of Capitalism

Writing in 1858, Karl Marx foresaw that the ultimate stage of Capitalism will be its automation. Capital, he said,¹¹⁷

passes through different metamorphoses, whose culmination is the machine, or rather, an automatic system of machinery (system of machinery: the au-

tomatic one is merely its most complete, most adequate form, and alone transforms machinery into a system), set in motion by an automation, a moving power that moves itself; this automation consisting of numerous mechanical and intellectual organs, so that the workers themselves are cast merely as its conscious linkages.

At this stage, science and knowledge “become a direct force of production.”¹¹⁸ The present computer revolution seems to fall well within this prediction. But, as Marx foresaw, Capitalism does not change its essential nature because of automation. Neither does it in reality. However, for lack of imagination or whatever, some Soviet writers assume that Capitalism cannot fully digest the computer:¹¹⁹

Lately, in a number of capitalist countries the signs have appeared that computers do not justify themselves any longer, in connection with which it is possible that their rate of production will slow down. The reason is that the organization of the flows of information with the help of computers inside corporations has achieved the maximum point, while to optimize the flows of information among corporations, at the level of industry and the whole national economy, is impossible because of private property and competition.

The authors evidently do not know, and cannot imagine, that a computer centre can be established as a company on an industry-wide or inter-industry level, and that its machine time could be shared among and leased to different customers simultaneously. Yet this is precisely what is happening now with the third and fourth-generation computers!

Moreover, big banks offer increasing amounts of computerized services to their nation-wide customers, and even on an international level.¹²⁰ Under these systems point-of-sales transfers of funds are made directly between bank computers from one customer’s account to another without the use of cash or cheques. The EFTSs also make possible automated payroll deposits and withdrawals, preauthorized bill payments, and descriptive billing on the clearing-house operations principle. This is almost the “cashless society” that Marx also foresaw as possible. Yet it remains Capitalism as long as it is based on private property.

2. Computers, Markets and Socialism

When Oskar Lange developed his theory of Market Socialism in the running polemics against Hayek and Robbins thirty-five years ago, computers did not exist. Yet Lange lived long enough to see the advent of computers and to write a piece of reconciliation with them.¹²¹ According to him,

computers beat the market on many counts, such as speed of operations, predictable convergence of simulated iterations, and absence of income effects of oscillations upon the consumers. Yet because to Lange the "market" was simply the freedom of the consumer to choose without rationing, he concluded that computers still must be used in combination with, rather than in place of, the market in a socialist economy. Thus he saved his model of "Market Socialism."

This is, however, largely a play on words. The market is of course something much larger than merely the freedom of consumers' choice, and no opponent of the market economy has ever seriously advocated putting consumers on rationing. Market economy exists when producers are free and independent of each other in their economic behaviour, and so are the consumers, consumers being not only the buyers of final consumer goods, but also producers who buy their inputs. Market economy is possible only when independence of the enterprises is guaranteed by law, that is, when enterprises are in private or group property ownership. The market system has been criticized mainly for producing business cycles, depressions, unemployment, bankruptcies, financial crisis, and various other instabilities and disequilibria. Central planning has been advocated as a substitute for these deficiencies of the market mechanism.

Computers fit equally well into both the market system and the central planning system. They come not as their replacement, but as an improvement on both of them.

This is why it is difficult to agree with the following judgment:¹²²

.... Cybernetics, which has become a new faith in the Soviet Union, may turn out to be the ideological prop the Soviets need to permit them to accept the use of market mechanisms.

3. Decentralization of the Governments and the Market

It is not only ideology that does not permit the Soviet Union to return to the N.E.P., or to "State Capitalism," as Lenin called it, or to the "Market Socialism," from which the N.E.P. did not differ much. It is also the Constitution of the USSR, as long as it is not changed. And it is also the political system of international relations, including nations of the USSR and of the Soviet bloc. Ultimately, it is national economic self-interest. The Soviets already had their experience with the N.E.P., and they watched closely the experience of Yugoslavia with her "Market Socialism." They are convinced that their present system is capable of generating more capital formation than the N.E.P. or "Market Socialism" can, and this is

all that matters for them now. They are ever in need of the maximum capital formation. Otherwise they would lose their status of a super-power in the world and at home.

The Soviet economy is nationalized. This is not a meaningless matter of the constitution. There is neither private ownership of the means of production nor group control as in Yugoslavia's workers' management system. Everything in the Soviet economy is administered by governments of various levels. Hence, if reforms are to come, they will come by way of the decentralization of the governments, and not via outright restoration of the market mechanisms. The latter would be equivalent not to reform but to an outright revolution, and this is unconstitutional.

And the reform of the government administration of the economy is already well under way. The abolition of *glavki* in the ministries and the establishment of the amalgamations and combines witness to this. With the computerization of the planning system being imminent, "it will become possible in the near future to pass over the centralized calculations of demand (*potrebnosti*) for all major resources, and to give up drawing on the ministerial planning demands (*plany-zaiavki*).¹²³ Thus the powers of the ministries will be circumscribed even more, and the industries will deal directly with the planning system.

Where do these reforms lead to? It appears that the ultimate goal of the computerization of the planning system is to integrate everything with it directly and to make the vertical structure of the Gosplan (see Figure 2) supreme over all other vertical control structures in the economy. One thing is obvious, though. There is no evidence that the present reforms are aimed at the restoration of the market system.

Notes

1. V. M. Hlushkov, "Kibernetika v teorii i na praktytsi," *Nauka i kultura: Ukraina 1966* (Kiev, 1966), 41.
2. V. M. Hlushkov, "Kibernetika na Ukraini," *Narysy z istorii tekhniky i pryrodoznavstva: Respublikansky mizhvidomchy zbirnyk 10* (Kiev, 1968), 24.
3. *Istoriia Akademii nauk Ukrainskoi RSR* (Kiev, 1967), 2: 34.
4. *Entsyklopediia kibernetiky* (Kiev, 1973), 2: 36.
5. *Ibid.*, 1: 154.
6. I. Berenyi, "Computers in Eastern Europe," *Scientific American* 22, no. 4 (October 1970): 104.
7. Hlushkov, "Kibernetika na Ukraini," 25.
8. *Ukrainskaadianska entsyklopediia* (Kiev, 1962), 10: 245.

9. K. Miller, "Computers in the Soviet Economy," *New Directions in the Soviet Economy* (Studies prepared for the Subcommittee on Foreign Economic Policy of the Joint Economic Committee, Congress of the United States) 89th Cong., 2d sess., Part II-A, (Washington: CPO, 1966), 329–30.
10. *Resheniia partii i pravitelstva po khoziaistvennym voprosam* (Moscow, 1968), 5: 51.
11. *Ibid.*, 52–3.
12. *Istoriia Akademii nauk*, 2: 35.
13. *Ekonomichnyi slovnyk*, ed. P. I. Bahrii and S. I. Dorohuntsov (Kiev, 1973), 149–50.
14. *Entsyklopediia kibernetiky*, 1: 488.
15. *Istoriia Akademii nauk*, 33–4.
16. *Kibernetika i vychislitelnaia tekhnika* —republican interdepartmental symposium, Kiev, appearing two-three times a year; *Zbirnyk prats z obchysliuvalnoi matematyky i tekhniky*, 3 vols. (1961); *Primenenie matematicheskikh metodov i vychislitelnoi tekhniki v ekonomike*, (Donetsk, about once a year); *Avtomatika*, (Kiev, bi-monthly), etc.
17. Compare, for example, T. L. Saaty, "Operations Research: Some Contributions to Mathematics," *Science* (Washington) 178, no. 4065 (8 December 1972): 1062.
18. Cf. P. I. Bahry, "Razvitie ekonomiko-matematicheskoi nauki v Ukrainiskoi SSR" *Ekonomika i matematicheskie metody* (Moscow) 8, no. 6 (1972): 813 ff.
19. Cf. W. E. Souder, "Analytical Effectiveness of Mathematical Models for R&D Project Selection," *Management Science* 19 (1973): 907ff.
20. *Entsyklopediia kibernetiky*, 1: 273.
21. V. M. Hlushkov, "Kibernetika na Ukraini," 27.
22. *Ibid.*
23. *Entsyklopediia kibernetiky*, 2: 55 and 329.
24. Hlushkov, "Kibernetika na Ukraini," 28–9.
25. *Ukazatel gosudarstvennykh standartov SSSR 1972* (Moscow, 1972), 88.
26. Berenyi, "Computers in Eastern Europe," 104.
27. B. E. Paton, "Nauka—produktivstvu," *Ekonomicheskaiia gazeta*, no. 34 (August 1971): 17.
28. T. Shabad, "Moscow Unveils Computer System," *The New York Times*, 7 May 1973, 9.
29. Miller, "Computers in the Soviet Economy," 329.
30. "'We Have To Be Concerned' When U.S. Skills Go to Russia," Interview with Robert C. Seamans, Jr., *U.S. News & World Report*, 23 September 1974, 73.
31. V. M. Hlushkov, Iu. V. Kapitonova, A. A. Letichevsky, "Metodika proektirovaniia vychislitelnykh mashin chetvertogo i sleduiushchikh pokolenyi," *Kibernetika* (Kiev), no. 1 (January-February 1973): 1ff.
32. Berenyi, "Computers in Eastern Europe," 106.

33. "Watson Doubtful of Soviet Computer Deal," *The New York Times*, 8 October 1970, 71; "Moscow Places Order for I.B.M. Computer," *The New York Times*, 6 November 1971, 13.
34. *The New York Times*, 12 October 1973, 65.
35. *U.S. News & World Report*, 5 November 1973, 52.
36. *Der Spiegel* (Hamburg), no. 23, 3 June 1974, 71.
37. This is clearly recognized, e.g., by *Entsyklopediia kibernetiky*, 1: 470–1.
38. Berenyi, "Computers in Eastern Europe," 108.
39. *Bolshaia sovetskaia entsikopediia*, 3d ed. (Moscow, 1971): 5, 570.
40. *Narodnoe khoziaistvo SSSR v 1972 g. Statisticheskii iezhegodnik* (Moscow, 1973), 227.
41. *Ibid.* and *Narodnoe khoziaistvo RSFSR v 1972 godu: Statisticheskii iezhegodnik* (Moscow, 1973), 108.
42. Miller, "Computers in the Soviet Economy," 333.
43. *Radianska Ukraina*, 1 February 1974. As translated in the *Digest of the Soviet Ukrainian Press* (New York) (March 1974), 4.
44. *Resheniia partii i pravitelstva*, 8: 123; on the change of wholesale prices to the 1972 base.
45. *SSSR i soiuznye respubliki* (Moscow, 1972), 8, 32, 54, 77, 255.
46. *Vneshniia trgovlia SSSR za 1969 god: Statisticheskii obzor* (Moscow, 1970), 24.
47. *Ibid.*
48. *Ibid.* za 1971 (1972, 1973) god, 40, 40 and 40 respectively.
49. *Entsyklopediia ukrainoznavstva* (Paris: Molode zhyttia, 1970), 6: 2,362.
50. *Neue Züricher Zeitung*, no. 148, 2 June 1971, 5.
51. Berenyi, "Computers in Eastern Europe," 104.
52. *Neue Züricher Zeitung*, 1 June 1971, 5.
53. H. Owen, ed., *The Next Phase in Foreign Policy* (Washington: Brookings Institution, 1973), 116.
54. *Robitnycha hazeta* (Kiev), 26 September 1972, 3; as translated in the *Digest of the Soviet Ukrainian Press* (December 1972), 15.
55. *Itogi Vsesoiuznoi perepisi naseleniia 1970 goda* (Moscow, 1971), 6: 23, 43.
56. *Pravda*, 23 February 1966, as quoted by Miller, "Computers in the Soviet Economy," 331.
57. Skepticism was expressed by Miller, who also estimated that there were probably not more than 3,000 computers installed in the whole country in 1966.
58. *Entsyklopediia ukrainoznavstva*, 2: 362.
59. H. Owen, "The Next Phase," 116.
60. U.S. Department of Commerce. Bureau of International Commerce, *Global Market Survey: Computers and Related Equipment* (Washington: GPO, October 1973), 117.
61. *Ibid.*, 10, 24, 39, 47, etc.
62. *Robitnycha hazeta*, 26 September 1972, 3.
63. *Ibid.*

64. V. Skurykhin, A. Stohnii, "Avtomatychni systemy keruvannia," *Nauka i kultura: Ukraina 1971* (Kiev, 1971), 109.
65. *Robitnycha hazeta*, 26 September 1972, 3.
66. F. D. Kohler, D. L. Harvey, "Administering and Managing the U.S. and Soviet Space Programs," *Science* (Washington) 169, no. 3950, 11 September 1970, 1,054.
67. A. Titarenko, "Na puti sozidaniia", *Pravda*, 23 March 1971, 1.
68. N. Fetisov, "Obosnovanie planov s ispolzovaniem vychislitelnoi tekhniki," *Planovoe khoziaistvo* 39, no. 10 (October 1962): 39. Emphasis added.
69. A. G. Aganbegian, "K sozdaniiu optimalnoi sistemy planirovaniia i upravleniia narodnym khoziaistvom," *Vestnik Akademii nauk SSSR*, no. 6 (1964): 66.
70. V. Hlushkov, N. Fedorenko, "Problemy shirokogo vnedreniia vychislitelnoi tekhniki v narodnoe khoziaistvo," *Voprosy ekonomiki*, no. 7 (July 1964): 87ff.
71. J. P. Hardt, M. Hoffenberg, N. Kaplan, H. S. Levine, *Mathematics and Computers in Soviet Economic Planning* (New Haven: Yale University Press, 1967).
72. *XXIII siezd Kommunisticheskoi Partii Sovetskogo Soiuz: Stenograficheskii otchet* (Moscow, 1966), 2: 327.
73. *Ekonomicheskaiia gazeta*, no. 13 (April 1966): 25.
74. *Resheniia partii i pravitelstva*, 6: 21ff.
75. *Ibid.*, 8: 104.
76. *Ibid.*, 61ff.
77. *Ibid.*, 556.
78. *Ibid.*, 7: 530–3.
79. B. Paton in the *Komunist Ukrainy*, 6 April 1969, as translated in *Digest of the Soviet Ukrainian Press* (September 1973), 17.
80. B. Paton in *Radianska Ukraina*, 6 April 1969, as translated in *Digest of the Soviet Ukrainian Press* (May 1969), 10.
81. P. Shelest, "Ovladevat naukoii upravleniia," *Pravda*, 20 August 1971, 2.
82. V. M. Sidorov, "Zastosuvannia informatsiinykh system u heolohii," *Vistnyk Akademii nauk Ukrainiskoi RSR*, no. 2 (1974): 103–4.
83. *XXIV siezd Kommunisticheskoi Partii Sovetskogo Soiuz: Stenograficheskii otchet* (Moscow, 1971), 1: 92. Emphasis added.
84. *Ibid.*, 2: 53.
85. *Ibid.*, 1: 269.
86. *Ibid.*, 2: 253, 254, 267.
87. *Gosudarstvennyi piatiletnii plan razvitiia narodnogo khoziaistva SSSR na 1971–1975 gody* (Moscow, 1972), 126, 130, 347.
88. *Ibid.*, 341.
89. *Ibid.*, 14.
90. V. M. Hlushkov, "Osnovnye printsipy postroiennia avtomatizirovannykh sistem upravleniia," *Kibernetika i vychislitelnaia tekhnika* 12 (Kiev, 1971), 5ff.

91. A. N. Pirmukhamedov, "Pravo i avtomatizirovannaia sistema planirovaniia khoziaistva soiuznoi respubliki," *Sovetskoe gosudarstvo i pravo*, no. 3 (March 1971): 22.
92. V. Skurykhin, A. Stohnii, "Avtomatychni systemy keruvannia," 114.
93. "Sozdanie ASPR-zadacha obshchegosudarstvennaia," *Planovoe khoziaistvo*, no. 8 (August 1972): 3-4, 6.
94. "Vazhny etap rabot po sozdaniiu ASPR," *Planovoe khoziaistvo*, no. 9 (September 1973): 3.
95. D. Iurin, "Operativnaia obrabotka dannykh v Gosplan SSSR," *Planovoe khoziaistvo*, no. 7 (July 1973): 100-1.
96. "Sozdanie ASPR," 4-5. Added emphasis.
97. *Ibid.*, 5.
98. Cf. V. G. Treml, "Input-Output Analysis and Soviet Planning," in J. P. Hardt et al., *Mathematics and Computers*, 70ff.
99. *Narodne hospodarstvo Ukrainskoi RSR v 1970 rotsi: Statystychnyi shchorichnyk* (Kiev, 1971), 61-77. And also P. Nahirniak, V. Krashennnikov, "Pro rozrobku pershoho mizhhaluzevoho balansu suspilnoho produktu Ukrainy," *Ekonomika Radianskoi Ukrainy* (Kiev, 1968).
100. N. Lebedinsky, "Organizatsiia proektirovaniia i vnedreniia avtomatizirovanoi systemy planovykh rashetov," *Planovoe khoziaistvo*, no. 8 (August 1972): 10.
101. Just for laughs the opposition of a "Lysenko" of Soviet mathematical economics, A. Boiarsky, may be noted. He wrote that "remaining within rational framework, one cannot speak of *millions* of indices" ... because such computers still don't exist. *Planovoe khoziaistvo*, no. 11 (November 1973): 30. But if they don't exist, they will! There is no limit to the size of the computers, in principle.
102. *Planovoe khoziaistvo*, no. 8 (August 1972): 14.
103. *Ibid.*, 15.
104. Cf. A. Iemeljanov, F. Kushnirsky, "Dinamicheskaia model razvitiia narodnogo khoziaistva respubliki," *Planovoe khoziaistvo*, no. 11 (November 1970); and their "Raschet osnovnykh pokazatelei narodno-khoziaistvennogo plana s primeneniem ekonomiko-staticheskikh modelei" *Planovoe khoziaistvo*, no. 3 (March 1972).
105. "Sozdanie ASPR, 8.
106. R. Raiatskas, S. Zemaitaitite, *Informatsiia - prognoz - plan* (Moscow, 1972), 190 pp.
107. F. Khyliuk, "Voprosy sovershenstvovaniia planirovaniia v respublike" *Planovoe khoziaistvo*, no. 5 (1967): 23-4.
108. *Ibid.*, 27.
109. A. Shulman, "Problerny tsentralizovannogo i territorialnogo planirovannia" *Planovoe khoziaistvo*, no. 5 (1967): 18.
110. A. N. Pirmukhamedov, "Pravo i avtomatizirovannaia," 22.
111. *Metodicheskie ukazaniia k sostavleniiu gosudarstvennogo plana razvitiia narodnogo khoziaistva SSSR* (Moscow, 1969), 673.

112. Cf. "Polozhenie o proizvodstvennom obedinenii (kombinate)," *Sobranie postanovlenii pravitelstva S.S.S.R.*, no. 8 (1974), art. 38.
113. "Sovershenstvovat upravlenie, povyshat effektivnost promyshlennogo proizvodstva," *Kommunist*, no. 11 (July 1973): 32.
114. P. Bartram, "Data Processing for the People," *Data Systems* 12, no. 4, (1971): 51, 53.
115. R. Keston, "Information Systems in Urban Government," *Computers and Automation* 2, no. 9 (1971): 21ff.
116. M. Ways, "Tomorrow's Management: A More Adventurous Life in a Free-Form Corporation," *Fortune*, 1 July 1966, reprint.
117. K. Marx, *Grundrisse: Foundations of the Critique of Political Economy* (Rough Draft). Translated by M. Nicolaus (Harmondsworth: Penguin Books Ltd., 1973), 692. See also 704–5.
118. *Ibid.*, 706.
119. M. Y. Loziuk, V. P. Stepanenko, *Naukovo-tekhnichna revoliutsiia i zahostrennia superechnostei suchasnoho kapitalizmu* (Kiev, 1974), 54–5.
120. "'Electric Money'—What It Is and the Changes It Will Bring," *U.S. News & World Report* 77, no. 6 (5 August 1974): 50–1.
121. O. Lange, "The Computer and the Market," in C. H. Feinstein, ed., *Socialism, Capitalism and Economic Growth: Essays Presented to Maurice Dobb* (Cambridge: Cambridge University Press, 1967), 158–61.
122. H. S. Levine, "Introduction," in J. P. Hardt et al., *Mathematics and Computers in Soviet Economic Planning*, xxi.
123. N. Lebedinski, *Planovoe khoziaistvo*, no. 8 (August 1972): 15.

III
Studies on Marxism

7. Marxography and Marxology:

What is Known About Marx?

Marxography, Marxology and Marxism

Marxography refers to the published and unpublished (archival) writings by Marx and Engels, and the translation of these writings into various languages. Marxology is the body of scholarly knowledge about Marxography; research and study of primary Marxian sources, their free discussion, analysis, interpretation and criticism. The term "Marxology" was first coined in the Soviet Union in 1922–3 by the research workers of the Marx-Engels Institute in Moscow. The large volume of Marxographic materials makes Marxology as a scholarly enquiry worthy of a place in the history of ideas and doctrines.

Marxism refers to the ideological doctrine based on and derived from Marxology. However, since Marxology per se is still in a nascent state (as shown below), Marxism is based on very incomplete knowledge and assumptions, or presumptions, about Marx. This is equally true of anti-Marxism; both are largely political movements, or ideological currents, motivated by partisanship and mutual antagonisms.

As is well known, Marx and Engels were prolific writers on a variety of subjects: philosophy, sociology, politics, history, art, etc. This paper is concerned only with their economic contribution and specifically, the delimitation of present-day Marxology. I propose to achieve this by methods of direct analysis and statistical treatment of the historiographical material.

G. J. Stigler introduced the statistical method,¹ which has been used recently by some historians of economic thought with good results (in the *History of Political Economy* journal, for example). The direct historiographic method of analysis of the history of economic thought (particularly modern history, since the late eighteenth century or so, when economists began to cite their sources) is based on two basic rules: (1) the study of sources to which the particular work refers and upon which it is based; and (2) the study of bibliographies of other relevant contemporary publications, to discover what was available to the author, and what, for some reason (e.g., the language barrier), he could not use. In this way the limits and extent of knowledge can be delineated. One can discover the personal knowledge of Marx and Engels in this manner, but such an exercise lies beyond the scope of this paper.

Approximate Extent of Marxography

Today Marx's *Capital* may be the most widely circulated economic work in the world. By 1972 the three volumes of *Capital* were circulating in the Soviet Union in twenty-two languages, with a total of 6,701,000 copies.² If one assumes that this represents about half of all world publishing, then the total circulation of *Capital* now approaches 15,000,000 copies. But *Capital* represents only a fraction of the economic writings of Marx and Engels, and an even smaller fraction of Marxography.

Marxism, and to some extent Marxology, are based less on the readings of *Capital* than on the circulation of the *Communist Manifesto*; some pamphlets by Marx and Engels (such as *Value, Price and Profit*, *Wage Labour and Capital*, and *Socialism, Scientific and Utopian*), written specifically for workers; some similar pamphlets by Lenin, Stalin, Mao Tse-tung and Trotsky; and writings of some local communist leaders. Between 1848 and 1964 the *Communist Manifesto* went through 1,084 separate editions in 119 languages. Over 50 per cent of these editions were published in the USSR, with an average run of about 41,000 copies.³ Thus there must be over 50 million copies of the *Manifesto* circulating in the world. Another source estimates that between 1918 and 1950 there were "not fewer than 220" separate editions of the *Manifesto* published in the world, including two editions in Esperanto.⁴

According to Soviet figures, the number of separate covers of Marx and Engels works published in the USSR, in the Russian language were:

Years	Copies (millions)
1917-45	32.0
1946-57	27.1
1958-67	11.1

Thus there was a total of 70,200,000 copies. In languages other than Russian, the USSR published in 1917-67, 15,228,000 copies, although output of Lenin's titles in the same period was four times larger than that of the works of Marx and Engels.

The figures, however, can be misleading. The abundance of copies may reflect the prevalence of Marxism in the world, and for a political scientist these data may reflect the impressive scope of Marxist-Leninist propaganda. But for the study of Marxology, these figures are meagre and superficial. They refer for the most part to political pamphlets that contain little substantive knowledge of Marx and Engels. Table 1 contains more

TABLE 1 Publication of Collections of Works of Marx and Engels in Book Form (circa 350 pages per volume)

Language	Years and Cumulative Number of Volumes						Project ^b
	1917	1927	1939	1954	1965 ^a	1972 ^a	
German	12	14	25	29	33	40	50
Russian	6	9	36	37	39	42	50
French	3	12	23	28	35	40	50
Italian	3	5	8	32	35	40	
English	3	5	15	18	19	21	50
Chinese	0	0	7	10	17	31	
Japanese	0	4	6	25	32	38	50
Spanish	0	3	5	15	19	22	
Polish	0	3	5	21	36	41	50
Ukrainian	0	1	8	8	30	39	

^a In all languages, except English and Spanish, almost all volumes are numbered consecutively, and are semi-official editions based on the second Russian edition of Marx and Engels' *Works* (also *Werke*, German edition, 1956; and *Ma-k'o-ssu En-ko-ssu Ch'tian Chi*, Chinese edition, 1961). Prior to 1954 consecutively numbered volumes were available only in German, Russian and French. In other languages, there were separate and scattered editions.

^b Projected fifth-volume editions are incomplete editions of Marx and Engels' *Works*; they are all based on the second Russian edition, and formalized for publication through contracts with the CC CPSU. As the table shows, not all have signed contracts with the CC CPSU.

representative statistics about Marxography from the marxological perspective. It shows the progress of the publication and translation of Marx's and Engels' writings in collections of volume size, suitable for scholarly study, that is, for Marxology. The ten languages in the table represent countries with populations of over thirty million, making up about one half of the world's population. For other major languages, such as Indonesian, Arabic, the languages of India and Pakistan, and Portuguese, bibliographic data are unavailable, but one may assume that the number of translations of Marx into these languages is not yet significant. Some figures, particularly those for the Spanish language are only tentative because they were obtained from international, rather than primary, bibliographies. Another deficiency is the absence of data on the Yugoslav editions of Marx and Engels' *Works*. By 1961, however, publication in Serbo-Croatian was inconsequential.

In Table 1, I have tried to avoid repetition with works that were reprinted. Thus, the first four-volume German edition is included as a separate figure until 1939, and then omitted as most of its contents were included in other editions. The ubiquitous two and later three-volume edition of *Selected Works* was noted once in 1939 in German, Russian and French, but later also omitted whereas in English it has been included throughout, as most of its content has not been reprinted in other English-language volumes. In the Russian series the volumes of *Marx-Engels Archives* were not included, thus the Russian series is actually larger by some fifteen volumes. But the *Archives* have not been published in any other language.

Table 1 delineates the historical and linguistic limits of Marxology. Although the planned fifty-volume edition will not include all Marx and Engels' writings, it will be the most complete collection in existence. Hence, it can measure (albeit crudely) the maximum extent of Marxography for the study of Marx, and be used for comparison with past numbers of volumes in various languages in the table and with the actual extent of Marxology. Table 1 establishes, for example, that the largest body of Marxography throughout history was written in the German, Russian and French languages, whereas the language with the smallest number of source materials for Marxology has always been English. Even today only about 42 per cent of Marx and Engels' published works are available in English, and only 50 per cent of existing Russian editions. Thus, a thorough English-language study of Marx must be based either on Russian, German, or French-language sources.

Table 1 reveals that in 1917, the year of the Russian Revolution, less than 12 per cent of Marx and Engels' writings were available in Russian; and in 1927, three years after Lenin's death, the figure had risen only to 18 per cent. In all major languages, significant quantities of Marxographic

materials have become available for research and study only in the last twenty years. This is particularly evident in Asia and the Spanish-speaking world. It is known that Marx came to China from Japan, rather than Russia, and to Japan directly from Germany.

In Japan, the *Communist Manifesto* was first translated in 1904, and the three volumes of *Capital* in 1919–24. The beginnings of Japanese Marxology can be traced to May 1924, when a “journal for study,” *Marukusushugi* (Marxism) appeared. Alongside translations from Engels, Lenin and Bukharin, it offered its readers numerous interpretative research papers on Marx, largely based on German Marxography. By 1928, however, elements of Marxian scholarship had disappeared, and the Japanese scene was dominated by factional, sectarian and purely political, communist Marxism. After the Second World War, with the rapid expansion of translated Marxography, Marxology revived. By 1954 the Marx-Lenin Institute of the Communist Party of Japan in co-operation with the CC CPSU, produced two printings of the twenty-three volumes of Marx and Engels, *Works*, translated from Russian, and the two-volume set of Marx and Engels, *Selected Works*.⁵ Contemporary Japanese Marxology, like much of the history of economic thought in Japan, is characterized not only by peculiar eclecticism, but by specialized subjects, such as Marx on the peasantry. Yet Marxology in Japan is more developed than it is in the United States.

In China, Marxography developed considerably later than in Japan. Marx's *Capital* was translated into Chinese only in 1929–31. Scholarly Marxology has yet to develop. It has been established, for example, that in his four volumes of writings, Mao Tse-tung only twice referred to *Capital*: to one of its introductions and to the well-known historico-materialistic *Preface to a Contribution to the Critique of Political Economy*. Mao claimed to have read the *Communist Manifesto*, the *Anti-Dühring* and the *Class Struggle* (Marx's or Kautsky's?),⁶ but he had no interest in Marxian economics. Lately the Chinese Communist Party has begun an intensive translation of the second Russian edition of Marx and Engels' *Works*, which they check against some “original texts.” It is not known whether there are any original Marxian texts or photocopies in China.

The underdevelopment of Marxography in English is lamentable. Were it not for Moscow's translations of the most important works of Marx into English (for example, all four volumes of *Capital*, 1959–71), the situation would be appalling. Editions of Marx and Engels' writings produced by commercial publishers are generally characterized by incomplete and biased selection. It is also remarkable that the only Marxological journal in English, *Science and Society*, is based almost exclusively upon English-language sources, which are, as noted, quite inadequate. The International Publishers Company, however, has announced that it is

preparing, together with Lawrence & Wishart of London and Progress Publishers of Moscow, and under contract with the Marxism-Leninism Institute of the CC CPSU a fifty-volume edition of Marx and Engels' *Collected Works*. The first volume was scheduled to appear in 1974. The term "Collected Works" may attract some interest. The announcement says that "numerous items will be published for the first time in any language."⁷ Thus this edition will be more complete than the second Russian edition, although not a complete edition.

In May 1924 the CC CP(b)U decided to publish a complete edition of all writings of Marx and Engels "in Russian and other languages."⁸ It was known as the *Marx-Engels-Gesamtausgabe* (MEGA), or, in full, *Historisch-Kritische Gesamtausgabe*. Its first editor (purged in 1931), was a seasoned Marxologist and the director of the Moscow Marx-Engels Institute, N. Riazanov (D. Rjasanoff; actual name, David B. Goldenbach). Later, MEGA was edited by V. V. Adoratsky, a Leninologist rather than a Marxologist, who also edited the Russian editions of Marx's and Lenin's works. Riazanov conceived MEGA in forty-two large-format volumes, with all the essays published in the language of the original and in all available versions of the originals. The entire edition was to consist of four series: (1) various works and writings other than *Capital*; (2) *Capital* with all its available drafts; (3) the correspondence; and (4) general indexes.⁹ In the period 1927–35, there appeared in the MEGA series seven volumes (eight books) of series 1 and four volumes of series 3. Before 1933 the MEGA was published first in Frankfurt and then in Berlin, and the final issues were published in Moscow and Leningrad.¹⁰ Further publication was interrupted, presumably, on Stalin's orders. MEGA was a truly academic edition, with an extensive auxiliary apparatus, numerous footnotes and cross-references to other sources. Its title, the "historical-critical" edition, explains its methodology. It remains today an exemplary edition, second to none.

An attempt at the publication of the complete works of Marx and Engels was undertaken in 1924–30 by J. Molitor in Paris. Fourteen volumes of a *Collection des oeuvres completes de Marx* appeared, then the publication ceased.¹¹ It was not an academic edition, however.

In 1924 the Thirteenth Congress of the CPSU planned to issue a complete Russian edition of Marx and Engels' writings, with the publication of twenty volumes by 1929, not including correspondence. Like many others, this production plan was not fulfilled, for only six volumes had appeared by 1929.¹² Riazanov's Marx-Engels Institute went through an extensive and bloody purge in 1929–31, and subsequently was merged with the Lenin Institute under V. V. Adoratsky. The Marx-Engels-Lenin Institute was again purged in 1938, after which it was known, until 1954, as the Marx-Engels-Lenin-Stalin Institute of the Central Committee of the CPSU.

The first Russian edition of (incomplete) *Works* of Marx and Engels was published between 1928 and 1947, in twenty-eight volumes (thirty-three books). Volume 20, which was to include the *Theories of Surplus Value* was not published, neither were any drafts of *Capital*, although the *Grundrisse* was published in 1939–41, in German with a very small print run. At the end of 1954, the CC CPSU decided to publish a second Russian edition of Marx and Engels' *Works* in thirty volumes (thirty-three books), including correspondence.¹³ In 1956 a volume of early Marxian writings (*Economic and Philosophic Manuscript of 1844*, etc.) was published outside of the series. In 1956, after the criticism of Stalinism at the Twentieth Party Congress, the decision was made to enlarge the second edition to thirty-nine volumes (forty-two) books) and to complete this project by 1962, although the project was completed only in 1965.¹⁴

In 1968 the CC CPSU resolved to extend the second Russian edition to fifty volumes. Although an incomplete edition, it was to include "all manuscripts and fragments available" to the Institute of Marxism-Leninism, except for Marx's excerpts and notes on the books he had studied. No date for the completion of this project was given. By 1968–9 the institute had published the first Russian translation of the *Grundrisse*, in two books, and by 1973 the first book of the so-called *Manuscripts of 1861–1863* (as volumes 46 and 47 of *Sochineniia [Works]*). The *Manuscripts of 1861–63* are not yet available in any other language; their significance is discussed below. The fifty-volume second Russian edition does not include Marx's *Mathematical Manuscripts*, which were published outside of the series with Russian and German parallel texts in 1968.¹⁵

An important primary source of Marxography is the serial called *Marx-Engels Archives*. Between 1924 and 1930 five volumes appeared in Russian and two in German. Following the purge of the Marx-Engels Institute, its numbering was changed and between 1932 and 1963 fifteen additional volumes appeared in Russian. This publication contains numerous unfinished manuscripts of Marx and Engels, first drafts, notes and excerpts, which were not included in the first and second Russian editions of their *Works*, nor in any other collection based on the second Russian edition. The contents of the *Archives* and the titles of other publications of Marx and Engels not included in the *Works*, are listed in a special publication.¹⁶

The Limits of Marxology

Since the first and second Russian editions of Marx and Engels' *Works*, along with the *Archives*, represent the largest quantity of available Marxography, they can serve as the standard for measuring the extent of Marxology. As noted, in 1917, less than 12 per cent of all Marx and Engels' writings were available in the Russian language. Lenin reportedly said in 1920 to V. V. Adoratsky that Marx was known in the West even less than in Russia, and this observation was probably accurate.¹⁷ By 1923, Lenin's last year, there were only eight volumes of Marx and Engels' writings, including *Capital*, available in Russian.¹⁸

Of the 1,247 essays of Marx and Engels' writings in the first Russian edition of their works (1928–47), 37 per cent were published for the first time in any language, and 51 per cent for the first time in Russian.¹⁹ Thus before the Second World War, less than half of Marx and Engels' works in the first edition were known in the USSR. And the first edition was, of course, far from complete.

How complete is the current second Russian edition of Marx and Engels' *Works*? The answer can be approximated from the data on Marxian manuscripts. The first official Russian collector of Marxian manuscripts was N. Riazanov. In 1923–7 he collected a large quantity of photocopies and originals in Germany and brought them to Moscow. His successor, V. Adoratsky, claimed that at this time the Moscow Institute of Marx and Engels possessed the most complete collection of Marxian manuscripts in the world. In 1931, according to Soviet archivists, Marx's *economic* manuscripts alone, including all variants of *Capital*, comprised 9,800 photographic sheets in the Moscow Institute. Marx's handwriting was so miniscule that one of these sheets usually contained up to ten "normal text pages."²⁰ If these normal text pages are assumed to be typewritten pages, then there must be about sixty printed volumes of Marx's economic manuscripts with about 500 pages each. The 9,800 sheets did not include excerpts and book notes made by Marx, which made up an additional 13,500 photographic sheets. The importance of Marx's notes is evident in the descriptions by M. Rubel and S. Schwann,²¹ who studied them in the archives. Adoratsky states that economic items alone would make up not less than forty volumes of the *Marx-Engels Archives*.²²

In the USSR fifteen book-size volumes of economic manuscripts of Marx, have been published thus far (*Capital* in four books; three books of the *Theories of Surplus Value*; two books of the *Grundrisse*; one of the *1861–1863 Manuscripts* with another expected shortly; one book of Chapter 6 of volume 1 of *Capital*, which is discussed below; one book of the *1844 Manuscripts*; and one of the *Contribution to the Critique of Political Economy*; and various smaller pieces). These represent only a

small portion of the sixty volumes of Marx's economic writings. (This account does not include Marx and Engels' correspondence with economic content.) According to Soviet archivists, there also exist, but have not yet been found, some 1,400 letters of Marx and Engels, as well as some manuscripts of works mentioned in other primary sources.²³

Perhaps this is the place to raise the question: did Marx intend these manuscripts, drafts and unedited notes to be made public? Obviously, he could have informed Engels that he wished them to be destroyed, but he did not do so, even though he had many opportunities. Moreover, for historians of economic thought, it is very fortunate that these manuscripts have survived. Suffice it to recall the famous second hearing that G. J. Stigler accorded to David Ricardo with his "93 per cent labour theory of value"²⁴ that made us all professionally happy. What if Ricardo's letter to McCulloch had perished? We would all have been the poorer.

There is also a prejudicial question: what can the unpublished Marx tell us that we do not already know? Perhaps very little. But our knowledge has been enhanced through him and we hope that he can tell us more, even about himself. Marx belongs to history and no one will ever be able to exclude him from it. Moreover, the chapters on Marx in the current history of economics textbooks all over the world are, to understate it, inadequate.

Some Historical and Linguistic Hindrances to the Progress of Marxology

Over the last hundred years the publication and translation of Marx and Engels' writings proceeded so slowly that there was a spate of quasi-Marxological literature based largely on speculation, conjectures and dogmatism rather than on hard facts. This observation applies equally to both pro- and anti-Marxian literature.

Tables 2 and 3 give a chronological and linguistic correlation of the progress of the publishing and translation of some of the more important works in original Marxian economics with commentaries by their leading proponents and critics. Both tables are incomplete and do not exhaust the question. A comparison of them shows that even the most important items of Marxological literature do not correlate positively with the observed progress of Marxography. The tables demonstrate, in general, that the time lags in publication and translation (or lack of translation) have been significant enough for many uninformed comments to arise in between.

The remainder of this paper will discuss the most significant discrepancies revealed in Tables 2 and 3. Space does not permit a more thorough analysis.

TABLE 2 Beginnings of Marxology: Years and Language of Some of Marx (M) and Engels' (E) Writings Published for the First Time

Marx and Engels Titles	German	Russian	English	French	Chinese
M: <i>Capital</i> , Volume 1	1867	1872	1886	1872	1929
Volume 2	1885	1885	1887	1887	1930
Volume 3	1894	1896	1903	1897	1931
E: Supplement to Volume 3 of <i>Capital</i>	1895	1939	1937	1938	1952
E: <i>On Capital</i> : Synopsis, Reviews and Materials	1932	1939	1937	1938	1956
M&E: Letters about <i>Capital</i>	1932	1932	1948	1935	?
M: <i>Theories of Surplus Value</i> , Part 1	1905	1906	1952	1924	...
(Kautsky's edition)	1905	1907	...	1925	...
Part 2	1910	1925	...	1925	...
Part 3	1956	1954	1963	1958	1971
(New edition)	1959	1956	1968	1959	1972
Part 1	1962	1959	1971	1962	1972
Part 2	1939	1968	1973	1968	...
Part 3	1859	1896	1904	1889	1931
M: <i>Grundrisse</i> (Manuscripts of 1857-8)					
M: <i>A Contribution to the Critique of Political Economy</i>					
M: <i>Economic and Philosophic Manuscripts of 1844</i>	1932	1956	1956	1956	?
M: <i>Manuscripts of 1861-3</i>	...	1973	...	...	...
M: Chapter 6 of Book 1 of <i>Capital</i> : Results of Direct Process of Production	1933	1933	...	...	...
M: Mathematical Manuscripts	1968	1968	...	...	...

M: <i>Value, Price and Profit</i>	1897	1898	1896	1898	1921
M: <i>Discourse on the Question of Free Trade</i>	1848	1885	1849	1848	1954
M: <i>The Poverty of Philosophy</i>	1885	1886	1908	1847	1932
M: <i>Marginal Notes on Adolph Wagner</i>	1932	1932	?	1962	1971
M: <i>Critique of the Gotha Program</i>	1891	1930	1935	1922	1940
M: Transcript of the Speech on Inheritance Law	1962	1960	...	1968	1971
M: <i>Nationalization of Land</i>	1963	1961	...	1968	1972
M&E: <i>The German Ideology</i>	1932	1933	1968	1935	1940
E: <i>The Condition of the Working Class in England</i>	1845	1906	1887	1848	1954
E: <i>The Principles of Communism</i>	1914	1917	1925	1919	1954
E: <i>Socialism, Utopian and Scientific</i>	1883	1884	1892	1880	1931
E: <i>Anti-Dühring</i>	1878	1904	1939	1884	1930
E: <i>The Origin of the Family, Private Property and the State</i>	1884	1922	1936	1893	1931
E: <i>The Housing Question</i>	1872	1883	1936	1880	1968
M&E: Correspondence	1913	1923	1934	1922	1953
M: Letters to Dr. Kugelmann	1902	1907	1934	1922	?
E: Letters to K. Kautsky	1961	?	...	...	...
E: Correspondence with P&L Lafargue	...	...	1959	1958	...
M&E: <i>The Communist Manifesto</i>	1848	1869	1850	1848	1905

... indicates that the piece was not available as of the end of 1973.

? Stands for uncertainty. It is not clear, for example, whether the *MS of 1844* have been published in Chinese. *Ma-k'o-ssu En-ko-ssu Lieh-ning Ssu-ta-lin chu-tso; Mao Tse-tung ch-tso. Mu-lu*, 1972, 1 suggests uncertainty. Also, for example, McLellan, 1973, 474, indicates that Marx's *Marginal Notes on A. Wagner* were published in English in 1924; but this seems almost impossible, since they were discovered at least three years later. It does not seem that this piece is available in English at all.

In general, however, it should be noted that to establish the first date of publication is never a completely certain endeavour, unless the job is done by a professional bibliographer, who is also an interested researcher. For such a definite job we must still wait.

TABLE 3 Development of Marxology: Years and Languages of Some of the Interpretations of Marx and Engels Work Published for the First Time

Author and Title	German	Russian	English
Schaffle, A.: <i>The Quintessence of Socialism</i>	1875	1888	1890
Schramm, C. A.: <i>Basic Outline of National Economics</i>	1876	...	...
Wagner, A.: <i>General or Theoretical Economics</i> , part 1	1879	1885	...
Böhm-Bawerk, E. V.: <i>Capital and Interest</i> , volume 1	1884	1898	1891
Kautsky, K.: <i>The Economic Doctrines of K. Marx</i>	1887	1905	1925
Menger, A.: <i>The Right to the Full Product of Labor</i>	1886	?	1899
Adler, G.: <i>Foundations of K. Marx's Critique of the Economy</i>	1887	...	...
Schmidt, C.: <i>The Average Rate of Profit and Marx's Law of Value</i>	1889	...	...
Buch, L. V.: <i>Intensity of Labour, Value and Price of Goods</i>	1896	1895	...
Lenin, V. I.: <i>Economic Contents of Populism</i>	1955	1894	?
Böhm-Bawerk, E. V.: <i>K. Marx and the Close of his System</i>	1896	1897	1898
Lenin, V. I.: <i>Toward a Characteristic of Economic Romanticism</i>	1955	1897	...
Lenin, V. I.: <i>A Note on the Question of the Market Theory</i>	1931	1899	1954
Lenin, V. I.: <i>Once More on the Theory of Realization</i>	1931	1899	1960
Lenin, V. I.: <i>Development of Capitalism in Russia</i>	1927	1899	1929
Bernstein, E.: <i>Evolutionary Socialism</i>	1899	1904	1909
Hilferding, R.: <i>Böhm-Bawerk's Criticism of Marx</i>	1904	1917	1949

Tuhan-Baranovsky, M.: <i>Theoretical Foundations of Marxism</i>	1905	1905	...
Tuhan-Baranovsky, M.: <i>Modern Socialism in its Historical Development</i>	1908	1906	1910
Borkiewicz, L.: <i>Value and Price in the Marxian System</i>	1907	?	1952
Boudin, L. B.: <i>The Theoretical System of Karl Marx</i>	...	...	1907
Lifschitz, F.: <i>Toward a Critique of Böhm-Bawerk's Theory of Value</i>	1908	...	...
Plekhanov, G.: <i>Basic Problems of Marxism</i>	1922	1908	...
Grigorovici, T.: <i>Marx's and Lassalle's Doctrine of Value</i>	1910	...	...
Soxhart, W.: <i>The Life Work of Karl Marx</i>	1910	...	...
Hilferding, R.: <i>The Financial Capitalism</i>	1910	1912	...
Luxemburg, R.: <i>The Accumulation of Capital</i>	1913	1925	1951
Lenin, V. I.: <i>Karl Marx</i>	1930	1915	1936
Lenin, V. I.: <i>Imperialism as the Highest Stage of Capitalism</i>	1933	1916	1936
Adler, M.: <i>The Communism in Karl Marx</i>	1916	...	...
Bukharin, N.: <i>Economic Theory of the Leisure Class</i>	1926	1923	1927
Bukharin, N.: <i>Imperialism and Capital Accumulation</i>	1926	1927	?
Sternberg, F.: <i>Imperialism</i>	1926	...	...
Bober, M. M.: <i>Karl Marx's Interpretation of History</i>	...	...	1927
Lange, O.: <i>Marxian Economics and Modern Economic Theory</i>	...	...	1935
Robinson, J.: <i>An Essay on Marxian Economics</i>	...	...	1942
Sweezy, P. M.: <i>The Theory of Capitalist Development</i>	...	...	1942

Some Consequences of Chrono-Historical Discrepancies in Marxology

In the eighteen-year gap between the publication of the first German edition of volume 1 and 2 of *Capital*, and the nine-year gap between volume 2 and 3 (twenty-seven years between volume 1 and volume 3), two divergent currents of Marxological thought developed. One, allegedly pro-Marxian, has already been given the name of “Ricardian Marxism”²⁵ by way of analogy with the earlier “Ricardian Socialism”; the other should perhaps be called simply “Neoclassical anti-Marxism.” Both reveal a misunderstanding and an insufficient knowledge of Marx.

Neoclassical anti-Marxism began in 1884 with a frightful call by E. v. Böhm-Bawerk for a “war” against the exploitation theory because the latter had acquired “strong support among scholarly economists” of the day.²⁶ The attack arose not because the exploitation theory was rationally wrong, but rather, as Samuelson says: “Marx had to be refuted by orthodox economists—if only because he was there!”²⁷ Not everyone was as hostile as Böhm-Bawerk. Philip H. Wicksteed, for example, wrote a benevolent review of *Capital* in *Today* despite his remark that S. W. Jevons’ theory of value was more plausible than that of Marx. Yet Böhm-Bawerk’s followers proclaimed an ideological “class struggle” between the theories of value in the gutters of Fascism²⁸ and Stalinism.²⁹

Böhm-Bawerk attacked volume 1 of *Capital* in 1884, without waiting for the appearance of volumes 2 (1885) and 3 (1894). Then, when much of his criticism had been made superfluous by volumes 2 and 3, he pronounced, in *Karl Marx and the Close of His System* (1896), that there was a “contradiction” between the volumes of *Capital*. This idea caught on in the English-speaking world, where Böhm’s writings had been translated (in 1891 and 1898) before the translation of volume 3 of *Capital* (1903). On the other hand, in Russia, Böhm’s translations appeared *after* the translation of volume 3 (compare Tables 2 and 3), and consequently the idea of a “contradiction” was not generally accepted. Similarly, the “contradiction” idea was never very popular in Germany.

In the English-speaking world, however, up to the present time, many critics of Marx found the theme of a “contradiction” attractive until the appearance of the *Grundrisse*. Now the *Manuscripts of 1861–63*, which began in 1955, has established beyond all doubt that Marx wrote all three volumes of *Capital* “in one sitting,” and that the “contradiction” theme arises largely from a misunderstanding of Marx’s dialectical method of analysis and exposition.

On a new variation of the Böhm-Bawerk theme, Samuelson insists that the labour theory of value and surplus value in volume 1 is redundant in the all-important volume 3 of *Capital*.³⁰ In this case, volume 2 is also

redundant, for Samuelson fails to see the transition from volume 1 to volume 2: "Since this is a subsistence economy with nary a surplus, it is not clear how synchronized state ever got off the ground and got itself started. Who went without his needed m at an earlier date? No obvious answer is forthcoming."³¹ The "earlier date" and the turnover-tax concept of surplus value is a Ricardian interpretation of Marx ("Ricardian Marxism"). Volume 1 simply explained the division of labour: a hat-maker had to produce one hat for himself and one additional hat (m) for the glove-maker; and the glove-maker produced a pair of gloves for himself and one for the hat-maker (m); the exchange took place strictly at labour-time values, and yet the m was produced—out of necessity, not because of an "earlier date." Yet later came a merchant, who organized hat-makers and glove-makers to produce even more m for the market, and so forth. All this is quite elementary even without the chapters on the "So-Called Primitive Accumulation," but they are also included in volume 1. It might not have been necessary to give such a complicated explanation of the origins of m , but Marx was writing for a Ricardian audience, and Ricardo, in Marx's view, did not understand the origin and the significance of m . Hence, volume 1 in principle was not redundant.

The three volumes were not only written at the same time, but also they represent Marx's methodological, dialectical-materialist "triad" of "ascending from the abstract to the concrete." In Hegelian idealistic dialectics and in "straight" Aristotelian logic, we usually descend from the abstract (model) to the concrete (reality). This paper will not discuss this subject. It is assumed that Marx was not a "value fetishist"; yet, volume 1 of *Capital* was a necessary abstract-model prerequisite for his concrete-model, volume 3. He wrote volume 1 not in order to find a *numéraire* for the prices of volume 3, but rather to find the source of capital formation, in the labour of society instead of the capitalists' savings. What is wrong with this methodologically?

R. Rosdolsky, the late leading Western Marxologist of Marxian economics, believed that the first two volumes of *Capital* were of a "purely methodological character" and had little or nothing to do with the real world; yet they could not be understood without the dialectical method.³² Rosdolsky's concept of Marx's method was as follows: volume 1—one average unit of capital (value); volume 2—sum total of all such units; and volume 3—real units within their sum total, real units being uneven but their sum total remaining the same as that of the average units.³³ However, Rosdolsky believed that Marx assumed the competition of capitals (values) leading to an equilibrium only in volume 3, competition being part of reality, rather than a model itself. Rosdolsky was not trained in neoclassical tradition; a modern interpretation might go as follows: in volume 1, Marx assumed essentially what is known today as static pure

competition and its general equilibrium; in volume 2 he has a dynamic general equilibrium (not metastatic, but really dynamic with respect to the time factor, something that the neoclassical theory lacks); and in volume 3 Marx gives a model of a realistic monopolistic competition, which was also essentially dynamic.

V. Vygodsky, a leading Soviet authority on Marxological economics, believes that Marx's method of ascending from the abstract to the concrete in *Capital* is a "general method of construction of a scientific theory" in all modern "systemic analyses," which derives from the generalizations of natural sciences.³⁴ Thus modern science calls first for a construction of an abstract model, and then comparison of such a "system" with reality in order to discover differences and measure their degrees, vectors, etc. Model-building of today is also the method of modern economics.

Ricardian Marxism, à la Ricardian Socialism, is the Ricardian interpretation of the Marxian labour theory of value and the exploitation theory that derives from it. It can again be subdivided into two schools or currents of thought, one critical of Marx, with links to neoclassical anti-Marxism and the other, which claims to be socialist and pro-Marxian.

The Ricardian Socialists (W. Thompson, J. Gray, T. Hodgskin, J. F. Bray et al.) were mainly British utopians who advocated direct calculation of prices of goods in labour-value terms and the use of working-time coupons or certificates instead of "capitalist" money. Many Marxists and non-Marxists alike believe that Marx, too, advocated labour-value calculus under both Capitalism and Socialism. This misunderstanding arose from insufficient study of Marx and from the belated publication of those writings of Marx and Engels that are directly critical of labour-value money.

In Marx's lifetime, the Ricardian Socialists' theme was advocated in the German-speaking world by a number of economics professors and intellectuals, who were for the most part Proudhonists, and admirers of what is called today "market socialism." These included A. Schäffle, C. A. Schramm, C. Rodbertus-Jagetzow, E. Dühring, H. Sybel and, a decade or two later, O. Neurath, P. Fischer, O. Leichter and A. Pannekoek (cf. Table 3). Their general platform was epitomized in Anton Menger's pamphlet, *The Right to the Full Product of Labour*. Marx rejected the "labour value calculus" for Socialism in the *Grundrisse*³⁵ on the ground that there was no essential difference between traditional money and "labour certificates," and because even under Capitalism only currently necessary labour determines the value of goods. The value contributed by past labour is discounted and fluctuates with respect to current labour in accordance with the latter's productivity and, hence, replacement for past labour. The rigid Ricardian labour-value arithmetic ("live" hours of labour plus "dead" hours of labour equals

value) Marx never recognized as valid. And those who think otherwise are the real "Ricardian Marxists," for they attribute to Marx Ricardian formulas.

Marx's rejection of the Ricardian Socialists is also evident in the footnotes to volume 1 of *Capital*, and in his earlier *The Poverty of Philosophy*. Engels also dealt with them and their anarchist offshoots in his prefaces and reviews of *Capital*³⁶ and in the *Anti-Dühring*. However, Marx administered the main blow to the labour-value-calculus panacea in his *Marginal Notes on A. Wagner* (cf. Table 2), which unfortunately came out too late to stop the development of "Ricardian Marxism" in the Soviet Union, and which today is still very little known, even though it was Marx's last piece of economic writing before his death.

The Ricardian interpretation of Marx, however, has much wider implications and connotations than its link with "Ricardian Socialism." The belief that Marx's doctrine was close to that of Ricardo is evident, for example, in Samuelson's statement that "Marx can be classified by the modern theorist as 'Ricardo without diminishing returns'" and that he was merely "a minor post-Ricardian."³⁷ Samuelson also does not see how current labour alone determines value in Marx, and so he adds "dead" labour to "live" labour and concludes that this Ricardian calculus is also that of Marx.³⁸

This equation of Marx and Ricardo arises first of all from the belated publication (1905, in German) and the lack of translation, particularly into English, of part 2 of the *Theories of Surplus Value* (cf. Table 2), in which Marx clearly and completely disassociates himself from Ricardo and criticizes him on many points, such as the forms of value, relative versus absolute, the forms of capital, equalization of the rate of profit, and the transformation of values into cost-prices, and the theory of rent, in which Marx recognizes diminishing returns along with increasing returns (which is an improvement on Ricardo). A second reason is the belated appearance in German, 1939–41 and 1953 of the 1850–51 *Supplement* to the *Grundrisse*, in which Marx criticized excerpts from Ricardo's *Principles*. In these notes Marx disassociates himself from Ricardo on most points, particularly in theories of value, price and rent.³⁹

Yet, even without knowledge of Marx's disagreements with Ricardo, some students, after reading the available works about Ricardo and Marx, recognized that Marx was not, and could not be, a Ricardian.⁴⁰ They could have found their cue, for example, in Engels' unequivocal pronouncement in the 1885 *Preface* to volume 2 of *Capital* that, to Marx, "the Ricardian school suffered shipwreck about the year 1830, on the rock of surplus-value." Later studies based on the *Theories of Surplus Value* confirm the difference between Marx and Ricardo,⁴¹ but unfortunately there are few such comparative studies, especially in English.

The only justification for the confusion of Marx with Ricardo is that *Capital* is written in Ricardian language. *Capital* was written for contemporary “men of science,” rather than the proletariat. This is clear not only from the text itself and from the fact that most of Marx’s contemporary economists were Ricardians, but also Engels explained this several times.⁴² Marx acknowledged that he was influenced by Ricardo and other classicists. But he was also influenced by non-Ricardians such as Galiani, Lauderdale, Sismondi and members of the German Historical School (particularly in his philosophy of historical materialism). Nevertheless, Marx stands as an original writer and founder of a new school of economic thought.

A curious aspect in Marxology that arose from the asynchrony of publication, belated translation and insufficient reading is the notorious “transformation problem,” the problem of transforming the values of volume 1 into the production prices of volume 3 (the market prices of volume 3 have been disregarded!), and the assumption on this basis that the labour law of value is eternal, that it operates unobstructed even under highly industrialized capitalism and socialism, with their uneven conditions for the application of current labour.

The “transformation problem” has been made into a toy mathematical puzzle, and since it has no easy solution, critics exaggerated its importance and made it into a testing stone against which Marxian economics founders or survives. Samuelson maintains, however, that the problem has survived his mathematical test.⁴³ It was a linear programming problem of a small input-output matrix, which Marx finally solved by a long-hand, trial-and-error method. There was only one solution, namely, that all departments or industries use their inputs in the same proportion in which they were produced in the entire economy as outputs, prior to their consumption. This solution was discovered independently in 1936 by W. Klimpt, but broached earlier by O. Kühne and subsequently by K. A. Naqvi. As this is the Marxian “law of proportions” of volume 2, it should never have been considered a crucial problem. Whenever the input-output proportions between the departments are distorted, (and in reality they almost always are), what emerge are the business cycles not the constant proportions. Perhaps now, with Samuelson’s support, Marx should be nominated for the title of grandfather of modern input-output analysis, following the great-grandfather, F. Quesnay.

Some aspects of the history of the “transformation problem” may be instructive for Marxology, however. Rival scholars agree that the problem was created by Engels as a challenge to the readers of his preface to volume 2 of *Capital*.⁴⁴ In this introduction, Engels asserted that Marx had solved the “problem” in his *Manuscripts of 1861–63*. The first volume of these manuscripts has recently been published in Russian (see Table 2);

the solution, if it exists, must be in the forthcoming second volume.

It may well be that Engels created the challenge deliberately, in order to attract to *Capital* as wide attention as possible. It may have been just another of his "military ruses." In a letter to Marx dated 11 September 1867, following the appearance of volume 1, Engels asked Marx whether he would approve of his (Engels') "attack on the book from a bourgeois point of view, in order to push the cause." The next day Marx replied that "this could be an excellent military ruse," except that someone other than Engels should undertake it. Then, on 10 October 1867, Marx asked Engels to encourage Dr. Kugelmann "to make a noise" about the book.⁴⁵ Engels often used such stratagems.

It seems, however, that Engels sincerely believed that the "transformation problem" had been solved when he published volume 3 in 1894. Otherwise he would not have discussed the unsuccessful attempts at its solution by others in his preface to volume 3, and he would probably have added his notorious *Supplement* to volume 3 at this time, rather than a year later. Engels knew that Marx was weak in the arithmetic of fractions and percentages; their correspondence attests to this. Further, Engels checked the arithmetic in volumes 2 and 3 before their publication. Hence, he did not expect that criticism of the "problem" would arise through inadequate mathematics. It would be useful to find Engels' own accounting books from his textile factory at Manchester. They would indicate his ability at arithmetic and show, in particular, how he computed his own production prices and average rate of profit. It is known, however, that Engels also made mistakes in his calculations of the average rate of profit in volume 3 of *Capital*.⁴⁶

In his *Supplement* to volume 3, "The Law of Value and the Rate of Profit," written two and a half months before his death, Engels announced that there was no "transformation problem" and that the labour law of value breaks down and withers away as capitalism develops from its pre-industrial to industrial stage. Marx had also noted, as early as 1858-9, the disappearance of the labour law of value under the developed, particularly "automated" capitalism.⁴⁷

In a letter to K. Kautsky, the editor of the *Neue Zeit*, dated 21 May 1895, Engels wrote that he was going to send him a supplement to volume 3 of *Capital*, called "The Law of Value and the Rate of Profit," which would be his "reply to doubts expressed by Sombart and C. Schmidt."⁴⁸ Some two months earlier Engels had written to Carl Schmidt, acknowledging the latter's criticism in a previous letter and Werner Sombart's review of volume 3 in Braun's *Archive* raised some questions in his mind concerning the average rate of profit. On 11 March 1895, Engels also wrote to Sombart, remarking with some sarcasm that he was "much obliged" for his (Sombart's) suggestion in the review that he (Engels)

“could have made something better of volume 3 than its present form.”⁴⁹

Thus, from this correspondence it appears that Engels wrote the *Supplement* in response to Sombart’s and Schmidt’s criticism of his handling of the “transformation problem” in volume 3. There is, however, no suggestion and no implicit evidence that the criticism was aimed at the problem’s mathematics. In fact, Sombart was not mathematically minded at all. In his 1889 pamphlet Schmidt, provoked by Engels’ challenge in the introduction to volume 2, did use some algebra to calculate the average rate of profit, but Engels’ reply to Schmidt’s exercise in the introduction to volume 3 did not suggest a mathematical dispute.

It seems that Engels wrote his *Supplement* not because he felt there was something mathematically wrong with volume 3, but rather because, perhaps as a result of Sombart’s pique, he believed that he had failed Marx in publishing volume 3 in rough draft form. Perhaps Engels felt that he had wasted the last decade of his life on unnecessary party politicking; this is for his biographers to decide. It is almost certain, however, that the real creator of the mathematical “transformation problem” was not Engels, but L. von Bortkiewicz, who might be described as (at the most) a distant cousin of the grandfather of the input-output system.

Engels’ *Supplement* to volume 3 of *Capital* was lost for some time. This was partly the fault of Marxography, but since, unlike other Marx and Engels manuscripts, the *Supplement* was published, the failure to discover and read it lies with Marxologists. In German, the original of the *Supplement* was published in the *Neue Zeit*,⁵⁰ in its first issue, which probably had a small circulation. An “Afterword” (*posleslovie*) to volume 3 appeared a year later in Russian, in the journal *Novoe vremia* (New Times), no. 12, (1897).⁵¹ Since volume 3 of *Capital* has no “afterword” by Engels, this may have been the Russian edition of the *Supplement*. In any event, the *Supplement* was not reprinted in any language until 1937, when the International Publishers in New York put out in English Engels’ collection *On Capital*, which presumably contained the *Supplement*. This same collection came out in Moscow in Russian in 1939, and also contained the *Supplement*. The *Supplement* appeared for the first time as part of a complete edition of volume 3 of *Capital* in Russian in 1947, in the appendix to part 2 of volume 3 of the first Russian edition of Marx and Engels’ *Works*.⁵² Outside of the collection, the *Supplement* appeared next in 1949, in volume 3 of the Russian separate edition of *Capital*.⁵³

Even though the *Supplement* existed in English after 1937, no one paid attention to it. Until 1959, the only English-language edition of volume 3 that existed and was used by every English-language writer was the Kerr 1909 edition,⁵⁴ which did not contain Engels’ *Supplement*. Moreover, the translator, Ernest Untermann, himself a very primitive Marxist, added to confusion by printing on the title page a statement that it was “edited by

Frederick Engels." Engels had edited the first German edition, from which this translation was made, but not the Kerr edition. Yet, Engels' alleged editorship and the absence of the *Supplement* led unsuspecting readers to accept the completeness and authority of the Kerr edition.

Not until the Moscow English-language edition of volume 3 was published in 1959 did the *Supplement* become generally available to the English-reading public. Those writers who had used the Kerr edition to discuss the problems of volume 3 of *Capital*, including especially the ill-fated "transformation problem," had been unaware of Engels' *Supplement* and its statements on the law of value and the transformation problem. This is perhaps the greatest failure of English-language Marxology!

But the prolonged loss of Engels' *Supplement* in the Russian-reading world created even greater damage to Marxology. Before the *Supplement* became an official part of volume 3 of *Capital* in 1947, almost all Russian Marxists maintained that the labour law of value was valid not only under Capitalism, but also under Socialism.⁵⁵ The *Supplement* was not known. Engels' well-known statement in the *Anti-Dühring* that the labour law of value was the "fundamental law of capitalist production" and that, under Socialism, "society will not assign [labour] values to products"⁵⁶ (which, incidentally, is consistent with the *Supplement*), was tacitly forgotten, especially after Stalin declared that the law of value was valid under Socialism. Even after the *Supplement* was published as part of volume 3 in 1947, 1949 and later, it was ignored because it did not fit into the already-established doctrine of the "political economy of Socialism." Even today only a rare specialist in Marxology per se would say, as L. Leontiev does, that Engels' piece is "an important supplement" to *Capital*, which depicts "the law of motion of commodity production" and the "extraordinary length of the epoch in which the law of value operates."⁵⁷

The law of value as an independent, extraneous and stochastic determinant of a linear proportionality of relative prices in a perfectly competitive economy should not be confused with the measure of value, which could be any *numéraire*. Marx's volume 1 and Engels' *Supplement* to volume 3 are in agreement in every respect. Historically, Marx and Engels believed that in pre-industrial, pre-monopolistic Capitalism, relative prices were proportional to average labour inputs, land and other scarcities assumed constant, and *ceteris paribus*. A. Marshall shared this view. Samuelson says that, with land scarce and machines used, "price ratios forever depart from embodied labour contents."⁵⁸ He is wrong to say that Marx would disagree. This was also Marx's opinion in the *Grundrisse*, and also Engels' in his *Supplement*. As Capitalism grows and develops, prices of the perfectly competitive system turn more and more into their opposites, namely, the prices of production, which are proportional to

relative capitals (sum total of working capital, variable and the depreciated constant). However, since all these capitals separately, as well as their total in the whole economy, must be reproduced every minute of each day of the year by current (live) labour, production prices are still proportional to V (which includes C). Finally, under monopolistic competition, as in volume 3, market prices—which are no longer production prices, but rather prices that the market can bear—include unequal rates of profit (monopoly and scarcity rent, etc.). Yet, again because the total GNP is still the product of V (the total employed labour force), even these market prices can be calculated, if necessary, as proportional to the value of marginal products of labour, i.e., the marginal cost of the total product of labour. “If necessary,” however, means *ex post*, as a *numéraire*. This is no longer a “law of value,” but simply the measurement of value in labour-time terms.

When the development of capitalism reaches a certain level, not only does the labour law of value completely disappear, but the measurement of value in terms of direct labour is no longer possible, according to Marx. When automated machinery comes into use:

... the worker appears as superfluous, inasmuch as his activity is not required by capital. There takes place the full-fledged development of capital, or of the mode of production determined by capital. . . . The entire production process appears not as a dependent of the direct skilfulness of the worker, but rather as the technological application of science. This consists of the tendency of capital to give production a scientific character, in which direct labour is reduced to a mere moment of this process.

It does not make sense, in other words, to measure the labour of a worker who just pushes a button of an automated machine.

To the extent that labour time, the mere quantity of labour, is still required by capital as the sole determining element, to that extent direct labour and its quantity disappears as the determinant principle of production, as the creator of use values; and it is reduced both quantitatively, to an ever smaller proportion, and qualitatively as one still indispensable but subordinate moment, as compared to general scientific labour and technological application of natural sciences, on the one hand, and as compared to the general productive force arising from the social division of labour in the total production on the other hand. This division of social labour appears as a natural outcome of labour of the whole society (even though it is a historical product). Capital thus works toward its own dissolution as the form which dominates production.⁵⁹

It is not necessary to remind the reader, of course, that capital to Marx is synonymous with value because it is a product of labour.

The use of labour time as a value *numéraire* has been proposed recently, and successfully built up into a beautiful marginalist, thoroughly mathematical theory of value by the late Victor V. Novozhilov of the USSR.⁶⁰ To Novozhilov, however, labour was not just another *numéraire* as it might have been, for example, to Paul A. Samuelson, who once said that “any commodity [could be] taken arbitrarily as a *numéraire*.”⁶¹ Novozhilov has found in Marx many statements to the effect that labour was an ethically scarce commodity. Labour is the time of every human being’s life, and there is nothing more precious than life. It is really not the same thing as bricks, for example, even if bricks are made of gold.

If labour is taken merely as a *numéraire*, it can be argued that, however “abstract” it may be, it is still something more real, more tangible than the utterly fictitious “utils” and “disutils.”⁶² Labour time may also be considered a more stable value *numéraire* than money, although Marx sometimes measured value in terms of money. But what is the constant value of money? The labour hour is at least sixty constant minutes, and so forth.

In *Grundrisse* Marx says that “in the final analysis, all forms of economics can be reduced to the economy of time.... The first law of economics thus remains the economy of time, ... of working time.”⁶³ Hence, Novozhilov made labour time the minimand (dual) function of his linear programming model of a labour theory of value, in which objective function is national income. In a similar study, K. Adachi minimizes labour in his linear planning programme not on ethical grounds, but because he assumes labour to be a scarce good.⁶⁴ Earlier mathematical analyses of labour time were undertaken by E. Schneider and H. v. Stackelberg,⁶⁵ although they used methods rather more complicated than linear programming.

Novozhilov’s interpretation of Marxian labour theory of value in terms of marginalistic mathematics was for a long time anathema in Soviet economic theory. Had the Russians translated and published *Grundrisse* and other numerous Marxian manuscripts earlier and to a fuller extent, they would have discovered that marginalistic mathematics was not at all alien to Marx. In *Grundrisse* Marx uses marginalism in almost exactly the same way as Novozhilov. He also used marginalistic algebra in chapter 6 of volume 1 of *Capital*, “Results of Direct Process of Production.” For some reason that is still unclear, Marx himself did not include this chapter in volume 1, perhaps because he intended to use it as the opening chapter of volume 2, while Engels somehow missed it. Marx’s algebraic discussion of the marginal increment in production of surplus value and profit in this manuscript seems to be directly related thematically, and in time of writing, to his *Mathematical Manuscripts*. The latter were first published in an incomplete form in Russian in 1933, but the complete form appeared

only in 1968 with parallel German.⁶⁶ Inexplicably, this remained outside the main series of his *Works*.

Marx the mathematician awaits a proper appraisal in Marxology. The facts show that he began his mathematical studies in direct connection with his economic writings, and only later turned them into a separate and independent enquiry into the methods of dialectics.⁶⁷ He wanted to “prove” what other mathematical economists have taken over from the Euler Theorem of a function’s homogeneity: that the last derivative in differentiation “amounts in all probability to zero.” For Philip H. Wicksteed, for example, this statement by Euler was enough to dispose of Marshall’s “residual,” which hindered the “exhaustion” of the distribution of the total product in accordance with marginal productivity of factors.⁶⁸ Marx also faced this same last “residual” derivative of differentiation; he could not assume it away as “zero” because it was positive, even though infinitesimal. And he could not assume this because he was faced with the Lagrange multiplier.⁶⁹ It seems he was not aware of the Euler Theorem, but wanted to undertake a dialectical *salto mortale* with that last, marginal derivative, though it is not yet clear whether he succeeded. But his understanding of the Lagrange multiplier brought him very close to linear programming.

Among the many misunderstandings or misconceptions of Marx arising from the chrono-historical and linguistic discrepancies between Marxography and Marxology, one should point out the notorious unfinished debate about the “absolute general law of capitalist accumulation,” connected with Marx’s “hypotheses” about the “ever-growing reserve army of the unemployed” and the “absolute (or relative?) impoverishment (immiseration) of the masses.” This developed because Lenin, Tuhon-Baranovsky, Bernstein, Luxemburg and even Kautsky started the debate without having read volume 3, and especially the *Theories of Surplus Value*.⁷⁰ Thus, Lenin wrote all his 1893–9 economic pieces (compare Tables 2 and 3), without having seen either source. What Lenin read of Marx is an interesting topic in itself; to date the only work on this topic is a superficial paper by V. Adoratsky, in Russian.⁷¹ Both Plekhanov and Rosdolsky maintain that Lenin was more impressed with volume 2 than by volume 1, and thus sided with M. Tuhon-Baranovsky and other “Legal Marxists,” who believed that economic depressions were due to the disproportion between Marxian Departments 1 and 2 in the allocation of surplus value, and therefore to overproduction, rather than underconsumption, insufficient markets and the impoverishment of the unemployed masses, a view shared by Rosa Luxemburg. Lenin wrote that as Capitalism develops, the effective demands (*potrebnosti*) of the entire population and of the proletariat increase, rather than decrease,⁷² but the article, in which this statement

appears, was not published until 1937.

On the other hand, in 1933 (in the middle of the world depression and the starvation of peasantry in the USSR), the Stalinists issued with great fanfare a hitherto unpublished manuscript of Marx, which allegedly spoke unequivocally of general unemployment and the absolute impoverishment of the masses at the time of the general crisis of Capitalism.⁷³ In reality there was nothing as unequivocal as this in the manuscript. Only the introduction to the piece written in the name of the Central Committee of the CPSU proclaimed this to be a Marxian "law." Later it was entered as a law in all textbooks and propaganda publications of the Soviet brand of "Marxism."

Finally, after more than fifty years, Moscow decided to publish the full text of the Marxian *Manuscripts of 1861–63*. One can now read in black and white that the "possible improvement in the worker's living standards" really "does not change anything in the nature and the law of relative surplus value."⁷⁴ The crisis of overproduction can still occur, states Marx, because the economy's ability to raise output increases faster than the consumption of the proletariat. Workers' consumption always tends toward a minimum level, but this level is not something constant in Marx, as it is in the Classical School:

The means of life, which are necessary for the worker, in order that he lives as a worker, are naturally different in different countries and under different cultures. Even physical needs, such as food, clothing, shelter, fuel, increase or decrease because of climatic differences. Similarly, in one or another country, in one or another time period, to the necessities of life belong such things, which do not belong in a different country or in different times.⁷⁵

Marxology in the Future

A complete academic edition of all the writings of Marx and Engels, including the *Archives* (in Russian), the notebooks and other available manuscripts, may one day grow to about 100 volumes. Approximately sixty of these will be economic writings. The economic *Manuscripts of 1863–65*, which represent the third full draft of the whole *Capital*, the first draft being the *Grundrisse* and the second the *Manuscripts of 1861–63*, are still unpublished. In the *Manuscripts of 1863–65*, there is a complete draft of volume 3 of *Capital*, as left by Marx. In compiling and publishing volume 3, Engels used only about two-thirds of the materials left by Marx. In the 1863–65 manuscript there is also a complete draft of volume 2 of *Capital*, one of eight existing versions. Further, Marx's economic

Manuscripts of 1868–1870, are as yet completely unpublished. They contain seven versions of volume 2 of *Capital* and various notes for volume 3.

Scholars of Marxology, both in the East and the West, agree unanimously that “only the study of *Capital* together with its draft variants gives a full picture of Marx’s economic heritage.”⁷⁶ Also, “the complete picture about the amount of work contributed by Engels in the process of preparation of volume 3 of *Capital* will be seen only after all materials left by Marx for this volume have been published and have become the property of the scholarly community.”⁷⁷ Thus, as Lenin once suggested, volume 3 may be called the work of Marx and Engels, rather than that of Marx alone, while the original Marx volume 3 would look quite different.

In any case, a major task lies ahead for Marxology. Regrettably there is already a politically-motivated hostility toward “bourgeois Marxology.” “Class struggle” around Karl Marx? Like Shakespeare’s King Lear, Marx might have sighed that:

I am a man
More sinned against than sinning.

Notes

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4. W. Braeuer, *Handbuch zur Geschichte der Volkswirtschaftslehre* (Frankfurt-am-Main: V. Klostermann, 1952), 167.
5. G. Hertzfeldt, “Marxistisch-leninistische Literatur in Japan,” *Einheit* 9, no. 3 (March 1954): 334–5.
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10. *Literaturnoe nasledstvo K. Marksa i F. Engelsa*, 195.
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17. V. V. Adoratsky, *Izbrannye proizvedeniia* (Moscow, 1961), 595.
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31. *Ibid.*, 407.
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43. Samuelson, "Marxian Notion of Exploitation," 416.
44. *Ibid.*, 417; L. A. Leontiev, *Engels i ekonomicheskoe uchenie marksizma* (Moscow, 1965), 321.
45. Marx and Engels, *Second Russian Edition*, 31: 293–4, 304.
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52. K. Marx and F. Engels, *Sochineniia* (Moscow 1928–47), 19, part 2: 457–78. (Known as the *First Russian Edition*).
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 68. See G. J. Stigler, *Production and Distribution Theories* (New York: Macmillan, 1941), 328–30.
 69. Marx, *Matematicheskie rukopisi*, 174–5, 200–1, 334–5.
 70. Cf. P. Vranicki, *Historija Marksizma* (Zagreb, 1961), 137ff.
 71. Adoratsky, *Izbrannye proizvedeniia*, 544ff.
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 73. K. Marx, “Neopublikovannaia rukopis o vseobshchem zakone kapitalisticheskogo nakopleniia,” *Bolshevik* 10, no. 4 (28 February 1933).
 74. Marx, *Second Russian Edition*, 47: 279.
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 76. *Bolshaia sovetskaia entsiklopediia*, 11: 349.
 77. Leontiev, *Engels i ekonomicheskoe uchenie marksizma*, 319.

8. V. V. Novozhilov's Theory of Value

Introduction

Summary of findings

V. V. Novozhilov formulated a marginalistic labour theory of value. On the basis of almost all his pertinent writings (only a few of the earliest remain inaccessible), this investigation concerns his contribution by the method of comparative and critical analysis that is commonly used in the studies of the history of economic thought.

Novozhilov's value theory is a theory of marginal cost pricing, in which costs can be ultimately expressed in (reduced to) terms of current (live) labour inputs, which are minimized in a linear programming model. The key to Novozhilov's ideas is found in Karl Marx's well-known quotation:

All economies ultimately dissolve in the economy of time. . . . The economy of time as well as the planned distribution of labour time among different lines of production remains the first economic law of socialized production.¹

To Novozhilov, who was a mathematical economist, the presence of something to be minimized was sufficient for the construction of a mathematical model of a minimizing theory.

However, Novozhilov arrived at his theory of value through a series of methodological discoveries in the formative years of his theoretical work, 1937–59. He started with the development of formal methods of

comparing the economic effectiveness of alternative investment projects (1937–9). This helped him to embrace the notions of scarcity and of the alternative and opportunity costs, the first such notions in contemporary Soviet economic thought (1946). In these contributions, for imputation purposes, he applied the Lagrange multipliers—a feat which Ragnar Frisch later recognized as an early form of linear programming. In 1939, L. Kantorovich developed his own method of solution multipliers, now recognized as the first discovery of linear programming.² Kantorovich's work was well known to Novozhilov from the beginning. It was this combination of the minimax mathematics (linear programming) and the scarcity and alternative cost notions in Novozhilov's works that led him, by 1959, to the formulation of his theory of value.

As Novozhilov developed it after 1959, the theory states that the use of the better scarce resources in one place or industry, or in some products, increases current labour inputs in other places, industries, or products, because the latter must forego the use of the best resources. These alternative (marginal) increments in labour inputs must be imputed to the total cost, expressed in labour time, of the product(s) arising from the application of the scarce resource(s). In Novozhilov's conception, opportunity costs of using scarce non-labour inputs are expressed not in terms of previous output but rather in terms of additional labour costs incurred elsewhere. Therefore, to the labour spent in the production of the product with scarce labour resource must be added labour increments incurred in production of other goods without the use of the scarce resource. Novozhilov calls this a differential cost theory, but readily admits that mathematically it is not different from the Western marginal cost theories.

It is Marx's rather casual and infrequent mention of the different conditions of the application of labour that causes Novozhilov to maintain that the theory described is Marxist. Different conditions of the application of labour are, for example: machines of different efficiency and the degree of obsolescence; different soils in agriculture; different locations of production from the markets, etc. The better the conditions, the less the labour input. Yet costs and prices must be equal (optimum). Hence, differential rents in terms of labour cost must be computed and added to direct costs under better conditions. Similarly, an interest rate must be computed and added (in terms of labour) to take account of the time factor.

Novozhilov's theory of value rests on the following five propositions:

1. That labour—and only live, current labour—is the only real economic cost.
2. That this cost must be minimized and economized upon all the

time because there exists an objective law of the economy of labour.

3. That scarcity of production factors other than labour, and therefore their opportunity costs, are not value-creative (sources of value); but they create different conditions for the application of live labour that modify actual labour inputs per unit of output, and therefore also relative money prices.
4. That the efficient use of scarce resources is a necessity and a prerequisite of the law of the economy of labour.
5. That rational allocation of all resources is needed to satisfy the requirements of the law of the economy of labour.

Novozhilov restates his marginal labour cost theory in a more sophisticated form: as a minimand function of a linear programming dual, in which he initially assumes the bill of final products as given by the national economic plan. The task is to fulfill this plan with minimum total labour cost. Later, the maximand function of the dual is introduced; it is the national income, which to Novozhilov is a measure of social welfare. In this connection he investigates an optimum national economic plan. Here the final-product targets are no longer assumed as given but rather are calculated on the basis of consumer demand forecasts and government preferences. The minimum amount of live labour that is needed to fulfill the optimum national economic plan is that socially necessary labour that to Marx was the measure of value. It is calculated as the solution of the dual problem of linear programming. All calculations are made in terms of labour time.

The model of socially necessary labour determines prices of all goods. These are reckoned in money terms. Novozhilov's prices are all equal to marginal labour costs (modified values). They are calculated as sums of direct labour costs of production, plus scarcity charges (differential and obsolescence rents, investment effectiveness norms, interest for the time factor). Scarcity charges are calculated by means of shadow prices (Lagrange multipliers) and by the methods of iteration and linear programming. The prices of Novozhilov's consumer goods sometimes contain taxes and subsidies.

All Novozhilov's prices are optimal, accurately reflecting scarcity, supply and demand conditions, although consumers are only partially sovereign in his scheme. The government preserves a degree of sovereignty over demand, which it attains through its monopoly over supply. However, from the government's point of view a social welfare optimum is achieved. All functions in Novozhilov's models are homogeneous and of the first degree. Complete divisibility is also among his explicit assumptions, as well

as the possibility of substituting resources. The full employment of resources is assumed.

Novozhilov's contribution has been compared with the work of L. Kantorovich, K. Adachi, W. Leontief and others. The interpretations of his earlier writings by R. Frisch, A. Nove, H. Chambre, J.-M. Collette, M. Bornstein, G. Grossman, R. W. Campbell, A. Zauberger and others have also been analyzed. Contributions of his Soviet supporters (V. Nemchinov, A. Vainshtein, N. Shekhet et al.) and critics (P. Matislavsky, A. Kats, A. Boiarsky et al.) have been studied. It is well known that Novozhilov was an original thinker. He occupies an independent and leading place in the current history of Russian economic thought.

Contrary to the assertions of some Soviet and Western critics, it has been found that Novozhilov's theory is consistently Marxist and Leninist. Although it is true that marginalism was born together with the subjective utility theory of value, as a mathematical technique, it can be easily disassociated from utility theory and united with labour theory, or with any other theory of value to that effect. This accomplishment of Novozhilov was, in fact, anticipated in the West.

However, Novozhilov's theory is not a mere restatement of Marxism. It is, as he states, a development of Marx's value theory: a step forward. His Marxism is quite modern. If his theory finds enough followers, Novozhilov might well become the founder of a Neo-Marxist school of economic thought. Evidence shows that he has already become popular among young Soviet economists. But Novozhilov's contribution toward consumer demand begs some questions. In an orthodox Soviet way, he refuses to grant consumers full sovereignty. Also, his theory of interest is incomplete.

The immediate value of Novozhilov's contribution has been the introduction of marginalistic reasoning into Soviet economic thought. If included in Soviet economics textbooks and courses, his theories could introduce economics students (for the first time in recent Soviet history) to such new concepts as scarcity, alternative and opportunity costs and rent imputation. They could illuminate the economical nature of the cost-and-result, price-and-profit mechanism, and enable a better understanding of the uniqueness of economic philosophy, which receives little attention in current Soviet textbooks and in Soviet economics courses.

Aside from the labour theory of value, which may or may not be palatable, Novozhilov's methodology measures up to the highest standards of Western economics. As such, therefore, it may also serve as a bridge for increased mutual understanding between Soviet and Western economic sciences.

Problems in source materials

For the most part the author has used Novozhilov's original Russian publications. Of the five English translations of his works, three are inadequate;³ unfortunately, two of these are his main works.⁴ In these translations, important words have been omitted, others badly misinterpreted,⁵ and in some mathematical formulae and important symbols have been misplaced.⁶ Generally these translations are still readable, but the reader must be on guard; if he should find some errors, the fault does not lie with Novozhilov.

There is also one major terminological problem: Novozhilov's use of the Russian term *zatraty*, which is here usually translated as "costs." He uses this term constantly throughout his writings, and introduces his theory of *zatraty*. However, literally *zatraty* means not "costs," but "outlays" or "expenditures." "Costs" in Russian would be rendered as *izderzhki* or *raskhody*. However, Russian etymological dictionaries explain the meaning of the word *zatraty* as "expenditures undertaken with the anticipation of some return," which is undoubtedly Novozhilov's interpretation.

To use in translation a phrase like a "theory of outlays" [as in two of Novozhilov's English works of 1961 and 1964] is bookish. It has been decided instead to use here the more familiar economic terms "costs" for *zatraty*, after the example of B. Ward, M. Bornstein and R. Frisch.

On the other hand, since "labour costs" and "costs of labour" are easily confused with wages, the terms "labour outlays" and/or "labour input" are used here for Novozhilov's *zatraty truda*. It must be kept in mind, however, that Novozhilov's *zatraty* always anticipate a return, whereas "costs" or "outlays" presumably do not. *Zatraty* possesses a nuance of *ex ante* advance into the future and seems to exclude by definition any possibility of "waste." "Costs" on the other hand are clearly a past-expenditure notion, which may turn out wasteful in the future. All these expressions seem to make the Novozhilov theory of *zatraty* somewhat broader in scope than the ordinary theory of cost, and also a priori somewhat more rational, merely by the definition of the words used.

It could be that Novozhilov, a very careful scholar, deliberately chose to use *zatraty* instead of *izderzhki* to correspond with his interpretation of the Marxian term "socially necessary labour." Novozhilov understands Marx as saying that not all past outlays of labour are necessarily value-creative today. Present and future demand (utility) must also be taken into account. Hence, the term *zatraty* from the past into the future, rather than *izderzhki*, which clearly belongs to the past.

In addition to Novozhilov's published works listed in the bibliography, this writer also uses seven letters he received from Professor Novozhilov in 1966–9. He was replying to specific questions concerning his writings, and clarified some misunderstandings.

1. Labour as the Only Real Cost

Novozhilov believes that “all real costs in an economy consist of labour and labour alone”⁷ and consistently repeats this proposition in his writings. He insists that this idea is pure Marxism-Leninism,⁸ and points out that no Soviet critic has dared to dispute this assertion.

However, Novozhilov’s meaning of this “real cost” is distinctive:

Real costs in a national economy consist only of labour. This does not imply, however, that only labour is scarce, for scarce are also *conditions of the application of labour*. . . . *But labour’s scarcity is different from scarcity of the conditions of its application*. People strive to *minimize* the input of labour; but as far as the conditions of the application of labour are concerned people strive to *use* them to the *maximum*.⁹ (V. V. N.’s emphasis)

The same definition is also repeated in Novozhilov, “*Matematicheskie modeli narodnogo khoziaistva*,” page 16 and in Novozhilov, “*O zakonomernostiakh razvitiia ischisleniia zatrat*,” page 25, where he adds that the scarcity of labour has a “higher meaning” to mankind than the scarcity of all other factors of production because the latter are merely “conditions of the application of labour,” whereas labour as such, live labour, is like life itself directly related to human beings, who always want to minimize the time and effort they spend in labour.

We may conclude from this that Novozhilov’s concept of real labour cost is (among other things) a dialectical combination of the notions of:

1. objective scarcity of labour as a productive factor, even though it is the most important productive factor;
2. subjective disuse of labour from man’s point of view.

The latter point is reinforced by Novozhilov’s belief that those Western economic models that maximize the time of leisure or which include leisure among the criteria of the welfare maximization functions “constitute merely another form” of his law of the economy of labour.¹⁰

This higher meaning of labour costs constitutes the dividing line between Marxian and non-Marxian economics, in the opinion of Novozhilov.¹¹ His discussion throws additional light on his distinctive meaning of costs:

The main defect of the models of general equilibrium is that they fail to distinguish between the scarcity of labour and the means of labour. Essentially this implies disregard for the difference between the subjects and the objects of economic activity. In the antagonistic societies, it is true, the ruling classes look on labour as an object of their management. This puts certain restrictions on the economic theory of such societies: the theory, too, regards labour as just another factor of production. However, working people themselves could not and cannot forget the difference between labour and the means of production. Their struggle for the recognition of this difference, and against leveling and identification of the subject with the object of economic activity, is the most important factor in the development of the economy. And it is obvious why. After all, the growth of material well-being and culture of a society presupposes maximum utilization of the means of production (natural resources in particular) with a minimum expenditure of labour.¹²

Similar ideas are also found in “*Matematicheskie modeli*” (page 16). He also suggests that the fact that “people strive to reduce the input of labour” is especially evident when one studies not static models but the historical development of an economy: “The labour day is being reduced, while capital investments and the utilization of natural resources is being increased.”¹³

The latter observation is not quite true, but Novozhilov’s shortcomings will be discussed later.

Conditions of the application of labour

The meaning and significance of Novozhilov’s distinction between labour and all other factors, which are to him only conditions (albeit even preconditions) for the application of labour, becomes clearer if his definition of labour as the sole real cost is presented as follows:

In a national economy, expenditures are always the expenditures of labour. It may be live labour, directly applied by man to the manufacturing of that or another product. It may be past labour, embodied in the means of production. But all outlays consist of labour and labour alone.¹⁴

Novozhilov thus acknowledges the existence of “past” or “dead” labour “embodied” in the means of production, i.e., in machines, raw materials and various intermediate products, which is, of course, the familiar Ricardian and “Volume-1-Marxian” labour-value explanation of the value of non-labour factors. However, in Novozhilov’s theory this familiar proposition undergoes a novel, “Volume-3-of-*Capital*” transformation:

For the society as a whole, at any given time (e.g., at the start of the planning period) past labour is a constant magnitude. It cannot be changed, as the past cannot be altered. The immediate¹⁵ (live) labour, on the other hand, is a variable magnitude. It may be larger or smaller, depending on the final product targets established by the plan. Therefore, for the society as a whole, the minimum of all (i.e., of both past and live) labour input into the production of the given output is determined by the input of live labour alone. After all, the minimum of a sum of a constant and a variable is always determined by the minimum of the variable.

Hence, the law of the economy of labour is ultimately the law of the economy of live labour, the law of growth of its, live labour's, productivity.¹⁶

In other words, labour for Novozhilov is the sole source, or cause, of economic activity—an apodictic postulate. It implies the self-evident: that production without labour in the economy as a whole is impossible; even in a completely automated and computerized science-fiction economy there presumably must be at least one labourer to push at least one button at least one time—though at this point, according to Marx, labour theory of value ceases to function.¹⁷ Yet however much of the “past” or “dead” labour may be “stored up” in the means of production available to an economy, the latter are indeed dead if actual, live labour is not applied to them. This then is another aspect of the “higher meaning” of the scarcity of labour as compared to the scarcity of the means of production, and the third point in Novozhilov's conception of labour as the sole economic cost: without labour the scarcity of the means of production is nil, it is meaningless.

The reverse is not true, it seems. Labour alone with nature, without the means of production, still would be able to produce something, probably the means of production first of all—a stick to knock down a fruit from a tree, for example. Hence, the means of production are secondary, labour is primary—the familiar Marxist postulate. All this, of course, is directly relevant to the question why Novozhilov believes that labour alone is the source and measure of value, why he professes the labour theory of value. To Novozhilov, labour is not merely a *numéraire* as it would be in a general equilibrium model, it is a philosophical postulate, a higher truth.

Labour productivity

Now the crucial question: is not “past” labour also a cost? Should not the means of production be economized? If “dead” labour is cheaper than “live,” should substitution take place? Novozhilov's answer is a definite yes, for he admits that the means of production, too, are scarce. But this

still does not place all other scarce factors on the same footing with "live" labour. They must be economized upon, but not for their own sake. Rather, they must be (and are) economized upon in order to (and/or because they help to) economize on "live" labour.

This interesting and original point in Novozhilov's philosophy of cost becomes clear in his discussion of labour productivity. We noted above his assertion that the law of the economy of labour is, in the final account, the law of growth of "live" labour's productivity. The growth of labour productivity ostensibly means that the output per unit of labour input increases and the input of labour per unit of output decreases. However, while labour input per unit of output decreases, does this necessarily mean that the total input of labour per man-day, or man-year, or in the economy as a whole also decreases? Obviously not. Labour productivity (measured in kind, in physical units of product per unit of labour time) may increase while labour input remains constant or increases at a slower rate than the increase of output. The growth of labour productivity is usually due to the increase, substitution, and/or qualitative improvement of other inputs that go into output together with labour.

When in practice labour productivity indexes are calculated in various plants, industries and places, output is divided per labour time and non-labour inputs are disregarded. Or, at best, output is divided per unit of both wage and fixed capital, "live" and "dead" labour combined. Such practices are erroneous, according to Novozhilov. The correct method of measuring labour productivity, in his view, is by dividing given output per unit of "live" labour alone, and at the same time multiplying the latter by a "differential," or a co-efficient that would equate "live" labour's conditions in the given plant, industry or place with the rest of the economy.¹⁸ This is an ideal index of labour productivity, he agrees, but it should be calculated, for it puts equal labour, spent in the economy on the given product, in equal conditions everywhere. Differential endowments with conditions of "live" labour (different machines, sources of energy, degree of obsolescence, location, etc.) are thus taken into account by averaging them out from the picture, so that only "live" labour remains.

This again illustrates why Novozhilov speaks of "live" labour alone as the sole real cost in the economy as a whole.¹⁹ He advocates economizing upon and reducing all other costs (including alternative, or opportunity costs, as will be shown below), because this economizing saves "live" labour. And this also explains why he speaks of the law of the economy of labour as that of the economy of "live" labour.

2. The Law of the Economy of Labour

Economizing on labour input

The law of the economy of labour—as well as the labour theory of value—logically follows from the labour cost theory, according to Novozhilov.²⁰ But the opposite is also true: “The theory of the real costs of production and the labour theory of value both stem from the law of the economy of labour.”²¹ There is logical interconnection among them, in other words. Novozhilov substantiates the presence of the law of the economy of labour with the following observations:

1. that people naturally tend to minimize their own labour inputs and always desire to economize on their labour;
2. that historically the labour-day has been decreasing;
3. that live labour’s productivity has been increasing throughout history.

In addition to Marx’s rule that the economy of time is economic law No. 1, Novozhilov bases his observations on the following remarks of Marx about freedom from work as absolute freedom:

In fact, the realm of freedom actually begins only where labour which is determined by necessity and mundane consideration ceases. . . . Freedom in this field can only consist in socialized man, the associated producers, rationally regulating their interchange with Nature, bringing it under their common control, instead of being ruled by it as by the blind forces of Nature; and achieving this with the least expenditure of energy and under conditions most favourable to, and worthy of, their human nature. . . . The shortening of the working day is its basic prerequisite.²²

He referred also to Lenin’s substantiation of the universality of the law of the economy of labour:

The productivity of labour is, in the final analysis, the most important, principal factor in the victory of a new social system. Capitalism brought about labour productivity unimaginable under serfdom. Capitalism can and

will finally be overthrown due to the fact that socialism can create new, much higher, productivity of labour.²³

Novozhilov maintains that the law of the economy of labour is a “general law of all economic systems.”²⁴ This is in the same sense that the minimization of all costs is a general law of all economies at all times and places. However,

the higher the level of economic development, the more important it becomes to economize on labour, and the more effective the law of the economy of labour therefore. . . . [under socialism] the economy of labour becomes more important than in any other period of time. . . .²⁵

and yet, at the same time, under socialism this law presupposes also full employment of labour.

The law of the economy of labour not only determines the meaning of real costs of production but also subjects cost accounting to the minimax formulas: to the minimization of labour inputs (in statics) and the maximization of the rates of growth of labour productivity (in dynamics).²⁶

This type of accounting is especially important under socialism.

The meaning of scarcity

It has been implicit in the foregoing discussion that, according to the law of the economy of labour, the minimum total input of labour is achieved if, and only if, all scarce resources—labour as well as non-labour—are rationally allocated and used efficiently. Before proceeding with the development of rationality and efficiency conditions, we must clarify Novozhilov’s definition of scarcity.

The notion of scarcity is of pivotal importance to Novozhilov’s economics. For this alone his theories are elevated over almost everything else in today’s Soviet economic literature. Novozhilov was the first among Soviet economists—and Marxist economists at large—to attach significance to the phenomenon of scarcity in economic theory. His first publication related to the theory of value already contained the notion of scarcity.²⁷

Generally, Novozhilov’s definition of scarcity is similar to that of Western economists, but there are also some important nuances.²⁸ “Scarce” means the opposite of “abundant”: “shortage” and “deficiency,” a “temporary deficit of some goods.”²⁹ Whenever supply is fixed, it means

scarcity. Novozhilov maintains that Soviet national economic plans create scarcities in practice because their supply balances are usually fixed too tightly.³⁰ All the “best” and “comparatively good” resources are “usually scarce”—relative to inferior resources, that is.³¹ The supply of superior resources is limited as a rule. The length of time of production and circulation of goods also creates the phenomenon of scarcity.³²

An interesting aspect of Novozhilov's scarcity concept is his emphasis on scarcity's objectivity. Since he assumes demand frequently as given and constant, scarcity seldom derives directly from it; rather, demand usually stems from the insufficiency of production and supply.³³ Here, Novozhilov's concept of scarcity differs significantly from familiar Western concepts. Supply rather than demand also dominates Novozhilov's long-term approach. For instance, he says that the scarcity of investible capital is not a temporary bottleneck:

However large the accumulation may be in the national economy, if the discovery of natural resources and technical inventions develops sufficiently rapidly new opportunities for effective investment, the relative scarcity of investments will become obvious.³⁴

Scarce resources are very numerous:

First, they comprise land, minerals, etc. Second, there are a substantial number of goods whose reproduction involves certain limitations. Thus, the output of all the reproducible means of production is restricted by the volume of capital accumulation in the national economy. Furthermore, the reproduction of a portion of the available productive assets in their previous form now becomes inefficient because of obsolescence, although they can still be used effectively. Finally, the use of the most up-to-date machinery is also restricted by the fact that a definite period of time is needed to put it into production.³⁵

Practically speaking, the non-scarce “are only those old means of production which are on the borderline of obsolescence and are about to be out of use.”³⁶ Or, in other words, “every means of production whose product would cost less than the product of the worst means of production of the same type, would be scarce.”³⁷

A crucial question is how does scarcity relate to Novozhilov's theory of value? There are two relationships: direct and indirect. The indirect relationship is established through opportunity or differential costs, which are discussed later. Directly, however, the “use of scarce resources does not create value.”³⁸ The non-reproducible goods such as natural resources and time also have no value.³⁹ Since value consists of labour and labour alone,

these propositions are self-evident. Scarcity as such is not a direct product of labour; hence, it has no value and creates none. Similarly, “scarcity is not a cost,”⁴⁰ particularly on the macroeconomic, national level, where all scarcities cancel each other out, provided all resources are allocated optimally and used efficiently. However (and here comes a remarkable dialectical feat), “scarcity as an accounting factor increases costs” on the microeconomic, enterprise level:

Surely there is no need to prove to the reader . . . that “scarcity” is not a cost. And yet the planners are right in insisting that in practice other costs, costs of a special kind, should be taken into consideration, in addition to production costs. It is not because of the shortcomings of production costs as an index of the real costs of production that these special expenditures ought to be taken into account. The necessity would remain even if there were a method of precisely measuring labour invested in each product, for these costs—unknown but sensed in practice—are incurred indeed; though not in the production of the given product, but in the production of other products.⁴¹

In other words, these are what are called in the West the “opportunity costs.” They are to some extent, unknowingly but sensibly, taken into account in Soviet planning practices in the calculation of the comparative recoupment periods for the alternative investment projects, in the setting of high prices on such particularly scarce commodities as copper, etc.

One final matter: Will the scarcity phenomenon remain under full-fledged Communism, the future millennium of abundance (Marx)? “Probably,” answers Novozhilov, whose argument runs as follows:

First, differences among the efficiencies of natural resources will continue to exist. Second, differences in efficiency of the reproducible tools of labour will remain, too. Technical progress cannot eliminate these differences because it creates them itself. . . . Thirdly, there will remain differences in the efficiency of expenditures that are connected with the differences of the length of time of production and circulation.⁴²

The consumption of at least some of the consumer goods will be limited under Communism by society itself.⁴³

This is a novel, refreshingly rational view of the future.

3. Imputed and Differential Costs

The so-called inversely related, or feedback, costs

The difference in the conditions of the application of labour to the means of production (which is due to the phenomenon of scarcity) produces an important impact on real costs, according to Novozhilov. This impact is evident in the costs' absolute level, in their volume, as well as in their relative, comparative relationships.

The use of the "superior" resources in one industry lowers the per-unit value in it, but at the same time raises the per-unit value somewhere else; that is, the value of those products whose output has been left without "superior" means because the latter have all been used up in the given industry.⁴⁴

Under such circumstances, if one wants to find a "minimum value of the total social product,"

the cost of each individual product must be calculated in such a way that the increments of value of other products, which are due to the use of the superior means of production in producing a given product, should be taken into account.⁴⁵

Thus, it is necessary to "measure that increment in the value of the whole social product that is due to the output of one unit of the given product."⁴⁶ Or in other words, it is necessary to measure that "increment in labour input on the output of the final social product that has been called forth by the output of the given product."⁴⁷

This kind of cost accounting is needed if labour and all its supplements (means of production) are to be used rationally and efficiently throughout the economy. "After all, economy derived by a given enterprise from the use of some raw materials that are in short supply may be exceeded by additional outlays at other enterprises, which could have used the scarce raw materials to much greater advantage, but were deprived of such an opportunity."⁴⁸ As a result, the "net product of the given enterprises increases, but the national income decreases."⁴⁹

Before proposing specific methods of this kind of alternative cost accounting, Novozhilov developed a theory of the measurement of these costs, based on his own definition of alternative cost relationships. In this he uses peculiar terminology, which can only be interpreted, not literally translated. His argument runs as follows:

Costs will always be inversely related (*obratno sviazany*) when the following three conditions hold:

1. when several means of production are substitutes, i.e., are capable of serving the same purpose;
2. when they are unequally efficient in serving this purpose;
3. when there is a shortage of the more efficient of these means of production in comparison with the need for them (more precisely, with the volume of effective opportunities for their use).⁵⁰

An inverse relationship arises between labour inputs for those purposes in which the more efficient and/or more scarce means of production are used and those purposes in which less efficient and/or more abundant means are applied. The use of “better” means of production (e.g., “better” raw materials or sources of power, “better” machines, etc.) for one purpose involves the use of “worse” means of production for another, because there are not enough “better” means for all worthy purposes. “Consequently, labour economies affected by using the ‘better’ but scarce means of production always entail increases in labour expenditures for certain other purposes.”⁵¹

This additional, incremental labour expended in other places or on other products because of the use of scarce and “better” means in the given place or on the given product, must be accounted for in the calculation of the minimum total cost of the final product of the national economy. “We shall call the value of this additional labour the ‘*inversely related costs*.’ Then we can say that only those processes which minimize the sum of production expenditures and inversely related costs satisfy the conditions for minimum total cost in the economy as a whole.”⁵²

Novozhilov wrote this in 1946; earlier in the same article he stated that the kind of cost under discussion “did not yet possess a name.”⁵³ If he meant a Russian name, he was right. The *zatraty obratnoi sviazi*—inversely related costs—was the name that he suggested. Subsequently, in his major 1959 publication, he distinguished two kinds of related costs: the inversely related costs as above and the “differential costs” (*differentsialnye zatraty*), which include the inversely related costs. This distinction is clarified below. First, we must decide what to call the first type of costs.

The “inversely related costs” was B. Ward’s literal translation of *zatraty obratnoi sviazi*. However, this term is alien to traditional English-language economics. Another, literal translation, “inverse dependence outlays,” sounds awkward. Alec Nove suggested the modern term “feedback costs,”⁵⁴ which might be understood by computer electronics technicians and other cyberneticians. Nove’s identification of “feedback costs” with the familiar Western “opportunity costs” is revealing, however. “Alternative costs” would also be good. But this study will use the Western term that fits Novozhilov’s meaning most closely, i.e. “imputed costs.”

As to the “differential costs,” the term fits both the Russian original and the English translation. It is synonymous with “marginal costs.” Samuelson says that marginal costs “is extra cost, or incremental cost, or differential cost,”⁵⁵ and, as will be demonstrated, this is exactly what Novozhilov had in mind.

Imputed costs

Novozhilov says that imputed costs are “increments of the cost of producing other products that are due to the use of better conditions of the application of labour in the production of the given product, rather than of other products.”⁵⁶ This kind of cost arises whenever the “use of a process of production requiring the least expenditures on the given product might involve an increase in the cost of other products which would exceed saving gained in the production of the given product.”⁵⁷ He also identifies imputed costs with “possible but lost economies.”⁵⁸

Conceptually, Novozhilov’s imputed costs are similar to the familiar Western opportunity or alternative costs, except that:

1. Western opportunity costs of using scarce inputs are expressed in terms of output foregone where these inputs could not be used. Novozhilov’s imputed costs of using scarce non-labour resources are expressed in terms of additional labour inputs incurred where scarce inputs could not be used.
2. Novozhilov’s imputed costs are national economic, social, or otherwise explicitly macroeconomic costs. They do not presume a market economy and market competition to determine alternative uses of resources. Rather, they are supposed to be calculated by central planners by iterative and linear programming methods.⁵⁹
3. They are objective costs in the sense that they must and can be calculated and included into prices of products, while opportunity costs are seldom calculated in Western business practices and

can hardly be accepted by certified cost accountants, business auditors and tax collectors as legitimate accounting items. In Western practice, only privately owned housing and a few other types of rent are included by imputation in national income accounts, while Novozhilov proposes to impute to products, in actual planning practices, all the rents, obsolescence and time factor charges.

In Marxian terms, according to Novozhilov, the "sum total of all imputed costs (i.e., of all rents and profits) will be equal to the value of the surplus product."⁶⁰

Differential costs

"The easiest way to understand the meaning of the given product's differential cost is to see it as a difference between the total labour spent on the production of the entire national output but without the given product."⁶¹ In other words,

in value terms differential costs for the production of particular products equal the difference between the cost of the national economy's end-product, and the cost of this output with the same limited resources but without production of the product in question.⁶²

Another way of putting it is to say that the differential costs "derive from the value of the social product: they are the increment in the value of the social product which is due to production of the given product."⁶³ Accordingly, Novozhilov believes that "marginal costs and differential costs are one and the same thing." This is a correct observation, except that the three points of difference between his imputed costs and Western opportunity costs apply here as well.

The main difference between Novozhilov's differential costs and the usual Western marginal costs lies in the methods of their determination. Western marginal costs are usually determined by competition in the market place, whereas Novozhilov's refers to a centrally-planned economy. Here differential costs are calculated at the enterprise level from actual direct costs of production and the norms of effectiveness of the use of scarce resources handed down to the enterprise by central planners. These norms are calculated by central planners from imputed costs plus policy considerations as seasoning. The norms of effectiveness are prices of scarce resources that must be added by the enterprise to its own direct costs in order to decide whether the proposed planned production will be profitable.

In other words, Novozhilov's ultimate differential costs that have gone through trial and error at the enterprise level are the sum total of the enterprise's actual direct costs and the national imputed costs of the given product.⁶⁴

As will be shown, the sum total of differential costs in the economy represents the minimum socially necessary expenditure of labour on the maximum social final output. This is how Novozhilov defines Marx's "socially necessary labour."

4. Determination and Measurement of Costs

The simplest numerical example

How does Novozhilov propose to measure his costs? Let us consider first his example of a single factory producing four different products according to an annual plan, which specifies the quantities to be produced as follows:⁶⁵

Good A	1,000 units
Good B	50 units
Good C	10,000 units
Good D	400 units

To produce these goods, the factory is supplied with 1,000 pounds of scarce material per year. Technologically this material can be used in the manufacture of each of the four products, and in addition it can be replaced by some non-scarce materials.

The technologically determined input of materials per unit of each product, as well as the required input of live labour, is presented in Table 1.

TABLE 1

Goods (1)	Type of Input (2)	Input per unit of output when the kind of material used is:	
		Scarce (3)	Non-scarce (4)
A	Labour, hours,	20.00	22.00
	Scarce material, pounds	1.00	-
B	Labour, hours,	100.00	150.00
	Scarce material, pounds	10.00	-
C	Labour, hours,	1.00	1.20
	Scarce material, pounds	0.05	-
D	Labour, hours,	40.00	44.50
	Scarce material, pounds	1.50	-

In this example, the use of the scarce material results in some saving of labour for each good. But the quantity of the scarce material that would be needed to produce all four goods would be much larger than the quantity actually available; that is,

1 x 1,000	=	1,000
10 x 50	=	500
0.05 x 10,000	=	500
1.5 x 400	=	600
Total (lbs.)	=	2,600

Hence, the problem is to allocate the available 1,000 lbs of the scarce material so that the total labour input for the whole output plan, using both scarce and non-scarce materials, would be at a minimum. "It should be obvious," adds Novozhilov, "that the desired labour cost minimum corresponds to that allocation of the scarce material in which the total labour saved by using the scarce material, rather than the nonscarce ones, is as large as possible."⁶⁶

Novozhilov solves the problem in the following manner. First, he computes from data in Table 1 the saving of labour that the use of one unit of the scarce resource permits in the production of one unit of each of the four products. This saving he calls the "coefficient of effectiveness of the use of scarce resource."⁶⁷ Table 2 shows how it is determined.

TABLE 2

Product	Labour saved by using the scarce material instead of the non-scarce ones ¹ (labour hours per unit of production)	Amount of the scarce material used ² (pounds per unit of product)	Effectiveness of the use of the scarce material (labour hours per pound)
(1)	(2)	(3)	(2) : (3) = 4
A	2.00	1.00	2
B	50.00	10.00	5
C	0.20	0.05	4
D	4.50	1.50	3

¹That is, [4] minus [3] in Table 1.

²That is, [4] in Table 1.

Next, Novozhilov rearranges his co-efficient of effectiveness (column 4 in Table 2) in a decreasing order of magnitude (increasing order would have been equally good) and computes the total amount of the scarce material that would be required in the total output of each of the four goods, according to the plan. This is shown in Table 3.

TABLE 3

Product	Effectiveness of the use of scarce material (labour hours per pound) ¹	Input of the scarce material per unit of output (pounds) ²	Output plan (units of product)	Amount of scarce material needed to fulfill the plan (pounds per year)
(1)	(2)	(3)	(4)	(3) x (4)=5
B	5	10.00	50	500
C	4	0.05	10,000	500
D	3	1.50	400	600
A	2	1.00	1,000	1,000

¹That is, (4) in Table 2.

²That is, (3) in Table 1 or 2.

Finally, Novozhilov adopts from Table 3, starting with the most effective use of the scarce resources (top row), as many uses of the scarce material as can be covered by the available supply, until the total supply, 1,000 lbs., is exhausted (column 5). In the example given, the uses of the scarce material in production of goods B and C exhaust supply completely. Hence, goods D and A must be produced with non-scarce materials. Under such conditions the total output plan will be carried out with a minimum total input of labour and maximum efficiency in the use of the scarce resources.

This is Novozhilov, vintage 1946. Possibly he prepared these calculations during the war for the Ministry of Defence, as this would explain the introduction of "non-scarce materials" into his calculations. Another possible explanation is the theoretical one. In the tradition of Stalinist economic thought, he disregards consumer demand, and therefore fails to see that under a real demand schedule, all economic goods are scarce. In his post-1946 writings, however, "non-scarce materials" are no longer mentioned in any significant contexts. The significance of demand enters into his theory only some twenty years later, and even then not to the full extent.

Let us return to Novozhilov's methodology, which is essential to his theory. We will examine more closely the method of selection he used to solve his problems. Let us consider in particular how the uses of the scarce

material that are consistent with a minimum total labour cost (the "adopted" uses in Table 3) differ from other possible uses of the same resource, which were rejected. There are two significant differences:

1. Each adopted use of the scarce material is more effective than the most effective of the rejected uses;
2. all adopted uses taken together demand just that quantity of the scarce material that was supplied to the factory.

This means that whenever the maximum effectiveness of those uses of the scarce resources not consistent with the minimum labour input is found, the choices of uses consistent with that minimum is determined at the same time. The opposite is also true. In Table 3, the maximum effectiveness of the rejected uses of the scarce resources is equal to three labour-hours per pound of the resource.

Novozhilov explains the nature of this key indicator as the maximum saving of labour that can be obtained by using a unit of the scarce resource, if this resource is spent on one of the rejected uses.⁶⁸ In other words, it is the maximum increase in the labour cost of other products, A and D, incurred by expending a unit of the scarce resource on products B and C rather than on the other products. Consequently, it is the maximum of the imputed costs incurred by the use of a unit of the scarce resource, assuming that the adopted uses correspond to the minimum total costs.

Therefore, the co-efficients of effectiveness of the use of scarce resources in terms of labour saved are the imputed costs of the use of such resources. Of critical significance is the maximum imputed labour costs. If this critical indicator (three labour hours per pound) could be somehow learned without recourse to the lengthy calculations made above, all uses of the scarce resource consistent with the minimum total labour cost could be immediately determined simply by selecting those uses of the scarce resource which have an effectiveness greater than three hours per pound.

Of course, this is merely wishful thinking; to find such a critical value requires even more long-hand computations. But there is one practical consequence of this thought. If some higher authority gave our factory a ready-made standard, or a criterion, or a normative of such a maximum imputed cost of the scarce resource, and also charged this cost to the factory, the factory would not need to indulge in lengthy calculations. By simply comparing the effectiveness of its own, local uses of the scarce resources with the normative of its imputed cost the factory would be able to select and determine those of its uses consistent with its minimum total cost and/or maximum total profit. If all factories did the same throughout the economy, the minimum socially-necessary labour cost to produce a maximum social product could be determined.

This use of normative effectiveness co-efficients, calculated by central planners and handed down the channels to local enterprises, is very important to all of Novozhilov's models, and particularly to his suggestions for the reform of planning and administration of the Soviet economy.⁶⁹

The generalized case of many products and one scarce resource

Novozhilov raises his theory of imputed costs to the level of abstraction by generalizing the above numerical example. His procedure is the traditional numerical mathematical analysis.⁷⁰

Let us assume that there is one single factor of production, called q , which is not labour. Let us further assume that q can be used in the production of n different products; that all n of these products must be produced in specified quantities given in the plan; and that in the production of each of these products it is technologically possible to replace q by some non-scarce resources and/or by additional labour. The supply of homogeneous labour is assumed to be sufficient to produce all of n , but labour is scarce "in the higher sense" and is subject to the law of the economy of labour.

Direct labour costs (in labour-time units) of producing n products *with* the use of the scarce resource q shall be designated by $c_1, c_2, c_3, \dots, c_n$; and the quantity of the q resource needed for the production of each product shall correspondingly be designated by $q_1, q_2, q_3, \dots, q_n$ (measured again in labour-time units, including q used as an input in the output of q , if any). Labour costs of production of the same products but *without* the use of the scarce resource shall be known as $c_1^0, c_2^0, c_3^0, \dots, c_n^0$.

Let us now attach (impute!) a price r to the q resource. Of course, r is not fixed arbitrarily, but I will explain later how it is actually determined. It is assumed here that this price is given by central planners in the form of a "normative of imputed costs," or a "maximum effectiveness co-efficient" of the scarce q resource.⁷¹ In any case, it is important to keep in mind that r is a scarcity price of a special kind in Novozhilov's system: in addition to being a price, it can also be several other things, including an ordinary number without any *numéraire* or measure attached to it, because its practical function is merely that of a multiplier. As such, it has no value content; it is a "price without value."⁷² These features of r will be discussed later.

In this particular case, r is equal to (repeat: equal to, not the same as, or identical with) that number of hours of labour by which the cost of production of goods not using the scarce q resource increases, compared to production costs of goods using the q resource, because the latter have

used up the whole supply of q and there is no more left. Similarly, r is equal to the number of labour hours that can be saved in the production of goods using the q resource as compared to those not using it because of its scarcity. As such, then, r is equal to the imputed cost of using q , while the product of the multiplication, qr , "expresses," as Novozhilov puts it, the imputed labour costs incurred by the expenditure of q units of the scarce resource, with the latter units measured in labour-time terms.

In the preceding numerical case, no explicit r was used in the calculations. The problem was so simple that it could be solved directly, by selection, without the use of r . More complicated numerical problems, however, cannot be solved without the multiplier unless formulated specifically for the solution by linear programming methods that do not use multipliers.

To return to the present case, the imputed cost of the use of $q_1, q_2, q_3, \dots, q_n$ units of the given scarce resource will be $q_1r, q_2r, q_3r, \dots, q_nr$; and the total costs of production of each of the n products will amount accordingly to $c_1 + q_1r, c_2 + q_2r, c_3 + q_3r, \dots, c_n + q_nr$. These total costs are differential costs in Novozhilov's terminology.

Let us assume now that for the first m of n products these total differential costs are less than or equal to the total costs of production of these products without the use of the scarce q resource (that is, less than or equal to $c_1^0, c_2^0, \dots, c_n^0$) and for the remaining $n-m$ products they are greater than $c_{m+1}^0, c_{m+2}^0, c_{m+3}^0, \dots, c_n^0$. As a result, the most effective use of the total supply of q is obtained: the production of each of the products in which q will be used will cost less than each of the remaining products in which q is not used. Also, the total output of n will be produced with a minimum of total labour costs because q will be allocated only to those uses in which total labour saved by using q is a maximum.

To prove this proposition, Novozhilov notes the inequalities showing that the differential costs of the type $c + qr$ for each use of q are smaller than or equal to the costs of producing these goods without q , while for each of the other products they are greater:⁷³

$$c_1 + q_1r \leq c_1^0$$

$$c_2 + q_2r \leq c_2^0$$

$$c_3 + q_3r \leq c_3^0$$

.....

$$c_m + q_mr \leq c_m^0$$

$$c_{m+1} + q_{m+1}r > c_{m+1}^0$$

$$c_{m+2} + q_{m+2}r > c_{m+2}^0$$

$$c_{m+3} + q_{m+3}r > c_{m+3}^0$$

.....

$$c_n + q_nr > c_n^0$$

Next, Novozhilov transposes these inequalities in such a manner as to leave on one side the indicators of the actual effectiveness of the use of q and on the other the costs of its use (or its normative of effectiveness):⁷⁴

$$\begin{array}{ll} \frac{c_1^o - c_1}{q_1} \geq r & \frac{c_{m+1}^o - c_{m+1}}{q_{m+1}} < r \\ \frac{c_2^o - c_2}{q_2} \geq r & \frac{c_{m+2}^o - c_{m+2}}{q_{m+2}} < r \\ \dots\dots\dots & \dots\dots\dots \\ \frac{c_m^o - c_m}{q_m} \geq r & \frac{c_n^o - c_n}{q_n} < r \end{array}$$

Every one of the left-hand inequalities of the type:

$$\frac{c_i^o - c_i}{q_i} \geq r \tag{1}$$

$$(i = 1, 2, \dots, n)$$

expresses the economy of labour derived from the per-unit-of-product application of a unit of the q scarce resource, or in other words the effectiveness of its use in producing the i th product. The right-hand inequalities express the impossibility of the use of q in the production of other products because the cost is prohibitive. The r has performed an important economic function: it has sliced off the effective product versions for the use of the scarce resource from the ineffective ones. The effectiveness of each of the adopted (left-hand) variants is greater than that of each of the rejected (right-hand) ones.

The generalized case of one product and many scarce resources

Solution (1) is unsuitable if two or more different kinds of scarce resources are used jointly in the production of one and the same product. In such a case labour saved is a joint effect of the use of several heterogeneous scarce resources. This creates a new problem, namely, the imputation of the total effect of using many scarce resources in the production of one type of product.⁷⁵

Novozhilov solves the problem in this way. Since inequality (1) is an equivalent of the inequality

$$c_i + q_i r \leq c_i^0 \quad (2)$$

$$(i = 1, 2, \dots, m),$$

the left-hand side of inequality (2) expresses the sum total of the costs of production and of the imputed costs when scarce resources are used in manufacturing the given product, while its right-hand side expresses the cost of producing the same product with non-scarce resources, whose use does not involve imputed costs. Inequality (2) implies that the processes of production consistent with minimum total costs are those that require the lowest sum total of direct costs and of the imputed ones, or the minimum total of differential costs in Novozhilov's terminology.⁷⁶

Now, let m denote scarce resources; their total annual input per total output of each individual product will be q_1, q_2, \dots, q_m , while their prices, or their normatives of effectiveness (presumed known) are accordingly equal to r_1, r_2, \dots, r_m . Then, to the total maximum effect of the use of all m scarce resources combined (i.e., to the total minimum of all differential costs) will correspond such a production process for each product using the scarce resources in which $c + q_1 r_1 + q_2 r_2 + \dots + q_m r_m$ is at a minimum.⁷⁷ Or,

$$c + \sum_{h=1}^m q_h r_h = \min. \quad (3)$$

$$(h = 1, 2, 3, \dots, m).$$

Novozhilov points out that in formula (3) all the qr products are measured in the same labour-time units as c .⁷⁸ The normative of the imputed costs (or of the effectiveness of the use of scarce resources), r , is

measured in labour hours per unit of the particular scarce resource. The quantity of the scarce resource expended, q , is expressed either in the units of measure of the scarce resource itself, or in more complicated units, such as

$$\frac{\text{quantity of the scarce resource}}{\text{year}},$$

depending on whether labour costs of c are expressed per unit of output or in terms of an annual output. In the first case, all the products qr will be expressed in labour hours:

$$\frac{\text{labour hours}}{\text{a unit of scarce resource}} \times \text{amount of scarce resource} =$$

labour hours .

In the second case the products qr will be expressed in labour hours per year:

$$\frac{\text{labour hours}}{\text{a unit of scarce resource}} \times \frac{\text{amount of scarce resource}}{\text{year}} =$$

$$\frac{\text{labour hours}}{\text{year}} .$$

In all cases, all the products of the type qr can be summed up with one another and with c . This is an important aspect of Novozhilov's theory of value, establishing labour time as an efficient and sufficient *numéraire*.⁷⁹

Formula (3) is the

general formula of differential costs as well as the rule of the selection of variants. It indicates that, if the normatives of effectiveness of each scarce resource are known (given), it is possible to calculate differential costs also, in cases when any number of scarce resources are used jointly. All that is required is (1) multiply the input of each resource by its normative; (2) sum up these products of multiplication; and (3) add the resulting sum of imputed costs to the direct costs of production of the given product. The only problem that remains is how to determine the normatives of effectiveness.⁸⁰

Determination of r by iterative method

It must be recalled that the normative of effectiveness, r , is also the maximum co-efficient of the use of scarce resources, as well as the normative of the imputed costs, and the scarcity price. In Novozhilov's system it is truly pivotal. It is therefore important to establish how r can be calculated. For simple practical calculations, Novozhilov suggests the method of successive approximations (iterations), namely, the trial-and-error method. His argument runs this way:⁸¹ differential costs, being the sum total of imputed and direct costs, possess a remarkable property, which points the way to the determination of r ; namely, that for any non-negative r the variants requiring the minimum differential costs form a potentially optimal combination. Even with incorrect r co-efficients, variants requiring the least differential costs still correspond to the least total costs under the given restraints on the supply of means of production. This is true for any value of r , provided it is not less than zero. However, "negative normatives of effectiveness are at variance with the law of the economy of labour."⁸² They would have meant that the given means of production could be used even when such a use was associated with additional labour inputs as compared with the use of non-scarce means.

It is true that the magnitude of the normative of effectiveness r affects the sum of scarce resources selected for use in production, and therefore affects their total effectiveness. When the normative is high, both the sum of the selected scarce resources and their total effect will be less than when the normative is low, and vice versa. This implies potentially optimal normatives. But for any non-negative normative we can select by trial and error a combination of scarce resources that is comparatively more effective than any other possible combination with the same or a smaller total input of scarce resources. Combinations formed by trial and error on the basis of an experimental non-negative normative are therefore potentially optimal.

The criterion in such trial-and-error experiments is the full use of all the better means, which means maximum economy of labour and minimum total labour input into production of the prescribed output. This is achieved when:

1. the individual minima of differential costs are mathematically consistent;
2. all the better means of production are fully employed.⁸³

The first condition means that the total requirements for each means of production to be spent on the variants with the least differential costs do not exceed its supply. The second condition indicates that all means whose

effectiveness norms are greater than zero are fully used. The means with zero effectiveness may or may not be used; this does not affect the optimum. Means with negative effectiveness are excluded, however.

The procedure in such trial-and-error experiments is simple. We start with some non-negative r and find out whether it brings the given supply of scarce resources into an equilibrium with planned demand for these resources. If the latter exceeds supply, r must be raised; if planned input requirement is smaller than supply, r must be lowered. This raising and/or lowering of r must continue until the planned demand and planned supply of scarce resource are in equilibrium. The final r will be the optimal one. It can be used as a normative of effectiveness of the scarce resource in question.⁸⁴

Novozhilov suggested this iterative method in 1946, thus becoming the first Soviet economist to discover its theoretical and practical fruitfulness. Leon Walras' *Eléments d'économie politique pure* has never been translated into Russian; and Russian studies of Walras failed to attach any significance to his method of "tâtonnements."⁸⁵ Novozhilov probably read Walras in the original, and certainly in Pareto's exposition, to which he refers in one of his footnotes.⁸⁶

On the other hand, it cannot be doubted that, in practice, Soviet planners have always used some kind of trial-and-error method, particularly in the computation of material balances. But it is not known whether anyone had expounded this method in a systematic way prior to Novozhilov, especially the calculation of scarcity prices and economic effectiveness co-efficients.

By 1959 Novozhilov had developed an original algebraic proof of the determination of r by iterative method. This is not discussed here because it is of less importance than Novozhilov's simultaneous determination of r by the method of linear programming.

5. General Differential Cost Equilibrium

The case of many products and many scarce resources

Once the determination of r by the iterative method has been accepted as feasible, Novozhilov proceeded to a “more realistic case when many means are limited and the final output consists of many different products.”⁸⁷

The problem is the same: to carry out the plan of final output with a minimum expenditure of live labour. For this, it is necessary to select combinations of the means of production that require minimum total input of labour. Novozhilov proposed the following solution:

If we have found the variants requiring the minimum differential cost for producing every final product, then, with any effectiveness norms, we would have formed a combination of the proposed variants which first, is calculated for the given output programme and, second, has the least total sum of differential costs (for the whole programme).⁸⁸

Since differential costs consists of (1) direct costs and (2) imputed costs, it is necessary to establish which one of these determines the minimum total sum of differential costs for the whole programme.

Given some effectiveness norms and fixed quantities of each means, the total sum of all imputed costs calculated in accordance with these norms will be a constant, independent of any redistribution of the scarce resources among given final products. On the other hand, the total sum of direct production costs depends entirely on how the means of production are used, for different uses of each of such means result in different economies. Hence, the minimum total sum of differential costs is determined by the minimum total sum of direct costs of production of the final output. . . .

This proposition holds true for all non-negative norms of effectiveness. However, only one definite set of such norms will produce a total minimum of direct costs that can be attained with given means. This set of norms can be found by calculating trial balances of the means of production with different trial norms of effectiveness. Those norms in accordance with which the balances of the means of production will be in equilibrium will furnish the solution of the problems. . . .

If the norms of effectiveness are too low, demand for scarce means will exceed their supply. The individual minimal differential costs will be inconsistent with each other due to the shortage of the better means. If the norms of effectiveness are too high, demand for the scarce means will turn out to be smaller than their limited supply, and this will correspond to a combination of variants, which—for the same output programme—will require a larger input of labour than is necessary under full employment of the available means.⁸⁹

The optimal effectiveness norms will ultimately be found through the process of iteration. Certainly, such calculations require huge investment of labour, if undertaken by the long-hand method, but in principle they can be accomplished.

Determination of r by the Lagrange method

Novozhilov's mathematical discussion of the differential costs proceed as follows.⁹⁰ Given: there are m different conditions of the application of labour, which include different means of production, natural resources, capital investments, etc. The supply of each potentially scarce resource, other than labour, is denoted by Q_h , where $h = 1, 2, 3, \dots, m$.

The production programme of the final output stipulates production of n different products, which together make up the national income. Live labour outlay on each final product is denoted by c_i , where $i = 1, 2, 3, \dots, n$. The amount of c_i will be different in each case depending on conditions of the application of labour.

The input of the h th means of production in the output of the i th product is denoted by q_{hi} .

The problem is to allocate the available resource toward all q_{hi} in such a way as to have the sum total of all c_i a minimum. Or,

$$c_i \sum_{i=1}^n = \min \quad (4)$$

under the condition that the utilization of each resource is equal to its supply:

$$\sum_{i=1}^n q_{hi} - Q_h = 0. \quad (5)$$

Adding conditions (5), multiplied by some as yet unidentified multipliers λ_h , to the function whose minimum is being sought, we obtain a

more complicated function:

$$\xi = \sum_{i=1}^n c_i + \sum_{h=1}^m \lambda_h \left(\sum_{i=1}^n q_{hi} - Q_h \right). \quad (6)$$

If the restrictions (5) are met, this function is probably equal to

$$\sum_{i=1}^n c_i. \quad (7)$$

However, the minimum of this function can be sought as if restrictions (5) were not present. By equating to zero the partial derivatives of the first degree with respect to q_{hi} in this function (taking λ_h as constants) we obtain mn equations of the form

$$\frac{\partial \xi}{\partial q_{hi}} = \frac{\partial}{\partial q_{hi}} \left(c_i \sum_{h=1}^m + \lambda_h q_{hi} \right) = 0. \quad (8)$$

Together with m conditions (5) expressing the requirement of equality of the input of each resource to its supply, we obtain $nm + m$ equations, the solution of which yields the nm unknowns q_{hi} and m multipliers λ_h that are necessary for calculating differential costs, that is, the r_h in formula (3). The multipliers λ_h are Lagrange's multipliers, and this is how we find the minimum costs by the Lagrange method.

Novozhilov proposed to use the Lagrange solution in 1946.⁹¹ In the history of those who used the Lagrange multipliers in economic analysis, Novozhilov occupies third place after H. Hotelling (1934), and M. Allais (1943), but precedes P. Samuelson (1947).⁹² He arrived at the idea of using the Lagrange multipliers independently, and before L. Kantorovich developed his own multipliers, which were later recognized as the first form of linear programming. In response to my inquiry about his earlier relations to the work of Kantorovich, Novozhilov replied in a letter dated 20 July 1967:

Your guess that I began working on the problems of optimal planning independently of the work of L. V. Kantorovich is justified. However, since publication of my works of the end of the nineteen thirties was delayed and since Kantorovich had solved the problem in a general, mathematical form, which included the application of the method of multipliers in a series of particular problems, in my own publications I took cognizance of these achievements, and even more so since from 1939 I have worked with L. V. Kantorovich in a friendly manner. Thus I believe that it is fitting to mention that my work on the problems of optimal planning was begun prior

to the appearance of his [L. V. Kantorovich's] method of solution multipliers.

The latter fact has, indeed, been acknowledged by Kantorovich.

Today it is generally agreed that the Lagrange multipliers are essentially the same thing as shadow prices (optimal vectors) of the dual function of linear programming, if they are its saddle point, of course,⁹³ and therefore the method of multipliers has been largely replaced by the more efficient method of linear programming. In Novozhilov's day, however, in the USSR, although Kantorovich did invent what amounted to be the minimizing direct function of linear programming, the dual function was not yet available, and the complete linear programming had still to arrive from abroad.

Novozhilov was aware that the Lagrange method could not be used in planning practices. Hence, in 1959, he proposed to build "a bridge" from the Lagrange to the Kantorovich method of linear programming.⁹⁴ Novozhilov had accomplished this several months before R. Frisch transformed his 1939–46 technique of finding minimum costs into the standard form of the Western linear programming.⁹⁵

Transition to linear programming

Novozhilov begins by noting that the Lagrange multipliers not only enable the solution of cost minimization as if restrictions (5) did not exist but, in addition, they eliminate the inconsistency of the particular minima of the c_i inputs due to those restrictions. He proposes to examine the relationships between finite quantities that correspond to equations (8). He thus moves from infinitesimal calculus to finite numbers.

The usual condition for a function to take an extremal (minimax) value is that its first derivatives are equal to zero. Novozhilov assumes that equalities (8) can be replaced by the relations such that:

$$c + \sum q_{hi} \lambda_h = \text{extremum.} \quad (9)$$

Let us check this assumption. Summing (9) over i , we obtain:

$$\sum_{i=1}^n c_i + \sum_{i=1}^n \sum_{h=1}^m \lambda_h q_{hi}. \quad (10)$$

If in (10) the Lagrange multipliers are given, the double summation is constant and does not depend on the distribution of q_h

among different final products. In other words,

$$\sum_{i=1}^n \sum_{h=1}^m \lambda_h q_{hi} = \sum_{h=1}^m \sum_{i=1}^n \lambda_h q_{hi} =$$

$$\sum_{h=1}^m \lambda_h \sum_{i=1}^n q_{hi} = \sum_{h=1}^m \lambda_h Q_h = \text{const.} \quad (11)$$

Equality (11) deserves to be called the Novozhilov constant. It defines a general imputed cost equilibrium that is stable in all possible directions—column-wise and row-wise, if, for example, this was a Leontief input-output table or some inter-industry or inter-regional flow matrix used currently in Soviet planning.

Novozhilov concludes that if the sum (10) is a minimum, then (4) is also a minimum. Hence, solving the problem according to the Lagrange method produces multipliers (prices) for all the scarce means of production, for which the following are simultaneously and jointly realized:

$$S_i = c_i + \sum_{h=1}^m q_{hi} \lambda_h = \min. \quad (12)$$

and

$$\sum_{i=1}^n q_{hi} = Q_h. \quad (13)$$

Therefore, the particular minima S_i are consistent and compatible. They express the differential cost of the i th final product. Thus the Lagrange method gives us the multipliers we were seeking for calculating differential costs: the Lagrange multipliers could be the normatives of the effectiveness of q_h , essentially analogous to the r_h in the differential cost formula (3).

From formulas (12) and (13) it follows once again that:⁹⁶

1. If we find the Lagrange multipliers we have solved the problem theoretically. If we knew their values, we could find all the alternative uses of the means of production by means of the S_i minima.
2. We can find the multipliers analogous to r_h by approximation (the method of iterations). If the multipliers are wrong, conditions (12) will not satisfy conditions (13).

However, this line of approach, though illuminating, is defective, because it includes in the original conditions (9), (10) and (11) certainly preconceived assumptions. "Indeed, in this model the scarcity of the supplied means of production is expressed by equalities (13). This implies that the necessary quantities of the means of production must be determined prior to the solution of the problem."⁹⁷

To remove this difficulty, Novozhilov proposes to replace equalities (13) by inequalities (14):

$$\sum_{i=1}^n q_{hi} \leq Q_h. \quad (14)$$

These inequalities express the condition that requirements for each means of production must not exceed its supply. Such an expression does not anticipate the solution of the problem and pertains both to those means of production for which the effectiveness norms are greater than zero and those whose norms of effectiveness are zero. Consequently, if

$$\sum_{i=1}^n q_{hi} = Q_h, \text{ then } \lambda_h > 0,$$

and if

$$\sum_{i=1}^n q_{hi} < Q_h, \text{ then } \lambda_h = 0.$$

"By adding to conditions (12) and (14) the requirement that λ_h and q_{hi} be non-negative, we obtain the method that has been proven in general form by Kantorovich and called the method of solution multipliers."⁹⁸ This is also the method of linear programming.

Finally Novozhilov shows why it is necessary to calculate differential costs in planning practices. He points out that conditions (5) and (14) lead (a) either to replacing the minimizing function (4) by the more complex function (6), or (b) to replacing costs of production of individual products (c_i) by the more complex formula of differential costs:

$$S_i = c_i + \sum_{h=1}^m \lambda_h q_{hi}. \quad (15)$$

In the first case the problem must be solved by means of infinitesimal calculus. This method is impracticable. In the second case finite quantities are used, and this is the only feasible solution that is available.

“Consequently, in order to attain the greatest saving of labour it is necessary to measure costs of each product in the complex form—in the form of differential costs.”⁹⁹

6. Value Pricing in a Communist Economy

Historical background of Novozhilov's price theory

Novozhilov arrived at his final price theory only gradually and in a roundabout way. After he had developed his theory of determination and measurement of differential costs, he arrived at a theoretically correct statement of the principle of pricing of capital and other non-consumer goods and, consequently, at the statement of the principle of limited optimal planning of inputs needed to produce a given final output programme. But he still believed that optimal planning could be fully practicable only in the distant future, under Communism, and that it was not yet a topical issue.¹⁰⁰ Instead, Novozhilov presented a theory of "full national economic cost" (*polnaia narodnokhoziaistvennaia sebestoimost*) for the purposes of pricing. He pointed out, however, that the theory was still incomplete and required much higher levels of sophistication in planning and economic analysis than were carried out in the USSR.¹⁰¹ In March 1959 he presented a version of this theory to the Commission on the Calculation of Value in the Socialist Economy at the USSR Academy of Sciences, where it received lukewarm support from the commission's chairman, academician V. S. Nemchinov, and was opposed by practically everyone else.¹⁰² In its published form, the theory of full national economic costs contained a proposal on price formations. But, as Novozhilov himself stated later,¹⁰³ since he had assumed that the plan of output of final goods would be prescribed from above, without any explicit determination by some consumption function, he was unable to produce a mathematically complete statement of a general equilibrium measure of socially necessary labour, which is required by Marxian theory of value and price. Hence, in 1959, his price theory was still incomplete.

Two events of 1960 turned Novozhilov's attention to the immediate need of formulating a complete price theory. First, L. V. Kantorovich published his brilliant monograph on the *Economic Calculation of the Best Use of Resources*. This called for optimal planning and optimal prices at once, rather than in some distant future, and also offered some concrete and practical proposals in this area. Having been the first to raise the question of optimal planning, Novozhilov felt that at that time Kantorovich

was a friendly rival. Both men presented papers on optimal planning to the April 1960 Academic Conference on the Uses of Mathematics in Economics and Planning, but in this case, too, Kantorovich's paper was more advanced.¹⁰⁴

The second event was the July 1960 plenary session of the Central Committee of the Communist Party of the Soviet Union, which called for a price reform. This led to the great price debate of the 1960s. By 1963, Novozhilov's basic views on price theory were crystallized. In the following year he published his primary contribution in this area—a mathematical model of price formation based on a theory of socially necessary labour.¹⁰⁵ In 1965 he succeeded in combining the marginal cost-price theory with the Marxian law of value.¹⁰⁶ He seems to have been satisfied with his achievements in value and prices, for in his later years he turned his attention to economic organization and the theory of economic development.

In the following pages we will study Novozhilov's price theory according to its historical stages of development: first, his 1959 discussion of pricing under communism and socialism; second, his transition to marginalism; and, finally, his development of the marginal labour cost-price theory.

A theory of value under communism

Following Marx's dialectics, Novozhilov believed that the forms of manifestation and transformation of the labour law of value can be understood not by deriving higher forms from lower ones by logical means, but, on the contrary, by comparing lower forms with higher forms. Thus, the law of value under socialism is easier to understand when it is compared with the law of value under communism, rather than under capitalism; and the law of value under capitalism is better understood when it is compared with the law of value under socialism, rather than with that under feudalism. Accordingly, he first discussed this law as it would work under communism, then under socialism, and finally under capitalism.

Novozhilov's assumptions about communism are unusual. He merely assumes "a much higher level of technology, planning, and organization of the national economy than that which we have already achieved"¹⁰⁷ under present-day socialism, but there is no assumption of abundance, or absence of scarcity. A 1959 reference to the distribution "according to needs" was dropped from the final 1967 edition. The law of the economy of labour continues to operate under communism. To minimize the outlay of current live labour, it is necessary to economize and rationally allocate all other resources in the economy.¹⁰⁸ Hence, conditions of scarcity continue to prevail under Novozhilov's communism.

Differential costs continue to be calculated under communism because: first, differences in the effectiveness of natural resources used will remain; second, differences in the effectiveness of reproducible instruments of labour will remain. Technological progress will accelerate under communism and such differences will increase as a result. Instruments of labour for one and the same purpose, but with different designs and non-uniform productivity will continue to be used concurrently. Hence, incompatibility will continue to prevail, and the calculation of imputed and differential costs is necessary in planning the national economy.

Novozhilov recognizes only one significant difference between communism and socialism, namely, that there is no money under communism. "Let us assume that costs will be calculated in terms of working time.... The hypothesis of the measurement of costs in terms of the working time allows us to examine differential labour costs in their direct form, stripped of their value cover."¹⁰⁹ "Value cover" is money to Novozhilov. It is worth noticing, however, that Novozhilov only assumes and hypothesizes that working time will serve as a *numéraire* under communism. He uses it to uncover differential costs, which also consist of labour and labour alone. He does this for educational and analytical, rather than dogmatic, purposes. Therefore, his use of "labour calculus" must be considered methodologically admissible, however unrealistic it may sound. It is essentially the same as our use of fictitious cardinal "utils" to explain the utility theory of value.

Neither money, nor prices in money form, nor capital exist under communism. "In a Communist economy there is no capital and, accordingly, there is no division of it into constant and variable; but the division of labour costs into two parts—constant and variable (past and current outlays)—stays."¹¹⁰ Hence, what is allocated under the communist plan is labour calculated in terms of working time. Thus, all economies can be reduced to the economies of time and time alone.¹¹¹

Since current live labour is the quantity that is being minimized, past labour for society as a whole is equated to zero and the means of production produced by it enter into the calculation of costs according to the savings of current labour that their usage produces, i.e., according to imputed costs. At each given moment, past labour in the whole national economy is a given constant quantity. Current live labour is a variable quantity. Its input can be larger or smaller, depending on the tasks prescribed for it by the plan. The minimum of the sum of constant and variable quantities is always determined by the minimum of the variable quantity. Therefore, for society as a whole, the minimum of all labour costs, past and living, is determined by the minimum input of living current labour.

However, past labour is a given constant only in the national economy as a whole (at any given time). For any part of the economy—an enterprise, an industry, a town, a territory—outlays of past labour are a variable quantity, different from other parts of the economy (at any given time). One sector of the national economy may use a greater or a smaller quantity of the products of past labour, thereby reducing or augmenting their uses in the remaining sectors. Alternative uses of the products of past labour demonstrate that the latter cannot be looked upon as free goods, even under communism.

In different parts of the economy the products of past labour enter into the calculation of costs according to *current* real costs, i.e., to the extent that their use today economizes on society's total live labour. Exact measurement of the labour economies and the most efficient use of the products of past labour will yield the maximum economy of live labour under communism. This is the value of all the non-labour inputs in a communist economy.¹¹²

We will not consider Novozhilov's first attempt to construct a model of an optimal communist plan of resource allocation and the simultaneous measurement of differential costs of these resources. His plan is actually only partially optimal, for it is designed to produce a final bill of goods, whose volume, composition and structure are assumed as given. In this early contribution, he assumed that under communism there will continue to exist a central authority such as a state planning committee, or even some politburo, which would formulate the output plan without consulting consumers. Novozhilov also assumed the volume of (and rate of) capital accumulation as given. Yet he derives the plan for the means of production from the plan of final output and from the minimum outlays required to produce it by selected methods of production.

Since all quantities are assumed to be in working time units, such as hours, the measurement of differential costs of resources is equivalent to the determination of their prices in working time terms. Implicit also are the assumptions of constant returns to scale, first degree homogeneity of all functions, etc. Only in his later writings does Novozhilov refer to this explicitly.

A model of future communist economies

In Novozhilov's model of communism the following initial data—definition and conditions—are laid out:¹¹³

1. The quantity of each item of the means of production (both reproducible and non-reproducible, such as minerals) available at the beginning of the planned period is denoted by capital Q, with

an index such as h (Q_h) indicating different types of the means of production such as those listed by their entry numbers in some standard product or industry classification list: $h=1, 2, \dots, m$. (Numerous such lists already exist in industry censuses, commodity foreign trade and other statistical practices.)

2. Planned accumulation in a given period, i.e., labour outlays allocated to the new means of production during the period of the plan, are denoted by the capital letter A .
3. The production plan of the final output during the planned period consists of n final products.
4. The uses of each of the m means of production, available at the beginning of the planned period, for the terminal (e.g., annual) output of each of the n final products, is denoted by small q with two indexes, indicating respectively the kind of means of production and the final product for which this means is used. Thus, outlays of the h th means of production on the i th product are rendered as q_{hi} ($h=1, 2, 3, \dots, m$) and ($i=1, 2, 3, \dots, n$).
5. Current outlays of live labour on the final output of every product are denoted by c , with an index identifying the product. Thus, an input of labour to produce an i th product is laid out as c_i .
6. Investments necessary to produce every final product are denoted by k_i , with i standing for the i th product. In each planning period, investments are made once for the whole period. As instruments of labour, they continue to be in use also after the planning period, but their value (imputed cost) declines with obsolescence. (This is explained in more detail below.)

Each final product can be produced by different methods of production. Therefore, c_i , q_{hi} and k_i have different meanings depending on the method selected to produce the i th product.

The problem is how to allocate available resources to the production of each of the final products in such a way that the entire programme of final output is completed with the least outlay of live labour, i.e., for which

$$\sum_{i=1}^n c_i = \min.$$

Novozhilov solves the problem in seven steps.¹¹⁴

1. He eliminates inconsistencies of overall economic effects of

different methods of producing each final product wherever they occur. He does this by reducing the alternatives to a common economic effect as, for example, in the case of the scarce resource in Tables 1, 2 and 3.¹¹⁵

2. For each available means of production, and for investments, Novozhilov assumes some experimental norm of effectiveness, denoting it by r , with an index such as r_h indicating the means of production of the h kind. The trial norm of the effectiveness of investment will be denoted as r_k . The means of production such as old machines, almost exhausted mines, etc., which do not yield any economy of labour will have a zero norm of effectiveness. These are called the inferior means. Some of them may still be in use as long as they do not produce losses. The norms of effectiveness of all relatively better means must always be greater than zero.
3. For each alternative variant of producing each final product, Novozhilov proposes to calculate differential costs S_i (for the i th product) from the formula:

$$S_i = c_i + k_i r_k + \sum_{h=1}^m q_{hi} r_h. \quad (16)$$

4. He chooses a variant with the least differential costs S_i and thus obtains a potentially optimal combination of alternative variants. This means that the selected combination produces a final product with the lowest cost of production among all possible combinations, using the same quantities of each means of production and the same amount of investment needed for each combination of alternatives.
5. He then adds the requirements for each available means of production and for investments for all alternative variants selected in this way.
6. The results of step 5 are now compared with the available supply of the means of production and the planned investment limit. If requirements differ from the given limits, experimental effectiveness norms must be adjusted. If requirements are larger than supply, effectiveness norms must be raised; if requirements are smaller than supply, the norms must be decreased. Together with the adjustment of effectiveness norms, the supply of the means of production can also be corrected by bringing in or rejecting

inferior means with zero effectiveness. The rule is, however, that in this process of selection, all relatively superior means with effectiveness norms greater than zero must be fully employed.

7. The last step is to recalculate differential costs S_i in accordance with corrected effectiveness norms, and repeat operations 3, 4 and 5 until the requirements for each means of production with a greater than zero norm of effectiveness, and for investment, are not equal to their supply and limit. Finally, Novozhilov obtains an optimal plan that is feasible within the limits of the planned sum of accumulation and the given supply of the means of production. This plan ensures the attainment of a minimal expenditure of labour on the prescribed programme of final output.

The proof of the effectiveness of this method of solving the problem has already been discussed. Essentially it is the method of iterations, using experimental Lagrange multipliers. The ultimate optimal norms of effectiveness found in this way are optimal prices of the means of production and an optimal interest charge for investments—optimal, that is, within the rigid and narrow constraints of the prescribed output plan.

It may be recalled that formula (16), describing communist economies, is rendered in working time units. Hence, optimal r_h prices are prices expressing scarcities created by the law of the economy of labour in its naked form. Novozhilov believed that formula (16) was more general than formula (17), describing socialist economics in money terms. For this reason, he did not isolate differential rent charges in formula (16) as a separate variable. There the r_h prices in working time units express universal scarcities in a synthetic form.

7. An Early Price Theory for Socialism

Full prime costs

In Novozhilov's view, the main difference between communism and socialism, which are "two phases of the same social system,"¹¹⁶ is that under socialism, the law of value and the law of distribution according to labour continue to operate. This means, in particular, that money is used to measure costs, prices and wages, and all accounting is done in terms of money.¹¹⁷ However, systematic deviations of costs and prices from direct labour values observed under socialism are due to the subordination of the law of value to the law of the balanced (proportional) development of the economy according to plan. The latter law takes away from the law of value the regulatory and allocative functions it has under capitalism, and makes it possible to determine effectiveness norms in the measurement of differential costs in the planning office, rather than in the market place. On the other hand, the basic economic law of the economy of labour expresses itself under both socialism and communism as an extreme problem in the construction of an optimal plan of resource allocation toward the production of a given bill of final goods. Hence, this problem can be solved by the same model as that under communism, except that accounts are rendered not in terms of working time units but in money terms. As before, the model is static; hence, prices do not change and the value of money is constant.

Unlike communism, says Novozhilov,¹¹⁸ under socialism, effectiveness norms possess different specific meanings depending on the means of production to which they apply. Thus,

1. for reproducible objects of labour (raw materials, semi-fabricates, unfinished products) available at the beginning of the planned period, the norms of effectiveness must express their prices, which are formed with due consideration of imputed costs;
2. for the already produced instruments of labour (machinery, equipment, buildings, installations, roads, etc.) the norms of effectiveness must come in the form of charges for fixed capital,

- calculated with adjustments for obsolescence and depreciation;
3. for natural resources (land, water, minerals) the effectiveness norms must represent differential rent;
 4. for investments, they must represent standard normative effectiveness—one, single, undifferentiated norm for all industries and all parts of the country.

Novozhilov calls the expression of differential costs of individual final products in money terms their “full prime costs” (*polnaia sebestoimost*). In 1959 he used the term “national economic prime costs,” but then realized that the term “national economic” was not appropriate. To become national economic costs, full prime costs may need to be adjusted for sales taxes and subsidies.¹¹⁹

A model of socialist pricing

As his generalized model of full prime costs, Novozhilov gives the following formula:¹²⁰

$$c_i + k_i r_k + \sum_{g=1}^m q_{gi} r_g + \sum_{f=1}^l q_{fi} r_f \quad (17)$$

In this model:

c_i stands for wages paid for the outlay of current labour in the production of the i th product;

k_i is investment in the production of the i th product;

r_k is the standard norm of investment effectiveness;

q_{gi} is the quantity of the g th natural resource used in producing the i th final product;

r_g stands for the norm of effectiveness (differential rent) for the use of g th resource;

q_{fi} is the amount of the f th previously produced means of production used in producing the i th product;

r_f is the norm of effectiveness of the use of the f th means of production in the optimal plan of the output of the i th good.

For objects of labour such as raw materials, r_f is their optimal price. For obsolete instruments of labour, r_f measures their normative effect (economy of labour) per unit of time they are in use; or, in other words, it is their norm of profitability. For obsolete instruments r_f will usually be lower (tending to zero) than the r_f for better and less obsolete means. For means of production embodying new technologies r_f must be higher than

prices of analogous means that have been developing previously. However, increased prices of most modern means of production stay high only temporarily, until these means are assimilated. Then their prices should decline with obsolescence, tending toward a zero r_f .¹²¹ The average effectiveness norm for modern means of production should be equal to the standard norm of the effectiveness of investments. That is, $r_f = r_k$. This equality means that there is no obsolescence at the moment.¹²²

The use of r_g in the above model means that "prices must cover costs of production and circulation of those enterprises that operate under the least favourable conditions, provided these enterprises are using natural resources allotted to them efficiently and that they operate normally."¹²³

The $c_i + k_i r_k$ portion of formula (17) measures direct prime costs (wages and payments for fixed capital) as they have been calculated in Soviet industrial enterprises since the 1965 reform. Novozhilov insisted, however, that to be economically correct and sound, these direct costs must be adjusted by the addition of the second half of formula (17) measuring differential rents and norms of effectiveness of the means of production of different degrees of obsolescence. Repeatedly he expressed his hopes and belief that the approaching general price reform would move in the direction of formula (17).¹²⁴ Today, posthumously, Novozhilov is credited with influencing the reform. Indeed, the industry price formula that emerged from the 1967 wholesale price reform comes close to formula (17), but only in theory and at first glance.¹²⁵

Novozhilov was well aware that the practice of calculating direct prime costs in Soviet industry was deficient. He began developing his own value, cost and price theories by criticizing Soviet cost accounting and pricing practices.¹²⁶ The 1965 planning reform, however, introduced a sort of $k_i r_k$ capital charge for the first time in Soviet post-NEP history. "More than a quarter of a century of discussion was needed to do such a simple thing," quipped Novozhilov.¹²⁷ But this gave him hope that ultimately formula (17) would win recognition and practical application in the Soviet Union.

In model (17), the $c_i + k_i r_k$ parameters (not to mention the rest of the formula) are not precisely the same as those now calculated in Soviet practices. Novozhilov's parameters are theoretically much more sophisticated and advanced.

Wage-and-interest theories

In model (17), the c_i is the wage paid for the outlay of current labour, but it is a marginal productivity wage. Novozhilov explains that the socialist principle of distribution establishes that each worker must receive back from society, after all necessary deductions, exactly as much as he has

contributed to it. Equal payment for equal work can be attained only when the results of each worker's labour are calculated under equal economic conditions. Accordingly, in measuring what each worker gives to society, it is necessary to adjust all indicators of the results of labour to equal conditions of the application of individual labour. The adjustment of net output to identical conditions of the application of labour presumes some normative rate of profit, related to the effectiveness of the means of production in use. By subtracting the normative profit from net output, an indicator is obtained that depends solely on the quantity and quality of labour. This indicator should determine the true wage. Generally, states Novozhilov, wages should be determined through adjustments to the least favourable conditions of the application of labour.¹²⁸

In Soviet practices, of course, wages are not fixed in this manner. But Novozhilov's theory is also incomplete in that it grants no sovereignty to labour. Conditions of the application of labour, that is, jobs, are determined by the prescribed output plan, over which labour has no influence. Even assuming full employment, the composition of jobs and the structure of skills and professions do not depend on labour's preferences. Hence, wages paid out and received under this scheme do not necessarily educe maximum efficiency and productivity.

The $k_i r_k$ parameters in model (17) are developed further, but they too do not fully square with Soviet practices. In the model, k_i is capital investment in the production of the i th good. Theoretically, the i th product differentiation ($i=1, 2, \dots, n$) may always be greater than the present industry classification for the purpose of capital charges in the USSR. On the other hand, the r_k co-efficient is a standard norm of the effectiveness of investments in Novozhilov's model, uniform and single for all industries and locations, and not differentiated as it is in Soviet practice today.

Thus far Novozhilov assumed that the total amount of capital investment had been given and calculated correctly. "As long as the investment limit is taken as given, the determination of the norms of investment effectiveness will in no way differ from the determination of differential rent," says Novozhilov.¹²⁹ But this is a simplistic assumption. In reality, "the norm of investment effectiveness differs from differential rent in that rent is a norm for taking account only of differential costs, whereas the norm of investment effectiveness is, in addition, a norm of outlays of surplus labour for the purposes of accumulation."¹³⁰ This is why the norms of effectiveness of natural resources begin at zero, whereas the norms of investment effectiveness must necessarily be larger than zero, according to Novozhilov.¹³¹

The simplistic assumption that the volume of investment is given and needs no determination permitted Novozhilov to restrict the problem of minimization of full prime costs to one period of time. The norm of

investment effectiveness, r_k , was calculated as dependent on the given volume of investment per constant unit of time. But in reality time is not constant, and the norm of investment effectiveness influences in its turn the volume of investments over time. Removing the assumption of given investment, Novozhilov investigates what determines k_i and r_k . This is an excursion into economic quasi-dynamics. It is not wholly successful because it is incomplete, but it is certainly much more advanced than anything available so far in traditional Marxist economics.

Novozhilov knows that he is searching for a labour-value theory of interest. For semantic reasons he does not use this term—the term “interest” is reserved only for payments of credit. He refers instead to the time factor theory, indicating, however, that under capitalism the time factor is accounted for by the interest on capital and by adding a reference to the 1960 Russian translation of G. Haberler's *Prosperity and Depression*, where it is stated that the theory of interest is still the most controversial theory of modern economics.¹³²

With this he proceeds to his own time-factor theory.

8. A Labour-Value Theory of Interest

Time as a condition of the application of labour

What is the time factor? Novozhilov's brief answer is that: "The time factor arises from the fact that the growing use of instruments of labour in production reduces working time but prolongs the time of production."¹³³ As a result, labour productivity increases over time.

In an earlier publication Novozhilov offered the following explanation of the time factor:

The outlay of one working hour today economically is not equal to the same outlay a year from now, and the outlay a year from now is not equal to the same outlay in five years time. In other words, a future product is not equivalent to the same current product . . . because its value changes. As a rule, it decreases. However, the growth of labour productivity by itself explains only the decreasing evaluation of the future results of the application of labour, but it fails to explain why future outlays of labour are valued less than the same outlays today. Apparently, one hour of the more productive future labour should be valued more than one hour of the less productive labour of today. Yet, in the accounting of the time factor, expenditures made later are valued less than the same expenditures made earlier. The lower value placed on future results as well as on future outlays suggests that for an answer to the problem it is necessary to look not at the growth of labour productivity as such but at its dependence on the time of production. That is, the longer the time period between the outlay of labour and its results, the greater the results.¹³⁴

Novozhilov did not include this discount theory of future value in his last writings on the subject, although his 1967 book contains all his previous important pronouncements. Possibly he decided to drop this argument as it was confusing from the point of view of the orthodox labour theory of value. Yet he neither held tradition as sacred, nor was afraid of innovation. Whatever the reason, he failed to pursue this argument beyond the above quotation.

Novozhilov retained and developed, however, the argument that the prolongation of the time of production increases labour productivity, and

vice versa. From this it appears, he says, as if production time itself is a factor of production, and this is where the term "time factor" comes from. Although the term is not accurate, Novozhilov believes that it nevertheless "catches the gist of the most important aspect of the problem."¹³⁵ Production time is not a cost item, but a condition for the outlay of labour. Although at first glance it appears that working time and production are measured in the same units, they are actually incommensurable with each other unless properly adjusted.¹³⁶

Labour expended in production of the instruments of labour differs from labour using these instruments. A hydro-electric power station is built in five years, but it will produce power for eighty or a hundred years. An atomic power station may be built in one or two years, yet it can produce electricity for perhaps as many as three hundred years. Thus growing productivity of current labour increases future production time (time the instrument is in use) by producing ever-improved instruments of labour that are used for longer periods in the future. Of course, not every change in production time is accompanied by changes in labour productivity, but for the exceptions there is no problem in calculating the time factor. The problem arises when the growth of labour productivity is assisted by the growth of production, construction, and/or circulation time, and vice versa.¹³⁷

Thus Novozhilov argues that the time factor exists and must be accounted for in the determination of both the volume of investment (accumulation) and the standard norm of investment effectiveness. He also quotes Marx that, in a post-capitalist society, to account for the time factor would mean "to calculate beforehand how much labour, means of production, and means of subsistence society can invest, without detriment to itself, in such lines of business as, for instance, the building of railways, which do not furnish any means of production or subsistence, nor produce any useful effects for a long time, a year or more, while they extract labour, means of production, and means of subsistence from the total annual production."¹³⁸ But, adds Novozhilov pointedly, Marx failed to investigate how these calculations could be accomplished.¹³⁹ Novozhilov's own solution of this problem follows.

The synchronized time factor: a model

The initial parameter in the calculation of the time factor is production time weighted by labour (working time). Since labour outlays on a product do not occur instantaneously, but are extended over time, each segment of production time must be weighted separately. The quantity of the successive labour outlays at different times needed to produce the given

output is denoted by c_i ($i=1, 2, \dots, n$). The production time that separates the beginning of each labour outlay on producing q units of the i th product from the moment when the i th product is available for consumption is denoted by t_i . Consequently, the weighted production (and circulation) time is expressed by the sum of the products such as

$$\sum_{i=1}^n c_i t_i. \quad (18)$$

This is the formula for the input of labour required to create an investment fund to produce q units of the i th product in that period of time which is expressed by t_i . In other words, this is the formula for the prerequisite accumulation needed to begin production of q units of the i th product in the course of the t_i period of time. The fund must be available at the start of the production period. After the beginning of production, the fund will cease to increase, but neither will it decrease until the output programme is carried out. During the same time period t_i , output q , equal in terms of labour outlays to the sum total of c_i , will be taken out of the fund, but simultaneous outlay of labour on the reproduction of the fund will replenish it again and again.

At this point Novozhilov dissects a fallacy common to both Marxist and classical economics.¹⁴⁰ Because accumulation is calculated either in money or in working time, the time of production does not appear in the measurements as a separate parameter and is usually forgotten. A false impression arises as if merely expenditures and transfer of past (dead) labour on current output, and not the effect of the time factor, are involved. A comparison of investment and production costs is then represented as the comparison of past labour embodied in fixed capital and raw materials, with outlays of current labour. Outlays of past and living labour on output are undoubtedly commensurable with each other and can be added. But the summation of investment and production costs is impossible unless they are adjusted to the same time scale and this adjustment (synchronization) presupposes the use of certain multipliers. Thus, in order to adjust current outlays to one-time outlays, they must be multiplied by a multiplier expressed in a unit of time. On the other hand, in order to adjust one-time expenditures to current outlays, they must be multiplied by a multiplier expressed in units of one over time (power of minus one). This is the formal statement of the problem; it does not go into the economic meaning of such a multiplier and does not determine its size. It asserts only that such a multiplier is required to calculate how much living and past labour can be expended on the objectives that need a longer than instantaneous time to be accomplished.

To demonstrate how the calculation of the time factor can synchronize past accumulations with current outlays, Novozhilov investigates two adjustment formulas recommended for practical use by the Soviet Academy of Sciences to calculate the effectiveness of capital investments and new technologies.¹⁴¹

The adjustment to a single time period indicates how much the synchronous labour outlays on the economy's final output will increase as a result of the production of the i th product. The formula for this adjustment is

$$C_i + K_i E, \quad (19)$$

where C_i is labour outlay on i ; K is investment outlay on i , and E is a given norm of investment effectiveness. (The symbols used are those of the Academy of Sciences.)

The adjustment to a single moment of time shows the amount of current labour that must be laid out on i in a given year in order to obtain the maximum output of i during the entire period in which the given means of production, measured by the investment K_i , are in use. The formula for this adjustment is

$$K_i + (C_i/E). \quad (20)$$

Novozhilov pronounces both formulas to be "very simple."¹⁴² In fact, both assume an infinite time horizon, and therefore produce the same results, but the first formula (19) is inferior to the second (20), because it cannot be extended to cases when C_i changes over time or when C_i is limited to a certain finite period (due, for instance, to the exhaustion of raw materials). On the other hand, formula (20) can be extended to cases in which C_i and K_i change over time because this formula contains, in fact, the sum total of all operating costs (outlays) for an infinite number of years with due consideration of the time factor. Novozhilov tacitly criticizes the academy for failing to see this difference between formulas (19) and (20) and for recommending them as equally good. In formula (20), in contrast to (19), an outlay of year t can be adjusted to such an outlay in the first operational year, which, while used for expanding production, would yield the same product as an outlay of C_i in year t . By assuming that the effect of investment, which was equal to C_i in the first year, will be used again and again for expanding production during t years, we find that, in the t th year, the product of the outlay C_i in the first year

will be equal to the product of outlays $C_i(1+E)^t$. Hence, outlay C_i in the t th year is equivalent (in terms of output) to outlay $C_i/(1+E)^t$ in the first year. Summing up all C_i for an infinite number of years, with the time factor accounted for by a compound interest, we obtain

$$\sum_{t=1}^{\infty} \frac{C_i}{(1+E)^t} = C_i \sum_{t=1}^{\infty} \frac{1}{(1+E)^t} = \frac{C_i}{E}. \quad (21)$$

In reality, the time of production "must be limited, for if not, then the goal of production—consumption—is unattainable."¹⁴³ Hence, Novozhilov rewrites formula (21) in a more general form, replacing the infinite period by a limited one (T) and assuming that operating costs depend on time: $C_i(t)$. He divides investment into portions according to time segments, $K_i(t)$, and obtains a general formula for total synchronized costs:

$$\sum_{t=1}^T \frac{C_i(t)}{(1+E)^t} + \sum_{t=1}^T \frac{K_i(t)}{(1+E)^t} = \min. \quad (22)$$

Novozhilov is aware that a further generalization of this formula is possible by introducing a variable norm of investment effectiveness that depends on time, constituting a truly dynamic relationship. $E(t)$ should be substituted for E . However, "it is truly difficult to determine the meaning of $E(t)$," admits Novozhilov, expressing a hope nonetheless that in the future this will become both possible and necessary.¹⁴⁴

The determination of interest

We noted that Novozhilov was interested in the calculation of the time factor to determine full prime costs effectiveness in the production of individual final products. That is, he was interested in the determination of $k_i r_k$ parameters (pp. 430–1 above).

The calculation of the time factor in individual lines of production is a part of synchronous measurement of the effectiveness of social labour. The prolongation or reduction of the time of production in the case of each individual product influences the synchronous productivity of all labour inputs in the economy. Therefore the synchronous measurement of outlays on each final product is determined by the degree of conformity of one or another alternative method of its production to the overall maximum effect of the optimal volume of accumulation in the national economy.¹⁴⁵ But, as formula (22) suggests, the maximum overall effect of the total investment fund is attained when that fund is allocated among the final products in such a way that the programme of their output is fulfilled with minimum total differential costs.

From these observations Novozhilov proceeds to determine k_i and r_k by means of a model, in which past and present investments are assumed to be synchronous.¹⁴⁶ Let us suppose that there are three alternative variants of investments, such as K_I , K_{II} , and K_{III} , and that they compare among themselves as follows: $K_I < K_{II} < K_{III}$. We shall denote $E_{II/I}$ to be the effectiveness of an additional investment in to Alternative II as compared with Alternative I; and $E_{III/II}$ to be the effectiveness of an additional investment into Alternative III as compared to Alternative II; and $E_{III/I}$ to be the effectiveness of an additional investment into Alternative III as compared to Alternative I. We shall also denote by a β the prescribed rate of growth of production per unit of time. The following conditions are also assumed:

$$\begin{aligned} (K_{II} - K_I)E_{II/I} &> (K_{II} - K_I)\beta; \\ (K_{III} - K_{II})E_{III/II} &< (K_{III} - K_{II})\beta. \end{aligned}$$

Since the differences in the parentheses are positive, it is true that

$$E_{II/I} > \beta > E_{III/II}. \quad (23)$$

Among the co-efficients of the effectiveness of additional investments there is also r_k , a norm of effectiveness of such an alternative, which corresponds to the minimum of the synchronous labour inputs. Therefore it is also true that

$$E_{II/I} \geq r_k \geq E_{III/II}. \quad (24)$$

It is clear, says Novozhilov, that if, instead of three, we had a very large number of different final products, a larger number of alternatives would mean a smaller difference between the co-efficients of the effectiveness of any pair of alternatives requiring similar investment volumes.¹⁴⁷ Ultimately, the effectiveness of additional investments into two adjacent successive inputs can be assumed to be practically equal. Therefore, if Alternative S is optimal, then

$$E_{S/S-1} = E_{S+1/S}. \quad (25)$$

Such is Novozhilov's ingenious formulation of the equilibrium of marginal efficiencies of alternative investments. By taking into consideration (23), (24) and (25) he concludes:

$$r_k = \beta, \quad (26)$$

That is, the norm of effectiveness of that alternative investment that secures the minimum of synchronous outlays on the entire prescribed output programme is equal to the prescribed rate of growth of the output.

The not so golden rule of accumulation

Novozhilov realizes that equality (26) does not indicate how realistic the prescribed rate of growth is; nor does it indicate whether or not it is the maximum rate possible. This can be ascertained experimentally by iterative calculations. He defines as realistic a rate of growth that can be realized by incremental increases of labour input, also taking into account the long-run growth of labour productivity.¹⁴⁸

Assuming full employment of all effective resources in a sufficiently long-run plan, it is possible to find the maximum stable rate of growth of the output. Here, Novozhilov explicitly assumes that technology is constant; that there are constant returns to scale; that the growth of output is a linear function of the growth of homogeneous labour input; that there are no constraints on natural resources; and that the product of the preceding period is consumed in the given period.

Under such assumptions, equality $r_k = \beta_{\max}$ will represent a realistic optimal accumulation, states Novozhilov.¹⁴⁹ Since r_k is the standard norm of investment effectiveness, it expresses also the permissible minimum of investment effectiveness in terms of the economy of labour, which can be denoted as E_{\min} . Therefore, the attainment of the realistic optimal accumulation can be expressed by equality

$$E_{\min} = \beta_{\max}. \quad (27)$$

Novozhilov's meaning of equality (27) is this.¹⁵⁰ Its left side expresses the minimum acceptable (or permissible) economy of labour that capital accumulation contributes to the national economy when this accumulation is optimally used (per unit of time). The right side shows what accumulation takes from the national economy (in terms of current labour) under a maximum possible stable ratio of growth of production. The accumulation takes as much as it gives, and vice versa. The stable maximum rate of growth is the criterion of optimum in this case.

Novozhilov suggests that formula (27) is analogous to the "equality of the marginal efficiency of capital and the rate of growth" which in the West, in the early 1960s, "acquired the name of the golden rule of accumulation."¹⁵¹

Except in a purely mathematical sense, such an analogy is doubtful. In Western theories, the familiar concepts of marginal efficiency of capital and the realistic rate of growth are never "given," or otherwise prescribed; usually they are determined by various value-oriented, subjective "social" or "welfare" consumption functions, based on the assumption of consumer sovereignty. Novozhilov's model (27) is not based on any consumption function, but on the sovereignty of central planners. Hence his is not a golden rule of accumulation, but perhaps one of steel.

Novozhilov also suggests that the significance of formula (27) is that the norm of investment effectiveness not only depends on the volume of investment but also, in its turn, affects the latter. Through this inter-relationship, an optimal ratio between consumption and investment can be found.¹⁵² But he does not point out how to find such an optimal ratio. A possible reason for this is Novozhilov's belief that consumption must be taxed whenever the "sum of the prices of consumer goods must be greater than the sum of their full prime costs."¹⁵³ Academician Nemchinov comments that Novozhilov's norm of investment effectiveness proves only that an enterprise returns to society the social labour expended on the maintenance of the steady growth of output, but that the norm does not reflect the amount of social labour which must be spent on the whole non-productive sphere (defence, government, etc.).¹⁵⁴ The latter must therefore be maintained at the expense of consumption. Another possible reason is Novozhilov's reluctance to discuss consumption, which lasted until 1964. In 1963 he noted: "Consumption theory is already being worked out in the USSR," meaning that it had not existed before.¹⁵⁵

9. Capitalist Prices

Differences between capitalism and socialism

Novozhilov derives his theoretical principles of pricing under capitalism from Marx's *Capital*. He points out that the socialist norms of effectiveness such as r_k and r_g in (17), in their mathematical form, resemble the capitalist average rate of profit and land rent. Differential costs also resemble the capitalist prices of production. These similarities are not accidental, says Novozhilov, for the imputation of alternative costs exists also under capitalism, where it is accomplished automatically in the process of competitive striving for maximum profits and minimum costs. But there are three major differences between capitalism and socialism.

First, capitalist calculation of differential cost does not and cannot reduce total social cost of the final output to a minimum. Each capitalist firm strives to minimize its own costs, but it is not concerned about the overall minimum in the whole economy. Furthermore, in order to attain minimum costs they must first be discovered. In a capitalist market economy, however, costs are incurred before their discovery. The market verifies the correctness of those costs that have already been incurred. Whenever the costs are incurred incorrectly, the result is bankruptcy and other real losses to the economy. New mistakes continuously arise in choosing capitalist production alternatives. Unsuccessful choices cannot be rapidly replaced by correct ones because, whenever the period of obsolescence and amortization of the means of production is long, it takes years to test and find out whether investment was worthwhile. Under socialism, on the other hand, differential costs can be calculated on paper while the plan is being drawn. Erroneous variants can be discarded, not in real but in theoretical and simulated tests. Hence, the only real costs that are incurred under perfect socialist planning are the costs of paper and of paper work. Therefore, socialist losses must be incomparably smaller than losses under a competitive market economy. Socialism is economically more efficient than capitalism.¹⁵⁶

Second, profits and rents under capitalism are not merely forms of measurement of costs but also the regulators of production and distribution. They allocate resources in accordance with demand for final products,

demand being determined mainly by income distribution, which in its turn is partly determined by profits and rents. Under socialism, the norms of effectiveness do not regulate production and distribution; it is the plan that regulates them. Norms of effectiveness serve only the control function in the process of drawing up the plan and selecting the best alternatives. They do affect resource allocation, but only indirectly and on paper. They are unaffected by consumer demand.¹⁵⁷

Third, profits and rents under capitalism belong to private persons who can do with them whatever they please—consume unproductively, squander on luxuries, etc. Under socialism, it is society rather than a particular individual that benefits from the calculations of effectiveness norms.

Marx's prices of production

Capitalist prices are what Marx called the prices of production. They are formed from direct prime costs plus an average profit. The average rate of profit is formed by competition and a continuous reallocation of capital searching for maximum profit. The notorious "transformation problem" of volume 3 of *Capital* is solved by Novozhilov in a novel way. He believes that the assumption of equality between the average rate of profit and the general rate of profit (= total surplus value) by Marx "must be considered as the 'first approximation' in the investigation of the formation of prices of production, devised for the simplest hypothetical case."¹⁵⁸ Marx could not complete his analysis of the formation of production prices because he was already gravely ill. In Novozhilov's view, equality of the general and the average rates of profit must be discarded. He points out that competition must reduce prices of production to a minimum. Hence, the general rate of profit necessarily becomes the minimum acceptable rate, not the average one. When the general rate of profit is only the lower limit of the total surplus value, a part of the surplus value remains for the formation of the land rent. Otherwise, the presence of rent in Marx's value-and-price theory is inexplicable.¹⁵⁹

This clever, marginalistic reinterpretation of Marx's production price theory permits Novozhilov to say that the capitalist prices realize the law of the economy of labour more fully than the pre-capitalist exchange of goods according to their labour values. "The price of production is historically the first, still extremely incomplete, form of expression of differential costs under conditions when they differ from average costs."¹⁶⁰ Accordingly, prices under socialism express differential costs much more fully than do the prices of production, while direct calculations of differential labour costs under communism achieve the ultimate realization

of the law of the economy of labour.

Novozhilov perceives four historical stages in the development of the measurement of costs and determination of prices:¹⁶¹

1. labour value under pre-capitalist, simple commodity production;
2. the price of production under capitalism;
3. full prime costs under socialism;
4. differential labour costs under communism.

(The latter he also once called the “normatives of labour input” (*normativy trudoiomkosti*.) With each successive historical stage there is a more complete modification of value. With each new stage, the law of value progressively ceases to be the determinant of prices and the regulator of production and distribution, with central planning ultimately taking over. Each historical stage brings about further deviations of prices from direct per-unit-of-product labour values. And yet each stage brings about further improvements in the measurement of labour inputs in each product, thus realizing the law of the economy of labour. Such is Novozhilov’s explanation of this law’s dialectics.¹⁶²

10. The Problem of Demand

The importance of use-values

After the appearance of his major work *The Measurement of Costs and Results* in 1959, Novozhilov still felt that until he introduced some consumption functions into his models, both his generalization of Marxian theory of value and his theory of socialist prices, based on socially-necessary labour, would remain incomplete.

As early as 1946 Novozhilov was proposing that the equality of supply and demand in case of scarce means of production was a prerequisite of the calculation of their norms of effectiveness, of their correct prices and minimum costs.¹⁶³ But demand was always given by the bill of final goods embodied in the national economic plan. In 1959, Novozhilov's plans are still of a "directive character: the objectives of the economy (the composition of final output, the volume of accumulation) are assumed as given."¹⁶⁴ But he already had some doubts about the wisdom of such an assumption. This is evident from the following reflections:

The useful effect of production is not measured by its quantity. A product can be useful or useless, necessary or superfluous. The measurement of output in physical terms does not take these aspects into consideration. . . . If there is an increase in unwanted production, labour productivity may increase, but its effectiveness will decrease. The essence of the definition of the effectiveness of labour is expressed in the following remark by Engels about planning under Communism:

"The useful effects of the various articles of consumption, compared with each other and with the quantity of labour required for their production, will in the last analysis determine the plan."

According to Engels, in order to construct a plan it is necessary to compare the useful effects of products (and not only their quantities). It is in this way that the relative significance of different lines of production will be revealed. At the same time, the useful effects of consumer goods must be compared with labour costs needed to produce them. In this way we can establish both the amount of each product and the total volume of material production. . . . It is impossible to determine whether a certain product justifies the costs incurred in its production without comparing the qualitatively different use-values. It would be impossible to determine in

what proportions to produce goods if we took into account only the quantity of output without considering how these quantities correspond to needs, for quantities of heterogeneous products are incommensurable, and so the ratios of their outputs cannot by themselves give any basis for determining their proportions.¹⁶⁵

Later in the same treatise, Novozhilov returns to the problem of comparison of heterogeneous use-values. Engels' suggestion to compare "useful effects" is obviously on his mind. "Even though different use-values are qualitatively incommensurable, in practice they are compared with one another."¹⁶⁶ They are compared according to their costs and prices.

The essence of this last comparison lies in the fact that the outlays appear, on one hand, as the sum of outlays on consumer goods and, on the other, as the sum of consumer incomes. If goods are sold at prices which are in accord with the balance of supply and demand, then the ratio of prices to outlays on different goods will indicate to what extent production of each good corresponds to needs. For these prices, indeed, reflect the resultant 'weighing of useful effects' of the various products by the masses of consumers. Therefore, the results of production calculated from such prices can be used to compare the outlays and the results, taking into account how far the results correspond to the needs. If the price of each product is equal to the differential outlays on it, this means that production corresponds (proportionately) to needs (as far as they are expressed in demand).¹⁶⁷

Novozhilov notes that the supply of the means of production must also be equal to demand, and their prices must be equal to marginal (differential) costs. But does this mean that Novozhilov advocates that the composition of production plans be determined by demand and supply? The answer is no.

Limitations of demand

"Demand reflects needs that have already been affected by the distribution of incomes. The more unequal this distribution is, the less demand will reflect the needs of the population and the more it will express income distribution."¹⁶⁸ Since, under socialism, income inequalities are considerably less than those under capitalism, demand under socialism expresses the people's true needs more fully. However,

"the most exact expression of needs in demand is conceivable only when monetary incomes are distributed according to needs. It follows that demand will express needs precisely only under Communism; that is, strictly

speaking, when demand ceases to exist. This unexpected conclusion compels one to wonder: is it really true that the calculation of needs in terms of demand is associated only with the law of value? Is it not, perhaps, that demand represents an imperfect form of a system of calculating needs which can be fully realized only under Communism?"¹⁶⁹

In a socialist economy, "prices of consumer goods must ensure the balance of supply and demand. An excess of demand over supply reduces peoples' standards of living which could have been maintained with the given consumption fund; moreover, a further outlay not accounted for in the costs of production is added to the labour outlays on production: real outlay of time and effort spent in search for scarce goods and on standing in queues. In addition, unproductive, even criminal, acts (black marketing in scarce goods, bribery of sellers of such goods, etc.) become a source of unjustified enrichment, diverting labour from production."¹⁷⁰

However, even though demand and supply must be equal under socialism, this should not put demand into the role of the regulator of production. Under socialism,

needs appear not only in the form of consumer demand. A Socialist economy cannot draw up its production plan of final output on the basis of consumer demand alone. First, consumer demand does not completely solve the problem of accumulation and the expansion of production. This problem by its very nature calls for a centralized solution. The question of the rate of accumulation cannot depend on the volume of individual workers' savings (inasmuch as, with respect to accumulation, consumer demand is expressed in consumers' savings). This would mean restricting the share of accumulation in the national income to even narrower confines than under Capitalism. Second, neither can consumer demand be considered the best judge for determining composition of the production of consumer goods. . . . Even well-educated people are often wrong about what food menu is most useful for them, what clothing suits them best, etc., for these and many other consumption problems can only be solved following some special studies. Furthermore, not every man can be a specialist in all the sciences that are connected with the problems of rationalization of consumption. For these reasons, in a Socialist economy consumer demand cannot unconditionally dictate production.¹⁷¹

Regulated prices, sales taxes and subsidies are used under socialism to affect the socially desirable consumption. Novozhilov does not suggest that quantities supplied be restricted in order to affect consumption.

It follows that although the prices of consumer goods under Socialism take demand into account, production is not determined by demand alone. In other words, the prerequisite to the proportionality of Socialist production is not the equality between demand prices and costs which are possible under the given production conditions, but the equality between these costs and costs required from a social point of view. Only this equality determines socially necessary costs. In a Socialist economy, necessary outlays are not a simple summation of individual orders of the population as expressed in demand, but they are rather an organized collective order, the sum of reciprocal weighing of the "useful effects" of the given product in comparison with other products and other outlays. Therefore, although prices of consumer goods must correspond to demand, production must be geared to socially necessary costs and not to prices; the latter two may or may not coincide... [depending on taxes and subsidies].¹⁷²

On the other hand, Novozhilov also believes that in central planning practices it is physically "impossible to calculate prices of all goods as the prices of demand and supply equilibrium. It is impossible not only because demand functions are unknown (let us assume that they are known!), but also because with every change in demand and supply relationship it would be necessary to recalculate again and again the prices not only of the given good, but also of all similar and related goods. After all, demand for every good depends not only on its price but also on prices of other goods."¹⁷³

This is also the main reason why the calculation of prices must be based on the calculation of costs.

Toward a measure of consumer sovereignty

Having firmly and unequivocally placed the price-making power in the hands of central planners, Novozhilov now directs his attention to the role of the consumer in his economic system. "As a rule, the consumer knows his needs better than the supply agencies do. It is only necessary to make sure that he has no incentive to place excessive orders. Yet this is inevitable whenever demand exceeds supply"¹⁷⁴—as it always does in the Soviet economy.

Next, Novozhilov recalls that enterprises are consumers, too:

Less obvious but even more essential is the equality of demand and supply in case of the means of production. Under conditions of genuine business calculations (*khozraschet*) demand for the means of production may express actual needs even better than demand for consumer goods. Consumer demand could accurately reflect needs only if money incomes were distributed according to needs, rather than according to labour. However, when demand stems from enterprises, which are guided by the principle of

maximum results and minimum costs, then the prices of demand and supply equilibrium ensure such a distribution of means among enterprises that they are used most effectively, and the total minimum outlay on production of final output of the national economy is then attained.¹⁷⁵

All consumers must have freedom of choice, states Novozhilov, and their preferences must be conveyed to central planners.

A comparison of the products' useful effects with labour outlays on their production is realized by means of comparing demand prices with the cost of producing these products. Demand prices express social evaluation of useful effects of a product in that amount of labour which society considers necessary to spend on production of one unit of that product, when the quantity of its supply is given. This property of demand prices must be utilized while the final planned prices are being fixed. As a rule, consumers are better judges of the usefulness of goods than the planning authorities. Consumer evaluation of the useful effect is best expressed in those expenditures that the consumer is prepared to make in order to obtain the given good. This principle should apply not only to the ultimate consumer, but also to business (*khozraschet*) enterprises, consumers of means of production. As a rule, enterprises can calculate the effectiveness of the use of different means of production in their own operations better than the planning agencies. The price that an enterprise can pay for every mutually substitutable means of production can never be higher than the useful effect arising from the use of these means. Since the calculation of effectiveness of the use of mutually substitutable means of production is obligatory for every enterprise, enterprises must be furnished with the information needed for their consumer evaluations of the means of production.¹⁷⁶

From such consumer evaluations of goods supplied to the government planners the latter obtain information on consumers' choices and preferences. "Without a knowledge of how demand depends on the price one cannot determine the quantity of output that would correspond to that demand. It follows, therefore, that the disaggregation of the branch-of-industry prices into final product prices ought to be based on *consumers' conditional orders*, [his emphasis], in which, for every product, there would be foreseen alternative quantities and dates of delivery."¹⁷⁷

This is the furthest Novozhilov was prepared to go in accepting consumer sovereignty. Consumers' advanced orders are declared to be conditional because Novozhilov does not assume that central planners would be obliged to heed them. At best, they would consider them and send back their own counter-proposals. If no compromise is reached, the planners would have the last word.

11. Socially Necessary Labour

A reinterpretation of Marx

Novozhilov formulated his mathematical theory of socially necessary labour in 1964.¹⁷⁸ He published the model in two other publications¹⁷⁹ in a slightly different form, and then in final form in his final monograph.¹⁸⁰ This model is his ultimate achievement in the Marxist theory of value and price. In the following year, he also attained the highest recognition from the Soviet “Establishment”: along with Nemchinov and Kantorovich, he was awarded the Lenin Prize in Economics, the first such prize in the history of Soviet economic thought and practice.¹⁸¹ His victory and success were indeed complete, for he had been attacked constantly and even denounced politically by a strange motley of known and unknown critics and opponents.

Most of the conceptual ingredients of the model of socially necessary labour had already been formulated in his pre-1964 writings. The missing ingredient was well known. In a response to his Western critics, Novozhilov admitted: “True, we have not yet fully accomplished a generalization of Marx’s theory of value; we still need to introduce consumption functions into our models.”¹⁸² These were destined to be his “consumer evaluations,” which were expounded in his analysis of demand. In the model, they take the form of a multiplier called the “consumer evaluation of the *i*th final product, expressed in terms of labour.”¹⁸³ In a later note Novozhilov concedes that in his pre-1964 writings he “failed to see the necessity of introducing such a multiplier” into his theory, and thus “could not obtain a complete formula of socially necessary labour” earlier.¹⁸⁴

Novozhilov’s introduction to the model can be summarized as follows. The concept of socially necessary labour is the foundation of Marx’s theory of value. It is both the definition and the measure of value as such. It is the determinant of prices in Marx’s theory. However, the

definition of socially necessary labour accepted by many economists is based only on a portion of Marx’s ideas, expressed in Volume 1 of *Capital*. Therefore, they fail to take into consideration the process of the development of socially necessary outlays under conditions of the transformation of value,

the formation of prices of production, and other modifications of value. Yet, in volume 3 of *Capital*, Marx throws light on the principles of the general theory of socially necessary labour, which embrace not only those economic conditions under which prices tend toward values, but also those under which prices are proportionate to value modification.¹⁸⁵

Novozhilov could have referred also to volume 4 of *Capital* (*Theories of Surplus Value*) as well as to the first draft version of the entire book (cited here as Marx, *Grundrisse*), for they too contain a number of interesting ideas about the concept of socially necessary labour. However, in 1964, these works of Marx were not yet available in Russian. Part 3 of *Theories* appeared in a complete Russian translation in 1964, and *Grundrisse* was not available in Russian until 1968.

In volume 1 of *Capital*, continues Novozhilov, Marx has assumed natural and various other differences in the conditions of the application of labour. Marx's analysis assumes a model of simple static reproduction, under which average values are indistinguishable from marginal ones. In volume 3 also, Marx refers only to accidental or random deviations from the average. Under this assumption, the larger the statistical population, the more densely it tends to concentrate around the means (in accordance with the law of normal distribution), and the more completely the differences between the mean and the deviations from it cancel each other out. However, as an economy develops, and especially when its rate of growth accelerates, there appears ever new and, moreover, more significant and longer-lasting differences in the conditions of the application of labour. Technological progress is one of the factors behind the increasing differences. Historically, differences increase rather than diminish. The frequency curve, when related to an average value, becomes more and more skewed, losing its symmetry, and the mean; the median and the mode are pulled apart. Thus the so-called average becomes progressively meaningless as a measure of statistical distribution. Whenever there is such a statistical tendency, the distribution of deviations from the average acquires new significance: namely, when a statistical population grows in size, deviations no longer cancel each other out; rather, with the passage of time, they alter the mean.¹⁸⁶

In volume 1 of *Capital*, Marx assumes that prices were proportional to the average socially necessary labour, and this is correct under the assumptions of simple and static reproduction. However, says Novozhilov, under more complicated conditions,

if prices were proportional to average socially necessary outlays, then it would be unprofitable to use such socially necessary conditions of the application of labour as might be worse than the average. Accordingly, the

equality of prices with marginal costs becomes necessary not only when the differences in costs appear to be a result of the exploitation of the less and less effective means of labour, but also when more effective means are used.¹⁸⁷

In volume 3, chapter 44, of *Capital*, and in his letter to Engels of 7 January 1851,¹⁸⁸ Marx shows that differential rent arises not only when inferior lands are brought into exploitation, as Ricardo believed, but also when better lands are brought under cultivation. To Novozhilov

this proves that prices must be equal to marginal costs when the level of the latter is dropping, provided that, for some reason, the differences among the means in use remain. At the present time such a situation prevails not only in agriculture, but also in industry, where differences exist not only among the non-reproducible but also among the reproducible means of labour. Therefore, Marx's schemes, describing price formation in agriculture under conditions of increasing yields, may be used to explain the role of marginal costs under the conditions of technical progress among reproducible means of production.¹⁸⁹

Increasing returns and falling prices

Novozhilov's purpose here is to embrace marginal cost pricing even more firmly and to refute allegations of dogmatic critics that such pricing would orient production toward obsolete technology (the worst conditions), reduce labour productivity and slow down the growth of the Soviet economy.¹⁹⁰

Following Marx (he could have also referred to A. Marshall's assumption of increasing returns), Novozhilov assumes a dynamic situation with progressing technology, falling marginal costs and increasing returns. He is not worried that a stable equilibrium is precluded under such assumptions unless an elaborate dynamic model is built. From his assumptions it follows that, as technically new means of production are introduced to new enterprises, marginal costs and product prices equal to them must fall. As a result, while prices decline, profits from the use of old means of production fall below the general rate of return. Therefore, production of obsolete means ceases, but those that have already been produced continue to be used as long as they produce net returns. Their evaluation for imputation purposes declines together with their effectiveness. "In this way," says Novozhilov, "obsolescence equalizes the rate of profit derived from the use of old means with the general rate of profit (in an optimal plan—with the norms of effectiveness of capital investments)."¹⁹¹

In a letter to the author, Novozhilov rephrased this point in the following manner:

With costs of production at new enterprises declining, the evaluation of obsolete equipment and of obsolete enterprises also declines. The drop in the prices of old means of production reduces cost of production wherever they are in use. When an economy functions in an optimal manner, costs of producing a unit of the given product, in all cases when it is produced, *are equalized* at the expense of the differentiation of profit and rent as well as at the expense of dropping out of exploitation of those enterprises whose funds' evaluation has decreased to zero.¹⁹² (V. V. N.'s emphasis.)

Thus, we may conclude that in a static situation, at any given time and place, prices must cover the highest marginal cost acceptable under the given plan. In a dynamic situation, these prices are determined not only by marginal costs of marginal enterprises, but also by marginal costs of the technologically most progressive enterprises, that is, simultaneously by both the highest and the lowest marginal costs.

Socially necessary labour defined

Having reaffirmed the necessity of marginal cost pricing even under dynamic conditions, Novozhilov proceeds to his definition of socially necessary labour, "the concept of socially necessary labour reflects not only the conditions of production but also the conditions of consumption of a good. Only the labour whose product both qualitatively and quantitatively corresponds to social needs is necessary for society."¹⁹³

As long as the amount of needs for a good is unknown, socially necessary outlays are also unknown.... Socially necessary outlays become determinate only when social need for the given good has been determined. This need can be given either as (1) the quantity of the good or as (2) its price.... The law of value determines the needed quantity of goods through the price of equality of demand and supply. The labour that society considers necessary, according to conditions of consumption, to spend on the given quantity of supply of the good is also reflected in this price. If this price coincides with the marginal costs of production of the same amount of output, this means that the working time spent on its production is precisely the necessary labour time. The measurement of output according to prices that balance needs and output corresponds to the Law of the Economy of Labour. If the equilibrium price is lower than outlays on production of the good, the loss will show the amount of unnecessary labour spent on producing the good. If, however, the good is produced in an insufficient quantity in comparison to needs, then the excess profit indicates the economy of labour that society can

obtain from increasing the output of this good.¹⁹⁴

In his first (1964) paper on socially necessary labour, Novozhilov had not yet elaborated his meaning of needs and demand. However, in the 1965 edition,¹⁹⁵ he systematically reiterated his critical appraisal of demand, as shown in the section "Limitations of demand" above. In place of demand, in 1965, he introduced the so-called "scientifically determined need,"¹⁹⁶ but failed to explain its meaning. It seems probable, nevertheless, that he means a combination of (1) "scientifically determined norms of consumption" and (2) advance consumer orders expressing consumers' evaluations of and choices among the goods in current supply. Various "scientifically determined norms of consumption"—such as those of foodstuffs, textiles, footwear and housing per capita of the population—have been regularly calculated in the Soviet Union by the Academy of Medical Sciences, the Ministry of Health, the Ministry of Trade and various scientific research institutes.¹⁹⁷ Consumption norms of the means of production and various technical input-output norms are calculated by the industries ministries and the USSR State Planning Committee. In short, the basic norms of consumption are well known. Consequently, it is possible to forecast aggregate demand and thus "calculate beforehand the amount of production corresponding to needs, and from this, in addition, calculate socially necessary outlays."¹⁹⁸

Novozhilov concludes as follows:¹⁹⁹

Thus, the prices of consumer goods must correspond to demand, but production cannot always be oriented toward prices. It must always be oriented toward socially necessary outlays, which, however, may or may not coincide with the equilibrium of demand and supply. It follows that the measurement of results in terms of sales prices of consumer goods (reflecting demand) cannot serve as the basis for a comparison of outlays and results. For this purpose we need socially necessary outlays. Since the results are realized in demand prices, the determination of results according to socially necessary norms can be accomplished only by introducing corrections into actually produced results. The economic function of the turnover tax lies precisely in this. The turnover tax compensates for the deviations of demand prices from socially necessary costs. Results, measured without the turnover tax, must reflect socially necessary outlays. Consequently, socially necessary time is determined by the following equality:

The labour necessary in accordance with conditions of production	$\left. \vphantom{\begin{array}{l} \text{The labour necessary in} \\ \text{accordance with conditions} \\ \text{of production} \end{array}} \right\}$	is equal to	$\left\{ \vphantom{\begin{array}{l} \text{The labour necessary} \\ \text{according to conditions of} \\ \text{consumption.} \end{array}} \right.$	The labour necessary according to conditions of consumption.
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Novozhilov notes that Marx devoted only a few lines to such an equality, and that he "did not sufficiently work out the concept of socially necessary time" from the consumption aspect. But, Novozhilov believes, this was only because Marx's illness prevented him from completing volume 3 of *Capital*.²⁰⁰

A linear model of socially necessary labour

Novozhilov next tries to build his own mathematical model of socially necessary labour to complete Marx's theory of value. He points out that he intends to construct a model of "differential socially necessary labour input under optimal planning."²⁰¹ These differential socially necessary labour outlays are not actual, but rather planned costs in an optimal plan. The assumed demand is also not actual demand but the one forecast on the basis of the norms of consumption and advance consumer orders.

Under conditions of optimal planning, socially necessary labour inputs express simultaneously the minimum necessary inputs according to conditions of production and the maximum permissible inputs according to conditions of consumption. Novozhilov applies to these conditions a linear programming dual, in which the direct problem minimizes labour outlays on total final output according to needs for that output given in the plan, and the dual problem maximizes the national income as a result of adjusting the composition of final output to its needs. Since the maximum of the objective function is equal to the minimum of its dual, the solution to Novozhilov's problem would mean that total working time is distributed among the lines of production in such a way that (1) the production of each final good corresponds to the need for it, and (2) the minimum working time is laid out on the entire programme of the final output.

The model has the following components: c_l^i stands for full labour costs of producing a unit of the i th final product by l th method in the planned period of time. ($i=1, 2, \dots, n$), ($l=1, 2, \dots, s$). c_l^i also includes all labour outlays on the used-up means of production at all stages of production.

a_{ij}^l is the full expenditure (for objects of labour such as raw materials) or the total time of utilization (for means of labour such as tools) of resource j per unit of the i th final product according to the l th technological process (with due consideration of all preceding stages of production). ($i=1, 2, \dots, n$), ($j=1, 2, \dots, m$), and ($l=1, 2, \dots, s$.)

q_l^i stands for the quantity of the i th final product produced by the l th method during the period of the plan.

Q_j denotes the amount of resource of the type j available at the beginning of the planned period.²⁰²

q_i is the need for the i th product during the planned period.

r_j is the norm of effectiveness or the scarcity price for the use of the j th resource.

p_i denotes the consumer evaluation (demand price) of the i th product, expressed in terms of working time.

Since the whole model is in terms of labour time, the consumer evaluations must also be in the same terms. We recall that the consumer evaluations express consumers' readiness to pay a certain price associated with certain quantity of the good in question. These demand prices are conveyed by consumers to central planners by advance orders for specific goods. As we noted, it is not clear whether the planners are obliged to heed these demands, but we may assume that in this formal model this is immaterial.

It is also not clear who expresses consumer evaluations in working time terms: central planners or consumers themselves. Presumably, central planners may use some conversion co-efficients to translate consumer evaluations from money into working time units; they may also express prices and quantities, which consumers are asked to evaluate in terms of working time. In the latter case, however, consumers would have to relate such prices to their incomes expressed in working time units. By analogy with Novozhilov's previous remarks that true consumers' needs can be expressed in demand only if money incomes are distributed according to needs, it is evident that consumer evaluations in terms of labour would represent true consumers' needs only if consumers worked according to needs, rather than according to the legally prescribed number of hours per day, days per week, etc., and only if wages per unit of working time were equal in all jobs and professions. This is, however, but a minor defect in an otherwise flawless Novozhilov model.

The optimal plan is obtained through solution of the following linear programming problem:²⁰³

Find the final output programme, i.e., such non-negative q_i^l ($i=1, 2, \dots, n$; $l=1, 2, \dots, s$), which minimize total expenditures on the needed final output,

$$\sum_{i,l} c_i^l q_i^l = \min., \quad (28)$$

under the following two sets of constraints: the demand for resource j must

not exceed its supply:

$$\sum_{i,l} a_{ij}^l q_i^l \leq Q_j \quad (j=1, 2, \dots, m) \quad (29)$$

and that the output of each final product must not be less than the demand for it:

$$\sum_l q_i^l \geq q_i \quad (i=1, 2, \dots, n) \quad (30)$$

Norms of effectiveness of the use of resources and consumer evaluations are found in the optimal plan by means of solving the dual of the preceding problem. To draw up the dual, Novozhilov rewrites as follows the first constraint (29):

$$\sum_{i,l} (-a_{ij}^l) q_i^l \geq -Q_j \quad (j=1, 2, \dots, m)$$

Novozhilov's next problem is to find the non-negative p_i and r_j , which maximize the national income:

$$\sum_j r_j (-Q_j) + \sum_i p_i q_i = \max., \quad (31)$$

with the constraint that

$$p_i \leq c_i^l + \sum_j a_{ij}^l r_j^l \quad \begin{matrix} (i=1, 2, \dots, n) \\ (l=1, 2, \dots, s) \end{matrix} \quad (32)$$

that is, the consumer evaluations of every product (in working time units) should not be higher than the differential outlays of labour on the given product in the whole national economy.

Novozhilov's solution is as follows:²⁰⁴ Let the optimal plan of the direct problem (q_i^{l*}) correspond to the optimal plan of the dual problem (r_j^{l*}) and (p_i^{l*}). In this case, r_j^{l*} are norms of effectiveness of resources, and p_i^{l*} are consumer evaluations of the products in the plan (q_i^{l*}). Then

$$r_j^{l*} = 0 \text{ when } \sum_i a_{ij}^l \cdot q_i^{l*} < Q_j \quad (33)$$

and

$$q_i^* = 0 \text{ when } p_i^* < c_i^1 + \sum_j a_{ij} \cdot r_j^*. \quad (34)$$

Therefore, for all production processes selected for the optimal plan, inequalities (32) are transformed into an equality

$$c_i^1 \sum_j a_{ij} \cdot r_j^* = p_i^*. \quad (35)$$

This is Novozhilov's basic formula for socially necessary labour.

Critical discussion

Novozhilov subjects formula (35) to critical scrutiny.²⁰⁵ The formula represents the national economy as a whole and treats intermediate products in the planned period as unfinished production. Q_j ($j=1, 2, \dots, m$) denotes both reproducible and non-reproducible means of production as well as both means of labour and objects of labour at the beginning of the planned period. One of Q_j represents the planned limit of investible capital fund.²⁰⁶ The limitation on investment has a significantly different nature from the limitations on all other material resources.

This is a limitation on consumption during the planned period. It must have been one of the unknowns in the problem of optimal planning of the national economy. By assuming its magnitude as given, we considerably simplify the problem. However, this simplification does not introduce any substantive change into the formula for socially necessary labour.²⁰⁷

Mathematically, this simplification changes nothing in the formula. But from the economic point of view it certainly matters who decides the volume and rate of non-consumption: consumers themselves, through political channels if the system is democratic; or some central governors independent of consumers. The difference is both quantitative and qualitative. Again Novozhilov took the position of an apologist for the existing Soviet economic system.

He goes on to say:

Condition (30) which determines the amount of needs for each final product is an even greater simplification. In reality, needs for each product depend not only on the price but also on the prices of many other products, and above all on prices of mutually substitutable products. However, prices are

determined by socially necessary labour outlays. Therefore, fixing planned needs can only be conditional, based on expected (but not yet computed) outlays of socially necessary labour. Consequently, a single solution of the problem would not necessarily yield an optimal plan, for the found prices p_i may not coincide with those assumptions on which the required quantities q_i were calculated. Hence, we must again calculate q_i in accordance with p_i that have been ascertained, and once more solve the problem. . . . Since necessary quantities q_i depend on prices $p_i X$, and prices depend on outlays (35), while outlays per unit of output depend on the amount of output, the determination of needs and the compilation of an optimal plan are possible only by means of iteration.²⁰⁸

This analysis is incontrovertible. He might have added only that the iterations by long-hand method, requiring hundreds of workers, are no longer to be feared. Computers can iterate more efficiently, and will find the p_i^* almost instantly. It is surprising that Novozhilov never mentions computers in his publications. Either he took them for granted, having spent his later years as laboratory chief of the Systems of Economic Evaluations at the Leningrad Branch of the Central Economic-Mathematical Institute of the USSR Academy of Sciences; or, perhaps, his method was basically educational, i.e., he did not want to tell his students that computers could find p_i^* at once. Rather, he wanted them to comprehend what a "solution price" is from the economic point of view. Novozhilov was, after all, a professional educator for fifty years of his life.²⁰⁹

The objective function of the dual

$$\sum_i p_i q_i - \sum_j r_j \cdot Q_j = \max.,$$

calls for an additional explanation. (In the above form it is the same as (31); it only appears here in a rewritten rendering.) Since

$$\sum_i p_i q_i$$

represents the sum total of all prices of final output, it may appear that this sum also expresses the labour value of the national income. However, from (35) it follows that besides full direct labour costs c_i^1 , a normative ef-

fect (imputed economy of labour) from the use of scarce resources, i.e.,

$$\sum_j a_{ij}^l r_j^*$$

also enters into the solution prices p_i^* . For all final products together the sum of normative effects will be

$$\sum_{i,j,l} a_{ij}^l \cdot q_i^l \cdot r_h^* = \sum_j r_j^* Q_j.$$

Thus the sum of labour prices of the final output exceeds its labour value by

$$\sum_j r_j^* Q_j.$$

Consequently, in determining the labour value of the national income, it is necessary to subtract

$$\sum_j r_j^* Q_j$$

from the sum of prices of the final output, for

$$\sum_j r_j^* Q_j$$

is merely the cost of materials, which do not enter into the concept of national income.²¹⁰

Novozhilov also points out²¹¹ that the resolving equality (35) is also the criterion of conformity of alternative methods of producing the i th product under the optimal plan. Solution (35) determines differential socially necessary costs for each individual product. The left half of this equality expresses the increment in minimum expenditure of labour on the entire final output in the national economy that results from the production of one unit of the i th product by l th method. The right half of equality (35) represents the increment in the maximum national income that results from obtaining one unit of the i th product. Therefore, assuming homogeneity of products, Novozhilov concludes:²¹²

Socially necessary labour for an individual product is determined by the following equality:

an increment in the conditional minimum of outlays on society's final output, caused by the production of one unit of the i th product by the l th method } is equal to { an increment in the conditional maximum of the national income caused by the supply of one unit of the i th product,

or more briefly:

differential costs of the i th product with the l th method of production } are equal to { society's differential income from the same product.

Novozhilov proves this definition of socially necessary labour by applying the Goldman-Tucker theorem of the saddle point of the Lagrangean function²¹³ to his model of socially necessary labour (35).²¹⁴

12. The General Model of Price Formation

Labour for society

“In a capitalist economy,” writes Novozhilov, “the entire sum of imputed costs is realized by the owners of the means of production in the form of surplus value. In a socialist economy, the sum of imputed costs is realized in the form of labour for society.”²¹⁵

To account for this, Novozhilov proposes that a portion of total labour outlays corresponding to the sum of imputed costs be equated to zero, i.e., a corresponding amount of socially necessary labour should remain unpaid from costs. By decreasing the sum of labour outlays by a certain proportion K , the sum of paid labour is obtained.²¹⁶ To preserve the relationship between the quantities in the general formula of socially necessary labour (35), multipliers p_i^* and r_j^* are also reduced in the same proportion. A new general formula of socially necessary labour, including labour for society, is thus obtained:

$$\frac{1}{K+1} \left(c_i^l + \sum_j a_{ij}^l r_j^* \right) = \frac{1}{K+1} p_i^*. \quad (36)$$

Final model of socialist pricing

The final model of socially necessary labour (36) permits Novozhilov to draw up a general formula for price formation. In model (36) labour prices are replaced by monetary prices. Novozhilov proposes w as the co-efficient of proportionality of prices to labour outlays and π_i as the optimal price expressed in monetary units. Then, by using his formula of socially necessary labour, he obtains the following formula for monetary price under optimal planning conditions:

$$\pi_i^* = p_i^* \frac{w}{K+1} = \frac{w}{K+1} \left(c_i^l + \sum_j a_{ij}^l r_j^* \right). \quad (37)$$

This shows that the "optimal price is proportional to the partial derivative of the conditional minimum of the value of the total final output with respect to the quantity of the given product."²¹⁷ In brief, optimal price is determined by marginal socially necessary labour. From his model of socially necessary labour, Novozhilov also derives his formula for the capitalist price of production and for the price under simple static reproduction, but these are of less interest to us.

Novozhilov concludes with a discussion of the relationship between value and price. The four publications in which he developed his model of socially necessary labour differ from each other in conclusion, but the differences lie in emphasis, not in meaning. In summary Novozhilov's conclusions are as follows.

1. Marx's theory of value does not propose that prices should be equal or even proportional to labour values. It proposes only that prices are derived from value. This is shown in formula (37), where the price is derived from modified value.²¹⁸
2. The modification of value and, therefore, the difference between value and price is a historically determined process. Since differences in the conditions of the application of labour increase with time, prices cannot be proportional to values.²¹⁹
3. Price differs from value not only quantitatively but also qualitatively. Price is the means of minimizing the value of society's final output. Hence, price can deviate from value to any extent—up to the point when objects can have price but no value. Such are prices of land and various natural resources, for example.²²⁰
4. Because price is different from value, it is necessary not only for monetary measurements of cost and results but also for their measurement by working time under communism.²²¹
5. The difference between value and price is also evident in mathematical terms. Price relates to value as a means relates to an end. Value of the final output of society is an objective function of the dual, whereas prices in it are the Lagrange multipliers r_j^* and p_i^* , which take into account restrictions on resources and needs.²²²

13. General Critique

In the history of economic doctrines we usually appraise contributions according to the following four criteria:

1. Originality. We try to define the contributor's place in the context of related doctrines. We look for influences, relationships and significant differences.
2. Generality. The only new doctrines that seem to withstand the test of time are those that are more general than the preceding doctrines in the same field.
3. Reality. A successful theory must be neither oversimplified nor too abstract. Its premises and purposes must be reasonably realistic.
4. Acceptability. To what extent are the doctrine's premises and conclusions acceptable, and to whom?

Novozhilov's peers in the Soviet Union have recognized his originality. To Nemchinov, his contribution is "new and very important."²²³ Kantorovich and Vainshtein acknowledge that he is the "first economist who has recognized the significance of linear programming for a general problem of a socialist economy."²²⁴ In France, Henri Chambre declared that Novozhilov's work was "original" and that it contained "new concepts for traditional Soviet economics."²²⁵ Thus, Novozhilov's contribution to Soviet economics is well recognized and established. He is considered one of the leading proponents of Soviet economic thought. His followers in the USSR already outnumber his critics, and his popularity among the young Soviet economists is remarkable.

In the West, however, the reception has been less favourable. Alec Nove remarks in his introduction to *The Use of Mathematics in Economics* (xi) that Novozhilov's central theory "is elementary to a Western economist." Nove's choice of the word "elementary" is unfortunate, but his point is that although Novozhilov's contribution measures up to the standards of Western economic theory, it produces only a modernized Marxism. In fact, the appearance of a Novozhilov had long been expected and predicted in the West. To quote Samuelson, for example, "A simple 'labour theory of value' will not properly solve the [economic] problem. Only if

you reckon the marginal cost of a good can you get its proper price in terms of labour or of anything else."²²⁶ It had long been recognized in the West that it was possible to construct a meaningful model of marginal cost pricing in terms of labour. But no one had actually attempted to do it before Novozhilov, and herein lies his contribution to Western economics.

A model of marginal cost pricing in terms of labour was held to be feasible in the West on the basis of the Walrasian model of general equilibrium, in which any commodity can serve as a *numéraire*, including labour. In examinations of Novozhilov's early writings, both Grossman and Campbell interpreted labour in his models only as a *numéraire*.²²⁷ Thus they concluded that his work was unoriginal and that his claims to the Marxian theory of value were unfounded, with Campbell even going so far as to ridicule Novozhilov, suggesting that he should have used fuel as a *numéraire* to obtain a "fuel" theory of value.

In reply, Novozhilov pointed out that the two critics had confused the concepts of *numéraire* and "value."²²⁸ He suggested to Grossman that if labour as a *numéraire* were removed from his model and any other commodity were substituted for it, the model would still continue to minimize labour.²²⁹ His reply to Campbell stated that if fuel were to be minimized in his model, "value" would indeed consist of fuel even if the *numéraire* was to be money or labour. This proves, says Novozhilov, that the selection of what is to be minimized depends not on *numéraire*, but on cost, i.e., value.²³⁰

Labour is not the only *numéraire* in Novozhilov's models; there is also money (cf., e.g., model (37)). In Novozhilov's theory, the law of the economy of labour means that labour input per unit of output decreases with time. In the Walrasian model of general equilibrium, on the other hand, *numéraire* cannot decrease. It is given as a budget to be spent economically while consumers maximize their satisfactions. It is being minimized in the sense that consumers economize by spending it in the most rational way possible. But *numéraire* per unit of maximum satisfaction in the Walrasian model is, nevertheless, a constant. We can propose that the consumers' budget increases gradually, but there is no law of increasing budget in Walras.

Novozhilov's theory is mathematically static, but because of the law of the economy of labour and of Marxian dialectical historicism, it is certainly less static than the model of general equilibrium. Thus Novozhilov's theory does not embody Marxian dialectics mathematically, but his constant references to it make it dynamic at least verbally.

The meaning of "value" must not be confused with that of some *numéraire*. Although mathematically the material of which the *numéraire* consists is unimportant, it is valuable from the economic point of view. A "fuel" theory of value would not be subject to doubt if fuel were the most

valuable thing. We can imagine a unique situation, in which scarcity of fuel might be the most pressing scarcity of all. In such a case, a fuel theory of value would explain the formation of prices of all other goods.

The meaning of value in economics has always been, and still is, much more important and large in scope than the meaning of the *numéraire*. A theory of value makes economics a purposeful, rational and moral science of human behaviour, clearly different from pure mathematics, to which the concept of the *numéraire* belongs. Granted, we can argue on methodological grounds, that a labour theory of value (or, in fact, any theory of value) is not necessary for the development of marginal cost pricing. However, we can also argue that a value theory of price—any value theory, which distinguishes between price and value—is better than no value theory. Every value theory that corresponds to its name answers the question: Why are we economizing, or what are we economizing for specifically? Thus, a labour theory of value assumes that labour is the most valuable thing that must be, and is, “economized” upon. Labour cannot be dispensed with. It cannot be wasted. It is part of life, it is life itself, inasmuch as life is nothing but time. Since man does economize on labour, the labour theory of value claims to express a universal law of human behaviour.

A subjective utility theory of value assumes that satisfaction and welfare is the supreme value maximized by mankind. (Sometimes it appears that Hedonism is as misunderstood as Marxism!) An objective utility theory of value maintains that scarcity as such is the meaning of value. Because of scarcity, economizing is necessary in order to attain maximum ends with minimum means—the ends being many goals, and not necessarily only consumer satisfaction. For example, a nationalistic goal may put maximization of a nation’s growth above maximization of consumers’ happiness. A theory of value defines the goals of the economic behaviour of man. These goals inevitably involve ethics. Thus economics is an ethical science. On the other hand, the concept of the *numéraire* as such does not explain the reasons for economizing behaviour. Anything can serve as the *numéraire*, but we are faced with the question “What for?” If we construct a model of a “brick theory of value,” the question will remain—what is it for?

Furthermore, the valueless price theories, which explain prices only in terms of some *numéraire*, can equally well be applied to non-economic goals and purposes because they do not differ from mechanical efficiency theories. For example, in war and military science, maximum ends must be achieved with minimum means. Yet this “economics” is clearly anti-economical: it wastes and destroys resources and reduces human welfare to zero. Hicks may be right in saying that the essentially valueless von-Neumann-Morgenstern theory of games should not belong to

economics.²³¹ Or, some theory of value must be added to it. The same is true of linear and non-linear programming and various other mathematical techniques that have been adopted by economics.

A quotation from Benedetto Croce comes to mind: "A system of economics from which value is omitted is like logic without the concept, ethics without duty, aesthetics without expression. It is economics estranged from its proper domain."²³² Economics without some theory of value logically dissolves in what Oskar Lange calls "praxeology"—"a general science of rational behaviour."²³³ Perhaps praxeology is the wave of the future, a science of all sciences, but as long as we are to remain economists rather than praxeologists, we had better acknowledge that a labour theory of value is better than nothing.

As to the law of the economy of labour, in Campbell's view, in the Soviet setting where labour surplus does exist, "minimizing labour input is a ridiculous goal."²³⁴ And so, therefore, is Novozhilov's theory of value. To this, Novozhilov has found a piquant reply.²³⁵ From a capitalist or a bourgeois economist point of view, labour is just another factor of production and another cost, no different from the cost of capital or land. But from the point of view of the worker, his own labour is certainly more valuable to him than some machine or a piece of land on which he labours, especially when these means are not his own property. The non-owner would use machinery and land to the maximum, whereas he would spare his own labour as much as possible. And this is true, states Novozhilov, even if there is a surplus labour force.

Campbell considers it absurd to rationalize that "Minimizing the labour input is equivalent to maximizing output, since labour saved can be used to expand output."²³⁶ In fact, it *must* be used to expand output, for Novozhilov's model is explicitly based on the assumption of full employment and an optimal length of the working day. What is not absurd, however, is that labour input per unit of output should, statistically, always be a minimum and dynamically it should decrease, according to Novozhilov.

Novozhilov's law of the economy of labour, however, can be criticized on other grounds. As a meta-historic law, it is imprecise. Over the course of history, the total quantity of socially necessary labour input does not seem to decrease. Due to the growth of the population, a factor which Novozhilov never considered at all, it probably increases. What is slowly decreasing is the length of working time per man that is necessary for the sustenance and propagation of man's life. Yet even this may not be a general law. The working week and the working day have decreased in the industrialized countries in the last 150 years. However, in the pre-industrial, agricultural and even feudal societies, working time per man-year seems to have been considerably shorter prior to

industrialization. On the other hand, the productivity of labour as measured by output per unit of working time has been increasing. Historically, labour input per unit of identical output has been decreasing. Hence, generally, the law of the economy of labour does work.

Novozhilov's contribution to other work in his field is unique. Its closest relative is the work of Leonid Kantorovich,²³⁷ but this is only through the method of linear programming. Their works are very different in substance and Novozhilov did not hesitate to emphasize these differences. As early as 1960 he pointed out that Kantorovich's theory applied not to the whole economy (unlike his own) but only to groups of enterprises producing similar products.²³⁸ He also indicated that Kantorovich's multipliers neither had any *numéraire*, nor reflected the law of the economy of labour, and therefore were not related to value.²³⁹ Labour in Kantorovich's theory is just another factor of production; it is imputed a scarcity price, a point Novozhilov disagrees with.²⁴⁰ To put it simply, Kantorovich's price theory is valueless.

In Japan, K. Adachi published a paper in 1962 developing a linear programming model somewhat similar to, but entirely independent of Novozhilov's.²⁴¹ The main difference is that Adachi's objective function minimizes not "live" labour alone (as does Novozhilov's) but "live" and "dead" labour together. This is evident from Adachi's statement that he is "relying upon the Dmitriev-Okisio formula of value measurement."²⁴² The latter is known to be the sum of "live" and "dead" labour. This means that Adachi's model contains no restrictions in the conditions of the application of labour. For this reason, Adachi does not discuss imputed and differential costs, or any other implicitly marginalistic aspects of his model.

At the Berlin Academy of Sciences in East Germany, Fritz Behrens discussed algebraically Marx's law of the economy of labour.²⁴³ However, he did not advance beyond the construction of simple labour productivity indexes. In Norway, Leif Johansen published a paper mathematically relating labour theory of value to marginal utilities.²⁴⁴ It is a fine piece of work that has elicited comments even from the Soviet Union. In its use of marginal utility functions, however, it goes beyond the scope of Novozhilov's work.

The curious discovery of a labour theory of value in W. Leontief's generalized input-output model is, perhaps, also worth mentioning here, since input-output method is related to linear programming. N. Georgescu-Roegen was the first to point out²⁴⁵ that the employment co-efficients in Leontief's model were related to the equilibrium prices embedded in the model; namely, prices were in constant proportion to the wage rate. Subsequently and, it seems, independently, B. Cameron declared that Leontief's theory was "premissed upon a labour theory of value," and that the models of all those who have extended the Leontief

input-output theory (P. A. Samuelson, T. C. Koopmans, K. J. Arrow) were "likewise equally dependent upon the labour theory of value."²⁴⁶ M. Morishima, F. Seton and L. Johansen concurred and suggested that it was the Marxian theory of value. Thus the hypothesis was established.

Leontief is not known to have responded. It is doubtful whether he, Samuelson, Koopmans and Arrow believe in the validity of any labour theory of value. What occurred was an accident caused by an assumption. In the generalized Leontief model, labour is the only variable input. The labour-input isoquants are such that the rate of substitution between two commodities is constant and the opportunity cost curves are linear. The equilibrium input co-efficients are independent of demand for the final product; they are determined only by technology. Under these severe restrictions, prices of homogeneous commodities in terms of wages will equal the number of man-hours required to produce the goods. However, if, instead of labour, capital investment was made the variable input, then the Leontief model would yield a "capital" theory of value. Thus we are faced again with a *numéraire* problem, rather than a true theory of value.

What was Novozhilov's relationship to Marx? In their early writings, when only a few of Novozhilov's works were available for analysis, both Grossman and Campbell expressed doubts that Novozhilov proceeded from the Marxian theory of value.²⁴⁷ This was denied by Novozhilov and some of his followers.²⁴⁸ Like some dogmatists in the USSR, certain Western students of Soviet economics maintain that mathematical economics and marginalistic techniques are incongruent with the Marxian framework of Soviet economics.²⁴⁹ Before becoming acquainted with the work of Novozhilov and Kantorovich, the author took an opposite position, and predicted that Soviet mathematical economists might still provide a few significant surprises.²⁵⁰ Alec Nove also warned in 1964 that:

One should not assume, as some Western critics do, that Marxian economics is inherently inconsistent with reality, that the "vulgar-Marxist" simplifications of the late-Stalin period are the essence of the theory. Novozhilov, for instance, would certainly argue that his theories are consistent with Marxism; are indeed the correct application of Marxism to the circumstances of the Soviet Union.²⁵¹

From our discussion, there can be little doubt that Novozhilov was a Marxist and a Leninist, and that his contribution lies fully and consistently within the framework of modern Marxian economics. A well-known conservative critic of mathematical economics, Ia. Kronrod, remarked that "it must be granted that V. V. Novozhilov's concept lies within the confines of the labour theory of value, and not in the theory of the 'maximalization of utility'."²⁵²

There is nothing in Novozhilov's work that contradicts Marxism-Leninism. However, his work is not a simple repetition of Marx. Rather, as Vainshtein has remarked, Novozhilov "fruitfully developed the teachings of Marx." The editorial obituary in the *Economy and Mathematical Methods* also pointed out that Novozhilov's work was a "constructive development of Marxist economic science."

At many points in his prolific writings Novozhilov declared openly and unequivocally that he was taking up where Marx had left off. In a different context, Lichtheim suggested that "a genuine revisionist" is one who is "trying to bring Marxist theory up to date." In this sense Novozhilov was a genuine revisionist. But this is an unusual definition of revisionism. Revisionism to dogmatists is a derogatory term and we should refrain from applying it to Novozhilov. Yet, he was a modernizer of Marxism, a neo-Marxist.

Is the doctrine under study more general than the preceding one? In Novozhilov's case, his theory of value is a more general, more comprehensive than that of Marx. For example, it explains the determination of more kinds of prices than Marx's theory (e.g., the prices of such scarce things as rare paintings and sculpture, aging wines and growing timber forests). His attempt at the development of the labour theory of interest also went much further than that of Marx.

Were there Western influences on Novozhilov's economic thought? Zauberman suggested that the thinking of the Soviet mathematical economists has been "fertilized by extensive borrowing from the West."²⁵³ Dobb vigorously denied this.²⁵⁴ In reality these are two extreme appraisals, and the truth lies somewhere in between. Whenever Novozhilov borrowed something from the West, he acknowledged it openly, as with the Goldman-Tucker theorem, for example. On the other hand, he also displayed a broad familiarity with modern Western economic thought. In addition to the Russian translations, he used Western works in three languages: English, French and German. He referred to such authors as L. Walras, V. Pareto, J. B. Clark, A. Wald, G. Cassel, R. G. D. Allen, R. Dorfman, P. A. Samuelson, R. Frisch, R. M. Solow, H. W. Kuhn, A. W. Tucker and J. von Neumann.²⁵⁵ Since his references to these authors are often unsystematic and haphazard, it is clear that he was not following in their steps while developing his own ideas. He was often very critical at Western addresses. Yet, his knowledge of Western literature leaves no doubt that he absorbed many Western ideas concerning marginalistic methodology.

Another question is how congruent was Novozhilov's theory with reality? All theories of value are to some extent unrealistic. Novozhilov's belief that labour time will be used as a unit of reckoning in the future may well be wishful thinking. On the other hand, Samuelson, a Nobel

Prize winner, uses something called "utils" and "disutils" to add utilities as cardinal numbers.²⁵⁶ But what is the purpose of such an unreality? The purpose is educational: to teach economics, rather than actually calculate prices on the basis of "utils." The same is true of Novozhilov's "labour calculus." Once it finds its way, we hope, into Soviet economics textbooks and courses, Novozhilov's theory will introduce students of economics to such new notions as scarcity, alternative and opportunity costs, and rent imputation. It will illuminate the economizing nature of the cost-and-result, price-and-profit relationship, introduce students to marginalistic reasoning, and generally contribute to a better understanding of the uniqueness of economic philosophy, of which comparatively little is written today in Soviet economics textbooks.

As to acceptability, we have shown that some of Novozhilov's concepts (e.g., those of demand and interest) beg some serious questions. However, only time will tell what will become of the main body of his contribution. His following among young economists in the Soviet Union offers the prospect of a regeneration of Soviet Marxian economics. Thus Novozhilov may become the founder of a Neo-Marxist school of economic thought.

Notes

1. K. Marx, *Grundrisse der Kritik der politischen Okonomie (Rohentwurf)*, 1857-1858, 89.
2. K. W. Deutsch, J. Platt and D. Senghaas, "Conditions Favoring Major Advances in Social Sciences," 453.
3. V. V. Novozhilov, "Calculation of Outlays in a Socialist Economy," "Cost-Benefit Comparisons in a Socialist Economy" and *Problems of Cost Benefit Analysis in Optimal Planning*.
4. Novozhilov, "Cost-Benefit Comparisons" and *Problems of Cost Benefit Analysis*.
5. For example, in the phrase "under socialism the prices of consumer goods must ensure the balance of supply and demand," the word "must" is omitted. See Novozhilov, "Cost-Benefit Comparisons," 176. On page 177, the term "national income" is translated as "national economy."
6. In *Problems of Cost Benefit Analysis*, 151, for example, in $k_i r_k^*$ the solution symbol (*) is placed after k_i , thus changing the meaning of the formula.
7. Novozhilov, "On Choosing Between Investment Projects," 69.
8. Novozhilov, "O primenenii matematiki pri optimalnom planirovanii narodnogo khoziaistva," 106.
9. Novozhilov, "Spornye voprosy primeneniia, metoda vspomagatelnykh mnozhitel'ei v sotsialisticheskoi ekonomike," 139.

10. *Ibid.*, 142.
11. *Ibid.*, 139 and Novozhilov, "O zakonomernostiakh razvitiia," 24.
12. Novozhilov, "Spornye voprosy primeneniia," 139.
13. *Ibid.*, 140 and Novozhilov, "O zakonomernostiakh razvitiia," 27.
14. Novozhilov, "Izmerenie zatrat," 42–3.
15. The Russian term is *predstoiashii trud*. B. Ward's translation of this as "future labour" in Novozhilov, "On Choosing Between Investment Projects," 82, is misleading. Closer is the French rendering "le travail immediat." Cf. Novozhilov, "Mesure des dépenses (de production) et de leurs résultats en économie socialist," 218.
16. Novozhilov, "Izmerenie zatrat," 162.
17. Marx, *Grundrisse*, 592. Cf. also 584, 591 and 593–4.
18. Novozhilov, "Izmerenie zatrat," 202; "Ischislenie zatrat," 88; and "O tendentsiakh v razvitiu izmereniia proizvoditelnosti truda v SSSR," 35.
19. It is important to note that Novozhilov consistently distinguishes between the economy "as a whole" and an individual, particular, enterprise. Most of his theories are explicitly "national economic," i.e., macro rather than micro.
20. Novozhilov, "Matematicheskie modeli narodnogo khoziaistva v burzhuaznoi politicheskoi ekonomii i ikh kritika," 17.
21. Novozhilov, "O zakonomernostiakh razvitiia," 26.
22. Marx, *Capital*, 3: 799–800.
23. V. I. Lenin, *Sochineniia*, 29: 394.
24. Novozhilov, "Izmerenie zatrat," 161; also Novozhilov, "Matematicheskie modeli," 17; and "O zakonomernostiakh razvitiia," 20, 25.
25. Novozhilov, "Izmerenie zatrat," 45.
26. Novozhilov, "O zakonomernostiakh razvitiia," 32.
27. Novozhilov, "Metody soizmereniia narodno-khoziaistvennoi effektivnosti i proektnykh variantov," and "On Choosing Between Investment Projects."
28. For "scarcity" he uses two Russian terms, *ogranichennost* and *skudnost*. The first is used more frequently, but the two are taken as synonyms. Cf. Novozhilov, "O primenenii matematiki," 104–5.
29. Novozhilov, "K diskussii o printsipakh planovogo tsenoobrazovaniia," 53.
30. Novozhilov, "Izmerenie zatrat," 178; also Novozhilov, "O primenenii matematiki," 104.
31. Novozhilov, "Izmerenie zatrat," 115.
32. Novozhilov, "O zakonomernostiakh razvitiia," 15–16.
33. Novozhilov, "Calculation of Outlays," 26.
34. Novozhilov, "Izmerenie zatrat," 91.
35. Novozhilov, "Calculation of Outlays," 20–1.
36. Novozhilov, "On Choosing Between Investment Projects," 75; cf. also Novozhilov, "Izmerenie zatrat," 138–9.
37. Novozhilov, "Izmerenie zatrat," 120; cf. also 116.
38. Novozhilov, "K diskussii," 47.
39. Novozhilov, "Calculation of Outlays," 25.

40. Novozhilov, "On Choosing Between Investment Projects," 70; cf. also Novozhilov, "Izmerenie zatrat," 43.
41. Novozhilov, "On Choosing Between Investment Projects," 70-1.
42. Novozhilov, "Izmerenie zatrat," 163-4.
43. *Ibid.*, 198-9.
44. Novozhilov, "O primenenii matematiki," 107.
45. *Ibid.*, 108.
46. *Ibid.*.
47. Novozhilov, "Problemy planovogo tsenoobrazovaniia i reformy upravleniia promyshlennosti," 11.
48. Novozhilov, "Ischislenie zatrat," 83.
49. Novozhilov, "O primenenii matematiki," 116.
50. Novozhilov, "On Choosing Between Investment Projects," 72.
51. *Ibid.*
52. *Ibid.*, 73-4.
53. *Ibid.*, 71.
54. A. Nove, *The Soviet Economy; An Introduction*, 276.
55. P. A. Samuelson, *Economics*, 428.
56. Novozhilov, "O zakonomernostiakh razvitiia," 18.
57. Novozhilov, "On Choosing Between Investment Projects," 71.
58. Novozhilov, "Spornye voprosy primeneniia," 130.
59. Novozhilov, "Izmerenie zatrat," 136.
60. Novozhilov, "Spornye voprosy primeneniia," 119-20.
61. Novozhilov, "Izmerenie zatrat," 133.
62. Novozhilov, "Ischislenie zatrat," 87-8.
63. Novozhilov, "O zakonomernostiakh razvitiia," 17.
64. Novozhilov, "Izmerenie zatrat," 136.
65. Novozhilov, "On Choosing Between Investment Projects," 76.
66. *Ibid.*, 77.
67. *Ibid.*
68. *Ibid.*, 79.
69. He favoured the principle of operative business autonomy (*khozraschet*) for all economic units, beginning with the ministries and ending with local enterprises. Since his reform proposals are not directly related to his theory of value, they are not analysed in this discussion. They can be found, however, in his essays: "The Method of Optimal Planning Must Be Perfected," "Matematicheskii analiz sotsialisticheskoi ekonomiki kak vazhneishii faktor rosta proizvoditelnykh sil," "Zakonomernosti razvitiia sistemy," "Problemy planovogo tsenoobrazovaniia," "Novyi etap razvitiia sistemy upravleniia sovetskoi ekonomiki," "Khozraschetnaia sistema planirovaniia," "V. I. Lenin o planomernom razvitiu sotsialisticheskoi ekonomiki," "Plan i khozraschet; polemicheskie zametki o khode ekonomicheskoi reformy" and "O probleme razvitiia teorii optimalnogo planirovaniia na sovremennom etape."
70. Novozhilov, "Ischislenie zatrat," 84-5; also Novozhilov, "Problemy izmereniia

- effektivnosti proizvodstva," 129–36.
71. Novozhilov, "Ischislenie zatrat," 84.
 72. Novozhilov, "O zakonomernostiakh razvitiia," 16–17.
 73. Novozhilov, "Ischislenie zatrat," 85. I have changed his letter "l" into "m" in order not to confuse it with the number one in the formulas.
 74. *Ibid.*
 75. Novozhilov, "On Choosing Between Investment Projects," 78–81; also Novozhilov, "Izmerenie zatrat," 150–4.
 76. Novozhilov, "On Choosing Between Investment Projects," 80.
 77. Novozhilov, "Izmerenie zatrat," 150.
 78. *Ibid.*, 151; also Novozhilov, "On Choosing Between Investment Projects," 80–1.
 79. Novozhilov's concept of labour is what Marx called "abstract labour." The problem of reducing complex and skilled labour to simple or basic labour was dismissed as unimportant by Novozhilov ("Problemy izmereniia," 325). Whatever reduction multiplier is used, it would not change the substance of Novozhilov's theory.
 80. Novozhilov, "Izmerenie zatrat," 151.
 81. *Ibid.*, 151–2; also Novozhilov, "Cost-Benefit Comparisons," 131–2 and "Problemy izmereniia," 138–40.
 82. *Ibid.*, 139.
 83. *Ibid.*, 140.
 84. Cf. Novozhilov, "On Choosing Between Investment Projects," 81; also Novozhilov, "Problemy izmereniia," 141 and *Problems of Cost Benefit Analysis*, 136.
 85. I. Bliumin, "Teoriia Valrassa" and *Subiektivnaia shkola v politicheskoi ekonomii*.
 86. Novozhilov, "Matematicheskie modeli," 18.
 87. Novozhilov, "Izmerenie zatrat," 151.
 88. *Ibid.*, 151–2.
 89. *Ibid.*, 152.
 90. *Ibid.*, 155–9; also Novozhilov, "Cost-Benefit Comparisons," 135–8, "Problemy izmereniia," 144–8 and *Problems of Cost Benefit Analysis*, 139–41.
 91. Novozhilov, "On Choosing Between Investment Projects," 87.
 92. D. Debreu, "Definite and Semidefinite Quadratic Forms," 299–300.
 93. R. Dorfman et al, *Linear Programming and Economic Analysis*, 15, 307.
 94. Novozhilov, "Problemy izmereniia," 146.
 95. R. Frisch, "V. V. Novozhilov's Method of Process Selection," 1. The Frisch memorandum is dated 27 September 1959; Novozhilov's paper went to press on 24 March 1959. Novozhilov, "Problemy izmereniia," 147.
 96. *Ibid.*
 97. *Ibid.*, 148.
 98. *Ibid.*
 99. *Ibid.*, 149.

100. Novozhilov, "Izmerenie zatrat," 164.
101. Novozhilov, "Vsesoiuznaia nauchno-tekhnicheskaia konferentsiia po problemam opredeleniia ekonomicheskoi effektivnosti kapitalnykh vlozhenii i novoi tekhniki v narodnom khoziaistve SSSR," 130-1.
102. V. S. Nemchinov, *Izbrannye proizvedeniia*, 6: 366, 381-2.
103. Novozhilov, "Spornye voprosy primeneniia," 141; also Novozhilov, "Model obshchestvennogo neobkhodimogo truda," 25.
104. Kantorovich, "Optimalnoe planirovanie" and Novozhilov, "O primeneniia matematiki,"
105. Novozhilov, "Teorii trudovoi stoimosti i matematika."
106. Novozhilov, "Zakon stoimosti i planovoe tsenoobrazovanie."
107. Novozhilov, "Problemy izmereniia," 149.
108. Novozhilov, "Izmerenie zatrat," 162-3.
109. Novozhilov, "Problemy izmereniia," 149-50.
110. *Ibid.*, 151.
111. Marx, *Grundrisse*, 89.
112. Novozhilov, "Problemy izmereniia," 151-2.
113. Novozhilov, "Izmerenie zatrat," 164-5; and "Problemy izmereniia," 152-3.
114. Novozhilov, "Izmerenie zatrat," 165-7; and "Problemy izmereniia," 153-5.
115. Let us theoretically suppose that we have to compare the economic effects of two alternatives, one giving the effect $(a+b)$ and the other that of $(a+c)$, with the same outlays and costs. If we choose the first alternative $(a+b)$, the c must be produced at some additional cost and by a different method. If we choose the second alternative, then we must show how b is going to be produced and at what cost. In other words, we must in either case consider the outlay on the production of $(a+b+c)$ by different methods, in the first case $(a+b)$ being produced together and c separately, and in the second case $(a+c)$ being produced together and b separately. Cf. Novozhilov, "Izmerenie zatrat," 59-60, or "Problemy izmereniia effektivnosti proizvodstva," 50-1.
116. Novozhilov, "Problemy izmereniia," 163.
117. Novozhilov, "Izmerenie zatrat," 173.
118. *Ibid.*, 174.
119. *Ibid.*, 200-1.
120. Novozhilov, "O zakonomernostiakh razvitiia," 21-3; also Novozhilov, "Problemy izmereniia," 168.
121. Novozhilov, "Problemy izmereniia," 168.
122. *Ibid.*, 169.
123. *Ibid.*, 166.
124. Novozhilov, "O zakonomernostiakh razvitiia," 21-3; "Problemy planovogo tsenoobrazovanie," 333, 338; "Problemy izmereniia," 165-6.
125. P. Potemkin, "Analiz aktualnykh problem tsenoobrazovaniia," 85.
126. Novozhilov, "Izmerenie zatrat," 44ff.
127. Novozhilov, "Problemy izmereniia," 165.
128. Novozhilov, "Zakonomernosti razvitiia," 654 and "Problemy izmereniia," 166-7.

129. *Ibid.*, 181.
130. *Ibid.*, 218.
131. *Ibid.*, 181.
132. Novozhilov, "Faktor vremeni v ekonomicheskikh raschetakh," 3.
133. *Ibid.*, 23.
134. Novozhilov, "Faktor vremeni," 3.
135. Novozhilov, "Problemy izmereniia," 184.
136. *Ibid.*, 185.
137. Novozhilov, "Faktor vremeni," 4; also Novozhilov, "Problemy izmereniia," 184.
138. *Ibid.*, 185. The quotation is found in Marx, *Capital*, 2: 315.
139. Novozhilov, "Problemy izmereniia," 185.
140. *Ibid.*, 187–8.
141. *Ibid.*, 216–17.
142. *Ibid.*, 216.
143. *Ibid.*, 184.
144. *Ibid.*, 218.
145. *Ibid.*, 196.
146. *Ibid.*, 197.
147. *Ibid.*, 198.
148. *Ibid.*, 199.
149. *Ibid.*
150. *Ibid.*
151. *Ibid.*, 201.
152. *Ibid.*, 200.
153. Novozhilov, "Izmerenie zatrat," 175.
154. V. S. Nemchinov, "Posleslovie," 480.
155. Novozhilov "Spornye voprosy primeneniia," 136–7.
156. Cf. Novozhilov, "Matematicheskie modeli," 19–20.
157. The last statement is unequivocally true only for the pre-1964 assumptions made by Novozhilov. He later changed this point, granting a limited role to consumer demand.
158. Novozhilov, "Izmerenie zatrat," 180.
159. *Ibid.*, 181–2.
160. *Ibid.*, 183.
161. *Ibid.*, 212.
162. Novozhilov, "Izmerenie zatrat," 174, 183, 210–13; also Novozhilov, "O zakonomernostiakh razvitiia," 10ff.
163. Novozhilov, "On Choosing Between Investment Projects," 81, 83.
164. Novozhilov, "Izmerenie zatrat," 175.
165. *Ibid.*, 56.
166. *Ibid.*, 196.

167. *Ibid.*, 197.
168. *Ibid.*, 198.
169. *Ibid.* He stops just short of suggesting that the method of indifference curves can be used under communism.
170. *Ibid.*, 200.
171. *Ibid.*
172. *Ibid.*, 201.
173. Novozhilov, "Spornye voprosy primeneniia," 123.
174. *Ibid.*
175. *Ibid.*
176. Novozhilov, "Zakonomernosti razvitiia," 649.
177. *Ibid.*, 650.
178. Novozhilov, "Teoriia trudovoi stoimosti," 96–110.
179. Novozhilov, "Zakon stoimosti," 42–53 and "Model obshchestvennogo," 12–26.
180. Novozhilov, *Problems of Cost Benefit Analysis*, 321–4.
181. T. Shabad, "'New' Economists Honored in Soviet Union," 9.
182. Novozhilov, "Spornye voprosy primeneniia," 141.
183. Novozhilov "Teoriia trudovoi stoimosti," 102.
184. Novozhilov "Model obshchestvennogo," 25.
185. Novozhilov, "Teoriia trudovoi stoimosti," 97.
186. *Ibid.* 98–9. Cf. also Novozhilov, "Problemy izmereniia," 294 and "O zakonomernostiakh razvitiia," 27–8.
187. Novozhilov, "Teoriia trudovoi stoimosti," 99.
188. K. Marx and F. Engels, *Selected Correspondence*, 61–3.
189. Novozhilov "Teoriia trudovoi stoimosti," 99.
190. Cf. Kats, "Ekonomicheskaiia teoriia," 96–100; *Obshchie voprosy*, 214; also *Diskussia ob optimalnom planirovanii*, 5, 131.
191. Novozhilov, "Model obshchestvennogo," 33 and *Diskussia ob optimalnom planirovanii*, 57.
192. Dated 26 December 1968.
193. Novozhilov, "Teoriia trudovoi stoimosti," 100 and "Problemy izmereniia," 307.
194. Novozhilov, "Zakonomernosti razvitiia," 38–9 and "Problemy izmereniia," 311–12.
195. Novozhilov, "Zakonomernosti razvitiia," 39–40 and "Problemy izmereniia," 312–13.
196. Novozhilov, "Zakonomernosti razvitiia," 41 and "Problemy izmereniia," 314.
197. For example, *Opredelenie potrebnosti naseleniia v tovarakh*, 91.
198. Novozhilov, "Problemy izmereniia," 314.
199. *Ibid.*
200. Novozhilov, "Problemy izmereniia," 368.
201. *Ibid.*, 321.
202. *Ibid.*, 322. In previous editions of the model this was rendered as "During the planned period."

203. *Ibid.*
204. *Ibid.*, 323.
205. *Ibid.*, 323–6.
206. Compare this discussion with the discussion of formula 18 (page 434).
207. Novozhilov, "Problemy izmereniia," 323.
208. *Ibid.*, 323–4.
209. "Viktor Valentinovich Novozhilov," 961.
210. Novozhilov, "Problemy izmereniia," 324.
211. *Ibid.*, 326.
212. *Ibid.*, 329.
213. The theorem in the Russian translation is found in L. V. Kantorovich and V. V. Novozhilov, eds., *Lineinye neravenstva i smezhnye voprosy*, 193–4.
214. Novozhilov, "Problemy izmereniia," 327–9.
215. *Ibid.*, 330.
216. *Ibid.*, 329; cf. also Novozhilov, "Izmerenie zatrat," 174.
217. *Ibid.*, 331.
218. Novozhilov, "Teoriia trudovoi stoimosti," 109 and "Problemy izmereniia," 332.
219. Novozhilov, "Model obshchestvennogo," 25 and "Problemy izmereniia," 332.
220. Novozhilov, "Zakonomernosti razvitiia," 52 and "Problemy izmereniia," 333.
221. Novozhilov, "Problemy izmereniia," 334.
222. *Ibid.*, 333.
223. Nemchinov, *Izbrannye proizvedeniia*, 479.
224. Vainshtein, "Vozniknovenie i razvitie," 20.
225. H. Chambre, "En guise d'introduction à V. V. Novozhilov," 25, 27.
226. Samuelson, *Economics*, 436; cf. also 434–5.
227. G. Grossman, "Scarce Capital and Soviet Doctrine," 329. R. W. Campbell, "Marx, Kantorovich and Novozhilov: Stoimost' Versus Reality," 416.
228. Novozhilov, "Spornye voprosy primeneniia," 134–42 and "Problemy izmereniia," 353–62.
229. Novozhilov, "Problemy izmereniia," 354.
230. *Ibid.*, 358.
231. J. R. Hicks, "Linear Theory," 111.
232. B. Croce, *Materialisme historique et economie marxiste*, 231.
233. O. Lange, *Optymalne decyzje; zasady programowania*, 11.
234. Campbell, "Marx, Kantorovich and Novozhilov," 416.
235. Novozhilov, "Spornye voprosy primeneniia," 139.
236. Campbell, "Marx, Kantorovich and Novozhilov," 416.
237. Kantorovich, *Ekonomicheskii raschet*.
238. Novozhilov, "O primenenii matematiki," 113.
239. *Ibid.*, 273.
240. Novozhilov, "Ischislenie zatrat," 92.

241. K. Adachi, "Planning Prices and Labor Productivity Under Labor Input Minimizing Plans," 27.
242. *Ibid.*
243. F. Behrens, *Ökonomie der Zeit darin löst sich schliesslich alle Ökonomie*, 11.
244. L. Johansen, "Labour Theory of Value and Marginal Utilities."
245. N. Georgescu-Roegen, "Leontief's System in the Light of Recent Results," 217.
246. B. Cameron, "The Labour Theory of Value in Leontief Models," 191.
247. Grossman, "Scarce Capital," 328; Campbell, "Marx, Kantorovich and Novozhilov," 416.
248. Novozhilov, "Spornye voprosy primeneniia," 134ff; I. V. Kotov and B. G. Serebriakov, "Zakon stoimosti i tseny optimalnogo plana," 43ff; Malafeev, "Burzhuaznye kontseptsii," 95.
249. For example, A. Parker, "On the Application of Mathematics in Soviet Economics" and G. Caire, "Planification soviétique et recherche de la rationalité."
250. V. Holubnychy, "Recent Soviet Theories of Value."
251. Nove, *Use of Mathematics*, x.
252. *Diskussia*, 110.
253. A. Zauberaman, "New Winds in Soviet Planning," 1.
254. M. Dobb, "The Revival of Soviet Economic Discussion," 309.
255. For example, Novozhilov, "Matematicheskie modeli," 3–22.
256. Samuelson, *Economics*, 411, 434.

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9. Mao Tse-Tung's Materialistic Dialectics

The thesis of this article is that Mao Tse-tung's materialist dialectics has a definite place of its own in the realm of the Marxist-Leninist-Stalinist philosophy. Although it is undoubtedly consanguineous with the dialectics of Marx, Engels, Lenin, Stalin and the modern Russian and other Communist philosophy, it is also discernibly different. In addition, it is also somewhat related to the dialectics of classical Chinese philosophy. One demonstrable reason for all these relationships is that Mao Tse-tung's readings in Marxian classics were not very extensive, possibly less extensive than his readings in Chinese classics. The rest of the differences and peculiarities came from his own thinking.

There is evidence that Mao has practised his dialectics in his policies. His writings on the theory and methods of cognition and practice appear to describe and rationalize much of his personal experience. Hence, learning Mao Tse-tung's philosophy may, perhaps, provide the reader with some clues to his way of thinking and to his and the Chinese Communists' political behaviour. (There is no pretence in this article, of course, that Mao's dialectics explain everything about him.)

What this paper undertakes is the following.¹ After an introduction to the subject of dialectical materialism in general, it delineates the scope of Mao's contributions by relating them to their sources of origin and to their immediate frame of reference. Subsequently the article defines Mao's dialectical materialism on its own premises by identifying main features of

its epistemology (theory of knowledge) and by summarizing its ontological (theory of being) and ontogenetic (theory of the development of the individual) postulates concerning the nature and laws of development of reality and of truth. The article is based for the most part on Mao's three main philosophical essays, *On Practice*, *On Contradiction* and *On Dialectical Materialism*.

What Is "Materialistic Dialectics"?

Dialectics, like logic, has two different, though closely related meanings. One describes it as a way of thinking and a method of reasoning, argumentation and demonstration of the validity or erroneousness of mental truths; the other interprets reality and human consciousness in terms of this method and thus makes out of it a part of philosophy.

In popular use and sometimes even in the interpretation of scholars, logic is often thought of as the only "correct" way of thinking. And there is, of course, nothing "wrong" about this way of thinking as long as it suits best the particular purpose of thinking. However, the modern linguistic school of philosophy, whose best known exponent was the late B. L. Whorf, has recently demonstrated that different cultures, because of the difference in languages, have considerably different ways of thinking best suited for some particular purposes. It has also demonstrated that some basic differences among the major philosophical views of the world stem largely from the differences in the structure of languages, which determine the difference in thinking.

In particular, it has been demonstrated that dialectics is especially inherent in the Chinese way of thinking merely because it arises from the different and unique character of the Chinese language and culture, just like our Western logic arises from the peculiarities of our languages and cultures. One of the earliest discoveries of this fact is contained in the 1939 paper by an eminent Chinese philosopher, Chang Tung-sun, who identified himself as a Kantian and Spenglerian, and definitely a Marxist. He wrote:

Aristotelian logic is based on the structure of the Western system of language. Therefore, we should not follow Western logicians in taking for granted that their logic is the universal rule of human reasoning. . . . Because the verb "to be" has the meaning of existence [in all Western languages], the "law of identity" ["A is A," the first law of logic] is inherent in Western logic; without it there can be no logical inference. Western logic, therefore, may be called "identity-logic." . . . In Chinese there is no verb "to be" comparable to the English form. The colloquial *shih* does not convey an idea of

existence. The literary *wei* on the other hand conveys an idea of *ch'eng* which means "to become." But in English "becoming" is exactly opposite to "being." . . . Chinese thought puts no emphasis on exclusiveness [like the Western "either—or," the third law of logic]; rather it emphasizes the relational quality between above and below, good and evil, something and nothing. All these relatives are supposed to be interdependent. . . . [Hence], we have a logic of a quite different nature. . . . It may be proposed to call this type of logic "correlation logic" or "the logic of correlative duality." . . . It is true that Marxism [like Chinese dialectical logic] has done away with the law of identity, and has advocated the law of opposition. . . . But its difference from Chinese thought lies in the fact that while Marxism puts emphasis on opposition and thus class struggle, Chinese thought puts emphasis on the result or adjustment of such an opposition. . . . In contradistinction to the Chinese logic of correlation, the Marxian type of logic may be called the "logic of opposition."²

A good deal of accurate observation in this early statement has since been amplified by new research, though much still remains to be done.³ For example, in addition to an exhaustive and critical treatment of the Chinese meanings of "being," A. C. Graham has recently explored a number of other linguistic peculiarities of classical Chinese philosophy (most of which are still valid in modern Chinese).⁴ In place of the Western logical judgments, "this is right" or "this is wrong," Chinese philosophers used merely implicit, to them self-evident, identifications, "this is this" (*shih*) or "this is not this" (*fei*). They also had one single word, *yu* (negative, *wu*), for our two entirely different words, "have" and "there is." As a result, instead of our "there are horses in the world," they would say, "The world has (contains) horses." The ultimate in this type of thinking was reached in the well-known *Essay on the White Horse*, by Kung-sun Lung (ca. 300 B.C.): There where a Westerner would have said, "A horse is not necessarily a white horse," Lung concluded unequivocally that "A white horse is not a horse."

Everyone who knows the difference between logic and dialectics as methods of reasoning will undoubtedly notice that, while "being" and "a horse is a horse" lead straight to the laws of logic, such meanings implicit in Chinese words as that "something is becoming, or became what it is" (it was not always that), or that "something has (contains) something else in itself," or that "white horse is no longer just a horse because it is white," all correspond exactly to the laws of dialectics.

This does not imply, however, that all Chinese language and thought are dialectical, as it is also not true that the Western languages and thought are not all dialectical. Dialectics as a method of reasoning and

disputation was also developed in ancient Greece. Hegel borrowed it from the Greeks and developed it into an intricate method of studying "spirit" (*Geist*) in history. Subsequently, however, dialectics has failed to be isolated into a pure method and has never attained such a degree of refinement, formalization and practical usefulness as, for example, symbolic logic has achieved nowadays.

Like logic today, dialectics was once also a part of philosophy concerned with ontology and epistemology. It is unfortunate that our standard philosophy textbooks and encyclopedias refer, while discussing dialectics, as a rule only to a few Greek dialectical philosophers and to Hegel, but seldom display any awareness of the existence of the ancient Chinese (Taoist and Mohist, for example) and ancient Indian (Buddhist or Madhyamikan) dialectics. The latter, being quasi-religious or purely religious philosophies of nature and of the universe, were actually more comprehensive in their purposes than the Greek discussions or even Hegel's ideology of history.

In this paper, however, I shall deal with a meaning of dialectics entirely different from that usually given in our philosophy courses or dictionaries; namely, with the one that was for the most part developed by Frederick Engels and shared by Karl Marx.⁵ Engels defined his "materialistic dialectics" as the science of general laws of motion of everything, of nature, human society, history, scientific research and of human thinking as such.⁶ In this sense dialectics is clearly much more comprehensive than logic, and is not merely a method of reasoning, but an all-embracing system of abstract philosophical postulates and views concerning fundamental laws of human life and physical nature in their totality.

This is not to say, however, that materialistic dialectics has been developed as a body of literature to anything comparable to its lofty claim of being a universal philosophy. On the contrary, as a body of literature it is meagre, and a good part of it consists of desultory writings of political revolutionaries who were too busy with putting their philosophy into practice than onto paper in a scientific manner. In fact, Mao Tse-tung's writings in this field stand out among the best, comparable only to such masterpieces of exposition of the basic ideas of this philosophy as, perhaps, Marx's famous preface to *A Contribution to the Critique of Political Economy*.

The method of materialistic dialectics in the purely formal sense is similar to that of other dialectics. It rests on a body of axiomatic laws, comparable but opposite in their meaning to the laws of formal logic. The first law of logic is the Law of Identity. It expresses any thought's identity with the object of thinking, or the absence of difference between them: A is A and cannot be anything else. The first law of dialectics is the Law of Development Through Contradictions, as Engels put it. It is also known as

the Law of the Negation of Negation. It says that A can be A only if it not a non-A; or, in other words, for A to be an A the presence of a non-A is a *conditio sine qua non*. Therefore, the starting axiom of all dialectics is the rejection of the logical Law of Identity and the acceptance that A can be both A and a non-A at the same time. The remaining laws of dialectics can be deduced from the first. According to Engels, they are: The Law of Mutual Interconnection (Complementarity) of Opposites; The Law of Transformation of Opposites into their own Opposites when Brought to an Extreme (this law is also known as the Law of the Transformation of Quantity into Quality); and the Law of the Spiral Form of Development of Things. In the case of this fourth law, as will be shown below, materialistic dialectics significantly differs from the classical Chinese dialectics, which recognized only the circular form of motion.

What distinguishes dialectics as a philosophy from other dialectical philosophies is its different ontological and epistemological postulates. According to materialistic dialectics, external reality (nature, society, etc.) exists independently of its knowledge by man. Whether man is aware of it or not, reality exists. Therefore, reality ("being") precedes and dominates consciousness and thinking. The process of knowledge goes from reality into the mind and then back to reality as a reflected thought of it. In the idealistic dialectics (e.g., in Hegel) this process is opposite: it assumes that man first conceives an idea about reality, then sends it as a thought to reality, and reality bounces it back into the mind. Furthermore, according to materialistic dialectics, not only the nature of human thought, but also the nature of reality itself is dialectical. It postulates that dialectical laws operate in reality, in physical nature, in society, everywhere. Man has to discover these laws, but if he does not, they operate nevertheless and man sees at the end only their effects.

It must be said that, partly because much of the basic sources on materialistic dialectics are non-scientific in their form, and also because they were translated into various languages and published interruptedly, after long intervals, much confusion, misunderstanding and misinterpretation of their meaning, purpose and significance has been evident not only in objective, academic literature, but also among the dialectical materialists themselves. What has been summarized above was the state of materialist dialectics at the time of Engels' death.

Lenin came to be a great practitioner of dialectics in politics in the last decade of his life, but as a writer on the subject he failed to make any significant contribution. In fact, he confused some of the most important postulates. Contrary to many explicit statements by Engels, Lenin (1) believed in the existence of an "absolute truth" and in man's ability to discover it; (2) recognized the first law of logic and believed in the identity of thought and reality; and (3) understood the theory of reflection in

mechanistic terms, comparing it to photography and believing that the image in the mind exactly coincides with the object of observation. Why Lenin differed with Engels so markedly has not yet been established, but at least two reasons can be suggested. First, he expressed these ideas in his *Materialism and Empiriocriticism* (cf. especially Chapter 2), in 1908, when he still was not acquainted with dialectics as a method, and when Engelsian writings did not yet exert the authority in the social-democratic movement they came to possess later, after the formation of the Communist parties. Second, Russian cultural backgrounds, with their peculiar Greek Orthodox religious overtones, the language pattern of thought, and Lenin's legal education, undoubtedly played some role in his inclination to straight logical thinking and a strong belief in that what he saw, thought, or learned.

Lenin began to study dialectics seriously only in 1914–15, mostly on the basis of Hegel's writings. As he admits repeatedly in his fragmentary *Philosophical Notebooks*, much of it, and particularly the laws of the Negation of Negation and of the Transformation of Quantity into Quality, he found obscure and unpalatable, and never accepted. Engels' *Dialectics of Nature* Lenin did not come to read at all, for it was published only in 1925, after his death. The influence of Hegel's idealistic dialectics on Lenin came to be especially fateful in his *Philosophical Notebooks* in the case of his identification of dialectics with logic and epistemology in general ("They all mean the same thing," he wrote) and in his confused pronouncement that opposites within a contradiction are "identical."

Engels left materialistic dialectics as a more or less developed philosophy, but not a science or a formal scientific method. Yet, in the twenties, Russian Communist "believers" tried to force dialectical method on all sciences, including the natural sciences.⁷ The attempt failed dismally, and dialectics became seriously compromised as a result. Tacitly, the Russians concluded that it was of little practical value in education and that it should be replaced by the study of traditional logic. Lenin's dictum that they meant the same thing came especially handy for such a transition. In deference to Lenin's misunderstanding of Hegel's dialectical laws, Stalin omitted all formal laws from his *Dialectical and Historical Materialism*, published in 1938. As a result, Stalin's dialectics appeared to be some apocalyptic *deus ex machina* that uninterruptedly pushed the history of nature and of society along a one-way road of progress. Why the mechanism worked exactly that way and what set it into motion remained unanswered. Stalin merely declared that to think otherwise would be "metaphysics." Since the late thirties, Soviet philosophers have gradually eliminated dialectics from all serious philosophical discussions and research. Today it is confined merely to the primary courses in political science, and even there it is mutilated to fit the basic revisions introduced

into it by Stalin (cf., for example, *The Fundamentals of Marxism-Leninism: Manual* [Moscow, 1959]), which is also available in English). So much have the Russians neglected dialectics that it was Mao Tse-tung personally who reminded them of it at the 1957 world Communist conference and insisted that it be practiced. It was only "as a result of the common efforts of the delegations of the CCP and other fraternal parties," castigates the official Chinese disclosure of 6 September 1963, that the Russian draft of the 1957 Moscow Declaration was changed; the "main additions" included "the formulation on the importance of applying dialectical materialism in practical work."⁸

Marxist-Leninist philosophy first appeared in China through a few translations around 1925–7, but spread very quickly thereafter.⁹ At the time of Mao Tse-tung's writings (1937), it had already passed through a turbulent history of polemics and internal struggle with several schools of thought, for the most part under the influence of similar debates in the Soviet Union.¹⁰ The works of the leading Soviet philosophers of the time (A. Deborin, M. Mitin, M. Rozentel) were available either in complete translations or in summary form in Chinese journals. By 1937, in terms of the issues debated by the Chinese Communists and pro-Communist philosophers, dialectical materialism in China attained the level of the official Stalinist philosophy in the Soviet Union. In 1935–6, for example, lively polemics took place between the Chinese followers of A. Deborin, led by Yeh Ch'ing, and the party-line philosophers, headed by Ai Szu-ch'i.¹¹ Chinese translations of the primary Marxist-Leninist sources were scarce, however, and this fact seems to have played an important role in the appearance and development of the indigenously Chinese current of Marxism-Leninism.

The Frame of Reference of Mao Tse-Tung's Writings

As far as is known now, Mao Tse-tung has published three explicitly philosophical¹² treatises. They are:

1. *On Practice;*
2. *On Contradiction;*
3. *On Dialectical Materialism.*

Of these the first two have appeared in many editions, translated into many languages. The piece *On Dialectical Materialism* has never been reprinted, however, and for unknown reasons is not being mentioned in China today. One installment of it was discovered in 1960 in a rare copy of the Shanghai magazine, *Min-chu (Democracy)*, vol. 1, no. 2, 1940, in

the East Asian Library of Columbia University. It appeared in that magazine under Mao's signature and under the title *Pien-cheng-fa Wei-wu Lun (II) (On Dialectical Materialism)*, indicating that it was the second part of a longer article.

Examination of references and quotations in these three works by Mao and comparison with bibliographies of the Chinese translations¹³ of primary Marxist-Leninist sources available in China at that time¹⁴ reveal that Mao's readings in these sources included the following: (a) Engels' *Anti-Dühring* and (b) *Ludwig Feuerbach*; (c) Marx's *Theses on Feuerbach*; (d) Lenin's *Materialism and Empiriocriticism*, which was available, however, in only an abridged edition¹⁵; and (e) two portions from Lenin's *Philosophical Notebooks* that were available in Chinese as separate brochures. In total, this included about one-third of what Engels and Marx wrote on dialectical materialism, and about four-fifths of what was written on the subject by Lenin. Nowhere in these or any other of his writings does Mao refer, for example, to Marx's *Poverty of Philosophy*, *Capital*, or to Marx and Engels' *The Holy Family*, all of which contain important passages on materialistic dialectics, and which are known to have been accessible in Chinese at the time.¹⁶ Marx's and Engels' *The German Ideology*, which also is not referred to by Mao, was not translated into Chinese until 1940.¹⁷ Marx's *Economic and Philosophic Manuscripts of 1844*, which include his revealing critique of Hegel's dialectics, presumably are not available in Chinese even today.¹⁸ The evidence concerning Engels' *Dialectics of Nature* remains inconclusive: according to what is presumably the most complete of the Chinese Communist bibliographies, it was not available before 1940,¹⁹ whereas a Russian source maintains that it was translated into Chinese in the thirties,²⁰ and Father Brière has it in his bibliography, but without the year of publication.²¹ In any case Mao does not refer to it and does not display any evidence that it was known to him when he was writing on materialistic dialectics.

Stalin's *Dialectical and Historical Materialism* appeared in Chinese translation in 1939,²² that is, after Mao had written his first two treatises. However, in this connection several interesting problems arise concerning Mao Tse-tung's writings. It is stated in the official introduction to all the currently available editions of *On Practice* and *On Contradictions* that they were written in July and August 1937, respectively, and delivered as lectures at the War College in Yen-an. As far as is known, however, nowhere is it stated when or where these articles were first published.

The Party Central Committee's Commission on the Publication of the Selected Works of Mao Tse-tung has stated in the foreword to the first official four-volume edition of Mao's *Selected Works*, in 1951, that previous editions of Mao's selected writings did not include a number of articles that have been included in the present edition, but it failed to specify these

particular articles.²³ In at least one of the earlier editions of Mao's works studied so far, his philosophical articles were not found.²⁴ Early postwar Chinese Communist propaganda pamphlets on the subject of Mao Tse-tung's thought did not mention his philosophical writings either.²⁵

All this provides, therefore, some ground for contemplating a hypothesis that both *On Practice* and *On Contradiction* were not published immediately after they had been written, and that it is possible that they first appeared only after the war, namely, in the *People's Daily*, of 29 December 1950, and 1 April 1952, respectively, and at about the same time in volumes 1 and 2, respectively, of the first official edition of Mao Tse-tung's *Selected Works*.

If this hypothesis is correct, then it is obvious that Mao had plenty of time to take into consideration, if he wanted to, not only Stalin's *Dialectical and Historical Materialism* but also his *Marxism and the Problems of Linguistics*, which was published early in 1950, and which further revised Engelsian dialectics by postulating that not all contradictions were antagonistic and not all transformations of quantity into quality were accompanied by a violent "revolutionary leap."²⁶ Yet although it is explicitly stated in the official foreword to volume 1 of the Chinese edition of Mao's *Selected Works*, and also in the introduction to *On Contradiction*, that "the author has made certain additions, deletions and revisions" in his texts, there is no unequivocal evidence that he ever took any of Stalin's writings on dialectics into consideration.²⁷ Conceptually, Mao's and Stalin's works are entirely different, and at no place does Mao quote from Stalin's philosophical writings directly or indirectly. (He does quote from Stalin's early political writings, but that is irrelevant here.) It is possible, on the other hand, that Stalin's example of speaking out on philosophical questions inspired Mao to publish his own, independent and different writings in 1950-2.

If *On Practice* and *On Contradiction* were not published when they were written, then, as far as is known now, Mao's first certainly published philosophical work was the above-mentioned little-known article, *On Dialectical Materialism*, of 1940. Of interest, perhaps, is the fact that the second instalment of this article bears an unmistakable resemblance to *On Practice* and *On Contradiction*, so much so that several phrases in it appear to have been directly transferred or copied from the latter two writings.

At the same time, however, the available instalment of *On Dialectical Materialism* does not at all resemble in any concrete way Stalin's *Dialectical and Historical Materialism*. This again raises the question why Mao ignored Stalin even as early as 1940. There is some evidence, however, that the omission might have been entirely unintentional. Chen Po-ta, Mao's closest collaborator in ideological work, relates that because of the

Trotskyite “sabotage” as well as “language difficulties”:

many comrades in our Party who were actually leading the Chinese revolution did not have an opportunity to make a systematic study of Stalin’s many works on China. It was only after the rectification movement of 1942 that Stalin’s numerous works on China were systematically edited by our Party.²⁸

If this was so, then it should not be surprising if the Chinese Communists, and Mao among them, did not read Stalin’s philosophical pronouncements either. (Therefore, it is possible that for a similar reason Mao differs also with Lenin and Engels, as will be demonstrated below.)

In addition to those writings of Lenin, Engels and Marx, which Mao refers to, the second source of reference in his philosophical writings is the ancient Chinese literature. In *On Practice* and *On Contradiction*, it consists for the most part of legends, short stories and novels, but also of several historical and military treatises. There are no direct references to any of the classical philosophical works, however. Only in *On the Correct Handling of Contradictions Among the People* (1957), while introducing his extremely dialectical statement on the possible “good” outcome of another world war, does Mao explicitly refer to Lao Tzu. It seems significant that it is in the non-philosophical Chinese literature that Mao finds a source for his philosophy. “There are numerous examples of materialistic dialectics in *Water Margin*,” he assures the reader,²⁹ although *Water Margin* is merely a novel, attributed to Shih Nai-an, a fourteenth-century writer and not a philosopher. Similarly Mao finds convincing examples of dialectics in military writings of Sun Tzu, in the *Tale of the Three Kingdoms*, in the *Book of Mountains and Seas*, in the monkey’s seventy-two reincarnations in the Buddhist *Pilgrimage to the West*, and even in the ghost stories of *Strange Tales from the Carefree Studio*.³⁰ The importance of all this lies in the fact that Mao is able to find a source for his dialectics even in the comparatively simple and popular products of the Chinese thought and culture, so much are they really dialectical.

The connection of Mao’s philosophy with classical Chinese philosophy, however, is evident in many of his specific postulates, which are discussed below. He himself explicitly points out that the “dialectical world outlook had emerged in China” earlier than in ancient Greece (and of course before Hegel’s writings),³¹ a fact which by now is already well established in literature.³² In 1940, in his *On New Democracy*, Mao called explicitly for taking over and using ancient Chinese philosophical literature, and culture in general, for the purposes of developing a national Chinese brand of Marxism. A year before that, Hsiang Lin-ping, a Communist philosopher, published his *Outline of the History of Chinese Philosophy*,³³ which seems

to have been the first Chinese³⁴ Communist study that discovered and hailed materialistic dialectics in Lao Tzu, Chuang Tzu, several Confucian and Mohist writers, as well as in several writers of the Middle Ages.³⁵ In 1940, another Communist writer, Sung Wu, published a book, *The Philosophy of New Democratism*, in which he came to explicitly advocate a merger of the Marxist dialectical materialism with the native Chinese philosophy.³⁶ All this clearly points out the intellectual atmosphere in which Mao wrote his philosophical treatises. Today, both Chinese Communist³⁷ as well as Western writers³⁸ often stress that the connection between Mao's way of thinking and the traditional Chinese philosophical thought does exist, although his philosophical writings have not yet been systematically compared with the latter.

By nature all people are alike; it is their education and experiences that make them different. This aphorism, attributed to Confucius, could well be made into a method of study of different individuals, if only the necessary data were available. In Mao's case some such data are available. In particular, he seems to be especially fond of meticulously quoting his readings. The study of references and quotations in all four volumes of his published works reveals an interesting picture of his probable reading habits and of possible sources as well as limits of his erudition. The resulting approximate classification of his references is presented in the table below.

Reference to, or quotations from	Percentage of reference in all 4 volumes
Confucian and Neo-Confucian writings	22
Taoist and Mohist writings	12
Folklore legends, pure belles lettres	13
Other Chinese and foreign writers, unclassified	7
Marx and Engels.....	4
Lenin.....	18
Stalin	24
Total.....	100

Mao's references and quotations undoubtedly indicate what he most probably read.³⁹ They do not indicate, of course, that this was all that he read; but there seems to be no immediately obvious objection to taking these references of Mao as a probably representative sample of his readings. If so, then the resulting frequency distribution in the above table suggests some interesting possibilities.

First, it appears that Mao was primarily a student of the ancient Chinese books, on the one hand, and of the writings of Lenin and Stalin, on the other, while his readings in Marx and Engels seem to have played a comparatively lesser role in his self-education. Second, from the specific titles and authors to which he referred it is possible to conclude that he had read almost all Confucian writings generally available in China, and a sizeable portion of those of Lenin and Stalin, but only a very small portion of the works of Marx and Engels. He never refers, for example, to any of the economic writings of Marx, except once to one of the introductions to *Capital* and twice to the well-known preface to *A Contribution to the Critique of Political Economy*, which both existed in separate pamphlet form in Chinese.

To some extent these findings are also corroborated by Mao Tse-tung himself, in his 1936 autobiography dictated to Edgar Snow. There Mao relates that in his youth he studied a great many of the Chinese classics and learned parts of Confucius by heart. For an ordinary peasant lad this probably was a mind-moulding introduction to the world of learning of permanent significance. Mao first came to read Marxist literature in 1920, when he was already twenty-seven years old. The extent and level of his initiation are evident from what he says himself:

I had eagerly sought out what little communist literature there was available in Chinese. Three books especially deeply carved my mind, and built up in me a faith in Marxism, from which, once I had accepted it as the correct interpretation of history, I did not afterwards waver. These books were *The Communist Manifesto*...; *Class Struggle*, by Kautsky, and a *History of Socialism*, by Kirkupp.⁴⁰

Mao Tse-Tung's Contribution to Marxist-Leninist Epistemology

From the time of the publication of Mao's philosophical articles Chinese Communist sources have been expounding the line that "Mao Tse-tung has further developed the dialectical materialism of Marx, Engels, Lenin and Stalin."⁴¹ Some non-Chinese sources have agreed with this thesis,⁴² others have not.⁴³ So far, however, neither in China nor abroad has it been established in a systematic manner how, to what extent and why Mao developed Marxist-Leninist philosophy.⁴⁴ Inasmuch as this paper happens to be among the first on the subject, the reader should therefore be on critical guard against possible errors in interpretation and emphasis.

In his writings published so far,⁴⁵ Mao Tse-tung does not contribute anything new to the materialistic ontology, but only to the materialistic epistemology (or gnoseology, as Marxists prefer to call the theory of knowledge) and to the dialectical interpretation of ontology which follows from his materialistic epistemology. Nowhere does Mao discuss at sufficient length what "matter" is in itself, but in general it appears that to him matter means everything that does not belong to human consciousness, thinking, ideas, concepts and theories. "To recognize that matter is separate from human consciousness and exists independently in the outer world is the basis of materialism,"⁴⁶ is sufficient to him. When taken literally, this statement can be criticized on the ground that human mind too, according to materialism, consists of matter, thoughts are quanta of certain energy and so forth. What Mao probably wanted to stress was that matter exists whether man knows it or not. However, the fact that he posited matter into the "outer world" without any ontological discussion, and in such an over-concrete manner, places him clearly into the pattern of the non-European, particularly Chinese ontological tradition, which of course is not surprising.⁴⁷ As Chinese philosophical thought takes objective reality and nature, so also did Mao take matter as something self-evident whenever referred to, something given exogenously ("toujours déjà donné,"—always present or given, as one French writer has aptly conceptualized it)⁴⁸ and existing independently of man's will and knowledge. Probably because of this Mao concentrated all his philosophizing on man's knowledge per se, and especially on the relationship between knowledge and practice. This interest of Mao's, it must be stressed, is novel in relation to the pattern of the traditional Chinese philosophical interests, which did not pay much attention to the nature of knowledge and to its methods.⁴⁹ It is undoubtedly one of the results of the influence of Marxism-Leninism on him. On the other hand, his particular interest in the relationship between cognition and action may also have arisen precisely because traditional Chinese thought failed to solve this problem to his satisfaction. Chinese thought developed such notoriously fatalistic concepts of the preference for inaction and passivism as the Taoist *wu wei* principle, its elements in Confucian conservatism and even in the ordinary peasant's thinking as depicted in Lu Hsun's "Ah-Q-ism."⁵⁰

Mao Tse-tung's epistemology is characterized by the following six features. (1) Extraordinary distrust and dislike of everything purely ideological. (2) At the same time, an obvious innate belief that his own philosophy is not just another ideology but rather a well-balanced reflection of objective truth.⁵¹ (3) A typically Chinese and at the same time Marxian dialectical view of truth as non-absolute, never static or constant, always new and different, always coming from inside the external reality

and always containing contradictory aspects within itself. (4) An incessant urge to practice and experiment, innate need to search continuously for truth because it is never absolutely certain. (5) A belief that practice is the only road to truth and that practice contains truth within itself. (6) Acceptance of the limits of practice and experiment only in the form of the utterly impossible.

As such, some elements in Mao's epistemology—namely, (1), (4) and (5)—may appear similar to the basic postulates of aposterioristic pragmatism and to the usual requirements of any “scientific” view of the world. Perhaps a better study of China's intellectual environment at the time of the formation of Mao's philosophy may, indeed, establish some connection between Mao's thought and pragmatism, for example, via polemics of the left-wing Chinese philosophers against Hu Shih and the fashion of “scientism” in China at the time. Such a study has not yet been undertaken, however. Nevertheless, it is certain that Mao's epistemology cannot be isolated from his dialectics and from his Marxism in general, and therefore his philosophy of knowledge cannot be classified as pragmatism.

The starting point of Mao's philosophy, his initial solution of what Marxists consider to be *the* main problem in all philosophies namely, the question of what comes first, being or thinking, matter or idea, is quite Marxist and fully materialistic. Even in the sequence of his writings the piece *On Practice* precedes that *On Contradiction*.⁵² “Knowledge starts with experience,” Mao declares. “This is the materialism of the theory of knowledge. . . . Knowledge starts with practice, reaches the theoretical plane via practice, and then has to return to practice.”⁵³ This is of course an accurate rendering of Marx's *Theses on Feuerbach*, except, perhaps, for the typically Maoist stress on the “*has to* return to practice.”

Mao's stress on the need to practice all theories, including of course Marxism,⁵⁴ probably originates in his undoubtedly genuine repudiation of idealism and abstractionism. A splendid example of the latter is contained in his *On Dialectical Materialism*, in the discussion of the origins of idealism in epistemology—a subject that in itself has not frequently been touched upon in Marxist-Leninist-Stalinist philosophy:

When men use concepts for thinking, there arises a possibility of slipping down into idealism. When men are reasoning, it is impossible for them not to use concepts. This, then, easily causes our knowledge to split into two aspects. One aspect consists of things of some individual or particular character. The other aspect consists of concepts of general character (as, for example, the judgment “Yenan is *a city*”). The particular and the general are, in fact, mutually connected and inseparable. If we separate them, we part with objective truth, for objective truth manifests itself always as a unity of the

general and the particular. Without the particular the general does not exist; without the general one also cannot have the particular. To separate the general from the particular, that is, to consider the general as an objective noumenon (a thing in itself) and to consider the particular merely as a form of the existence of the general, this is precisely the method adopted by all the idealists.⁵⁵

Perhaps to some readers it may appear paradoxical that the man who holds abstract generalizations in such contempt should at the same time write philosophy; to others, on the other hand, this may appear as proof that Mao is a pragmatist. But such views would display a misunderstanding of Mao's method.⁵⁶ Note that he prefers neither induction (from the particular to the general) nor deduction (from the general to the particular) as methods, but dialectics, which unites the general and the particular, the abstract and the concrete. Being a materialistic dialectics, it postulates the particular to be dominant over the general. To Mao, the general is merely an aspect of the particular, and moreover an aspect that originates in man's mind and is not part of external, material reality. The particular on the other hand is the whole, multi-aspect, real, material. Accordingly, it is the particular that is the goal and the end-result of the process of cognition, not the general. It is the cognition of reality that matters to Mao, not the cognition of concepts and theories per se even if they concern reality. Theories and concepts are but means and tools of cognition of reality and therefore they ought to be used and practiced in the process of learning reality.

Marxism as theory, too, has merely a utility value to Mao, and is not an a priori good thing in itself. It is a tool in learning and changing reality, and it is good only as long as it is practiced. However, Marxism in Mao's view, which is somewhat different to that of Lenin and Stalin, is not a "guide to action" in the sense of a complete textbook of ready-made receipts of methods of action. Rather, Marxism teaches only "how... to find the methods" of acting on your own.⁵⁷ It has "in no way summed up all knowledge of truth, but is ceaselessly opening up, through practice, the road to the knowledge of truth."⁵⁸ And from this, obviously anti-doctrinaire, attitude toward Marxism⁵⁹ stems one of the basic characteristics of Maoism as a whole, namely, its stress on the peculiarity, specificity, "different roads" to truth:

The use of different methods to solve different contradictions is a principle which Marxists-Leninists must strictly observe. The doctrinaires do not observe this principle... On the contrary, they uniformly adopt a formula which they fancy to be unalterable and

inflexibly apply it everywhere, a procedure which can only bring setbacks. . . .⁶⁰

It is most probable that Mao's anti-idealistic and anti-doctrinaire epistemology stems from his innate, and to that effect typically Chinese, relativistic and dialectical ontology. To Mao, knowledge and truth are of course merely ideas which reflect in the mind a certain objective, that is, external reality. However, the picture of an external thing or phenomenon in man's mind does not exactly coincide, and is therefore not absolutely identical with the thing or the phenomenon itself, in Mao's view. Reality is much more complex than man's impressions of it. Consciousness as well as all its products—thoughts, ideas, impressions, theories—are all "limited" and "restricted by matter," according to Mao.⁶¹ And by this he means more than is immediately implicit in the well-known Marxist proposition that consciousness is "determined" by being. For Mao, since matter is all the reality outside of man's mind, it is much larger than man's thought is able to grasp at one sight, and it is in this sense that man's ideas are restricted, bounded and enclosed by matter.⁶²

"Because of the vastness of the scope of things and the limitlessness of their development," reality has a dialectical nature for Mao. For example, "what in one case is universality is in another changed into particularity. On the other hand, what is in one case particularity is in another changed into universality."⁶³ And accordingly, only a dialectical method of knowledge is capable of cognition of dialectical reality:

Our thought is not able to reflect in one single instance an object as a whole; it has to create a dialectical process of active cognition, *viz.*, a multifarious process of innumerable aspects of nearing to reality.⁶⁴

At another place he repeats this view of his epistemology:

Man's knowledge always proceeds in the cyclical, recurrent manner, and with each cycle (if it strictly conforms to scientific method) man's knowledge can be advanced and become more and more profound.⁶⁵

These postulates of Mao's ontology and epistemology appear to be much more Engelsian and, in a way, Chinese Taoist, than Leninist. His implicit definition of the dialectical method as a sort of iterative process of approaching closer and closer to reality and truth, and yet, presumably, never reaching and grasping them absolutely and completely, is strikingly modern, if one recalls the essentials of the present-day epistemologies of Whitehead or Russell, a fact that was already noted in a slightly different connection.⁶⁶

At one place, however, Mao refers to Lenin's *Materialism and Empiriocriticism* allegedly to agree with him that something called "absolute truth" does exist in reality. Yet, this is how Mao sees it:

The Marxist recognizes that in the absolute, total process of the development of the universe, the development of each concrete process is relative; hence, in the great stream of absolute truth, man's knowledge of concrete process at each given stage of development is only relatively true. The sum total of innumerable relative truths is the absolute truth.⁶⁷

In connection with the last sentence Mao refers to Lenin, and it is, indeed, Lenin's sentence, but with one typically Maoist insert that completely changes its original Leninist meaning. Namely, Lenin did not use the word "innumerable." Moreover, partly because of this and partly because of the peculiarities of Lenin's epistemology in general, "absolute truth" in Lenin's view existed in man's mind, rather than as an objective process in external reality.⁶⁸ To Lenin a "sum total of relative truths" was in fact a sum total like $2 + 2 = 4$. To him truth appeared completely numerable, finite and *therefore* absolute, like, for example, the truth that "Paris is in France," which he actually cited as an example of absolute truth in the book quoted,⁶⁹ despite the fact that Engels called precisely this same example "pretty banal and, in addition, pretty barren."⁷⁰ Can an "innumerable," that is, an infinite number of relative truths add up to a sum total that could be an absolute truth because it would be finite, complete and exact? Or, conversely, can Mao's "innumerable" "sum total" be anything as absolutely cognizable as Lenin's absolute truth was supposed to be? Obviously, not. In the process of infinite iterations one can have a cumulative sum total of an infinite series, which, it seems, Mao had in mind, but such a sum total would change all the time ad infinitum and one would sooner arrive at one's wits' end than at the ultimate end of such a total.

We do not know whether Mao referred in this case to Lenin by misunderstanding, or just to indicate a similarity, rather than identity, of their semantics; both explanations are possible. But it is obvious that Mao regards all concrete truths as relative, while his understanding of absolute truth is much more similar to that of Engels than to that of Lenin.⁷¹ Only the total process of the development of the objective universe, the "great stream" (perhaps, the Way, the Great Tao?) is absolute for Mao.⁷²

Lenin's belief in the absolute truth of his knowledge probably stemmed from his acceptance of the logical law of identity and from his notion of the "photographic reflection" of objective reality in man's mind, that is, from his belief in complete coincidence and overlapping of thought and

reality. That Mao does not share all these prerequisites for a belief in the Leninist absolute truth is evident from many of his statements,⁷³ of which the following may serve as a typical example:

The problem of whether theory corresponds to objective reality is not entirely solved in the process of knowledge from the perceptual to the rational as described above, nor can it be completely solved in this way. The only way of solving it completely is to redirect rational knowledge to social practice, to apply theory to practice and see whether it can achieve the anticipated results.⁷⁴

This clearly means that no truth contained in acquired knowledge can be absolutely trusted or for long believed in. And from this it is also clear why practice is a necessity to Mao: because he does not believe in truth a priori, without seeing whether it really can lead to anticipated results. His basic distrust of ideas and theories only spurs his innate urge and need to experiment:

Generally speaking, whether in the practice of changing nature or of changing society, people's original ideas, theories, plans, or programmes are seldom realised without any change whatever.... Original ideas, theories, plans and programmes fail partially or wholly to correspond to reality and are partially or wholly incorrect.⁷⁵

Noteworthy is the use of the term "original" in this case. It clearly implies the presence of the flow of time between knowledge and practice, during which knowledge becomes obsolete, while reality undergoes a change. Knowledge thus lags behind the developing reality. This in itself makes new practice and experimentation necessary because practice for Mao is not only the criterion of all mental truths but also a source of all truths. In the typically Chinese *yu* (have) sense, truth is contained in objective reality as if in a nutshell, and it is practice alone that is capable of cracking that shell and revealing the truth into the open. Truth is (exists) only in *ch'eng* sense: it "becomes," comes into being, develops as a result of practice and experiment:

If you want to obtain knowledge you must participate in the practice of changing reality. If you want to know the taste of a pear you must change the pear by eating it yourself. If you want to know the composition and properties of atoms you must make experiments in physics and chemistry to change the state of atoms.⁷⁶

An important question arises at this point: When does one stop experimenting and changing reality, when is one satisfied that the acquired knowledge is sufficiently complete at least for the time being, when is one convinced that this *is* reality, that this is *the* truth?

In general Mao's answer is, never. "There can be no end to it," that is, to man's learning; "The process of change in the objective world will never end, nor will man's knowledge of truth through practice."⁷⁷ However, in every particular case Mao sees an objective limit to learning truth in arriving at certain objective laws which make further experiments either impossible or unnecessary. Mao postulates this extremely important element of his epistemology as follows:

If man wants to achieve success in his work, that is, to achieve the anticipated results, he must make his thoughts [*sic!* not actions—V. H.] correspond to the laws of the objective world surrounding him; if they do not correspond, he will fail in practice. If he fails, he will derive lessons from his failure, alter his ideas, so as to make them correspond to the laws of the objective world, and thus turn failure into success. This is what is meant by "Failure is the mother of success," and "A fall into the pit, a gain in your wit." . . . In many instances, failures have to be repeated several times before erroneous knowledge can be rectified and made to correspond to the laws of the objective process, so that subjective things can be transformed into objective things, *viz.*, the anticipated results can be achieved in practice.⁷⁸

It follows from this, first of all, that objective laws mean something entirely different to Mao than they did, for example, to Stalin and to modern Russian philosophy, which is permeated with Stalinist voluntarism. To Mao these laws are an utter deterministic *force majeure*, very much like they were to Marx, on the one hand, and to many contributors to classical Chinese philosophy, on the other,⁷⁹ while to Stalin, who came to recognize them for the first time only near the end of his life, they still were more or less subject to man's will, could be "conquered" and changed to serve humanity.⁸⁰

This observation is, however, of secondary importance. What is more important is the fact that to Mao these laws are the ultimate determinants of success or failure of man's practice. In cases of failure, in particular, these laws appear as, so to speak, an ultimate revelation of the impossible: revelation of truth so powerful in its convincing impact on man's mind that it prevents or stops his wrong practices.⁸¹

In other words, Mao believes that practice reveals not only the correct or expected truth but also the wrong or unexpected truth. What his whole

epistemology then calls for is to push practice and experimenting to the utmost—up to the brink of error and failure. If success will not reveal itself in the meantime, failure will then inevitably come into the open as an objective truth and will prohibit further practice along this wrong path as if by force of a law that absolutely cannot be trespassed. Or, to put it in simple similes, the rule of procedure is: In your search for truth, push incessantly forward until you come to the brink of some pit. That pit will inevitably reveal itself one way or another: either you will fall into it and gain some wit; or the outcome will be as in those other ancient Chinese sayings, “When the road comes to an abyss, it turns away,” or “when a thing reaches its end, it turns round,” and, upon seeing the pit, you will turn away from it.

In view of all said so far, one can hardly eschew the impression that Mao Tse-tung’s theory of knowledge both stems from his own practices and has guided many of his practices in its turn. Starting, perhaps, in his youth with his strong urge to study, his search for truth has led him all the way through a countless number of experiments, successes and failures, beginning with his experiences with the peasant movement of Hunan, his reorientation of the Chinese Communist Party toward the peasantry, his experiments with guerrilla war tactics, local Communist bases, and so forth, which finally resulted in his major success, his victory and seizure of power in China. All these experiments by Mao were undoubtedly new, non-doctrinaire, creative.⁸² Above everything else they clearly demonstrated his self-initiated activity⁸³ and an obvious lack of fear of making mistakes. At the same time, there is evidence that, at least in the earlier days, Mao was sufficiently self-critical to admit mistakes and to openly learn lessons from his failures. At several places in his writings he describes and analyses the Red Army’s military defeats,⁸⁴ the party’s political errors,⁸⁵ and in at least one place admits that his theoretical views of such a crucial problem as the anti-colonial revolutions had to be reversed (in 1928 he believed that Communists could not come to power in any colonial country under direct imperialist rule).⁸⁶

In recent times Mao has been more reluctant to openly admit his mistakes. As far as his propensity to experiment up to the brink of error is concerned, however, it not only has declined but, on the contrary, has increased in scope and frequency. His experiments with collective farming, people’s communes, joint state-private enterprises, backyard metallurgy, and the Great Leap Forward in general, to mention only the most widely known, he undoubtedly pursued in complete consistence with the principles of his epistemology described above. His insistence in 1957 that the Soviet Union should press hard against the West and see whether it can achieve anticipated results has also been clearly related to his views on knowledge, practice and truth.⁸⁷

Perhaps, a concluding question may be appropriate at this place: Can one by knowing Mao's epistemology foresee the course of his policies? In terms of probability, the answer can be, yes. It is more probable than not that in every particular case he would be inclined to go a step farther than one would ordinarily expect and he would be disposed to explore extreme opportunities, advance radical propositions and push them hard until or unless they become utterly impossible. It is quite possible, for example, that he may push his present ideological conflict with the Soviet Union to a very critical brink in order to see what kind of revelation that nutshell contains when and if it cracks.⁸⁸

Mao Tse-Tung's Contribution to Dialectics

Marxist-Leninist dialectics as a method of thinking and viewing the world must have been easily palatable to Mao Tse-tung, and might have merely strengthened his conviction that his innate way of thinking, his typically Chinese common sense, was correct in itself. However, writers who studied the subject more or less closely agree in their finding that Mao "has developed" dialectics and "has added to it new elements."⁸⁹ This is also the conclusion of this article.

Mao Tse-tung's main contribution to the method of Marxist-Leninist dialectics is his particularly apt formulation of the Universal Law of the Unity of Opposites, or what is the same thing, the Law of the Universality of Contradiction. In Mao's formulation, all other laws of dialectics can be derived from this main law. In the form presented in *On Contradiction* this law has no precedent in Marxist-Leninist literature. Although such a law is listed by Engels among other laws of dialectics, and although for Hegel and Lenin it was the main law among a number of others, for Mao it is the only law of dialectics and the one that is sufficient for all other laws. Prior to Mao such a law was discussed in details only by Hegel. But Mao has probably not read Hegel.⁹⁰ As formulated by Mao, the law is clearly anti-Hegelian in its materialistic objectivization of reality and of contradictions outside of man's mind. On the other hand, while it unmistakably resembles elements of the dialectics of Chapter 2 of *Chuang Tzu*, Chapters 2 and 42, among others, of *Lao Tzu (Tao-te Ching)*, the "Great Appendix" to *I Ching*, "Expositions" to *Mo Ching* and other ancient Chinese books, it also differs from the latter very essentially.

Mao Tse-tung's dialectical method has the following distinguishing features: (1) it is centred on the notion that contradiction is a universal characteristic of all things and phenomena in physical nature, human society and man's thought. (2) It sees contradictions not between but rather within things, phenomena and thoughts. And (3) it sees in the

complementarity of opposites a necessary prerequisite for the development of contradictions. The second and third features are especially Maoistic and derive from Chinese rather than Leninist dialectics.

Mao Tse-tung's study of contradictions per se is also a novel contribution to materialistic dialectics, while his peculiar postulate of the inequality of contradictions and of the uneven and unbalanced state of the opposites inside contradictions is especially novel for post-Engelsian as well as Chinese dialectics. Mao's view of the structure of contradictions is more complex than anything proposed in this field heretofore. Mao distinguishes between (1) universality of contradiction and (2) its particularity; or, synonymously, between the generality of contradiction and its peculiarity. Next he differentiates between (3) one principal and (4) many secondary contradictions in any given thing or phenomenon. This makes contradictions unequal and not identical in themselves as they appeared, for example, to Lenin. Furthermore, inside any given contradiction Mao distinguishes between (5) one principal, or dominant, aspect of the contradiction and (6) a number of secondary aspects. Hence, the balance of opposites inside the contradictions that brings all the things and phenomena into motion along a one-way spiral route. Such an interpretation of the cause of motion and of its spiral direction is a large step forward compared to Engels' simple postulates that motion is itself a contradiction and that spiral route of development is merely a law or an axiom. At the same time, it has also set Mao's dialectics clearly apart from the traditional Chinese dialectics, for the latter postulated a balance and harmony of opposites inside the contradiction and a repetitive motion along a circular route that derived from such a balance and harmony.

It is from the postulate of the inequality of contradictions and the unevenness of their internal components that Mao's view of the temporary and conditional character of the unity of opposites inside the contradiction follows. Obviously, this is a more sophisticated postulate than Lenin's simple axiom about the "struggle of the opposites," which Mao politely quotes time and again. Yet Mao goes even farther and postulates that opposites inside a contradiction tend to transform themselves into their opposites when the contradiction is developed to the extreme. Bad things can turn into good things, good things can transform themselves into bad things, as Mao recites *Lao Tzu*.⁹¹ Lenin said explicitly that such a transformation of opposites in Hegel was unpalatable for his mind. Unlike *Lao Tzu*, however, Mao views this transformation not as one that repeats itself as, for example, the *yin* and *yang* principles, within a circle, but as a transformation of one quality into another as a result of change in the quantitative relationship between the dominant and the subordinate aspects of the contradiction along a one-way spiral route. In this, of course, Mao's dialectics is closely akin to that of Marx and Engels. And it is probably

from here, from this basically uneven, unbalanced and disharmonious view of the insides of the contradiction that Mao's peculiar epistemology, his incipient views of truth and knowledge emanates and drives him to active practice.⁹²

Mao Tse-tung's main proposition in dialectics is this:

There is not a single thing in the world without dual nature (this is the law of the unity of opposites).⁹³

There is nothing that does not contain contradiction. . . . Contradiction is universal, absolute, existing in all processes from beginning to end. . . . To deny contradiction in things is to deny everything. This is a universal principle for all times and all countries, which admits of no exception. . . . The law of the contradiction in things, that is, the law of the unity of opposites, is the basic law of nature and society and therefore also the basic law of thought.⁹⁴

Since ontologically contradiction is thus contained in everything, dialectics is not only a theory of the laws of the development of contradictions, but also an epistemological method of discovery, study and solution of contradictions. "This is a method that must be applied in studying the process of development of all things"; and what is more, "there is no other method of study" that Mao recognizes.⁹⁵

The method can be summarized as follows:

(1) One starts with the axiom that whatever one studies contains one or more contradictions within it. To find a contradiction, one must find complementary opposites and grasp them as a unity. "Contradictory things are at the same time complementary"; they form "the condition of mutual sustenance of each other's existence." "All opposite elements are like this: because of certain conditions, they are on the one hand opposed to each other and on the other hand they are interconnected, interpenetrating, interpermeating and interdependent."⁹⁶ That is, for example: black cannot exist without white and white does not exist without black. Without facility, there would be no difficulty; without difficulty, there would also be no facility. Without landlords, there would be no tenant-peasants; without tenant-peasants, there would also be no landlords. "Without the other aspect which is opposed to it, each aspect loses the condition of its existence" and contradiction is dissolved.⁹⁷

(2) Grasped as a unity of complementary opposites, contradiction is therefore seen as residing inside a thing. Contradictions between things are not universal. They are present only when contradictory things are complementary to each other and hence constitute a contradictory unity inside a third thing or phenomenon. The black-and-white contradiction

exists within colour, for example. The landlords and peasants constitute a society that is contradictory in itself. A stone cannot become a chicken, as Mao puts it, because they are not related, there is no complementary contradiction between them. Whereas between the chicken and the egg there is a contradictory complementarity, one cannot exist without the other, although they are two different things. Their unity is within the thing itself: the chick is within the egg even when the egg is within the mother-hen. To see the unity of opposites and, hence, the contradiction inside a thing, rather than between things, is a prerequisite *sine qua non* for the discovery and understanding of the self-generating motion and development of contradictions.⁹⁸ Those who have not mastered dialectics, says Mao, “naively seek out the things for the cause of their development,” they see only the “propulsion by external forces” and consequently think that things “cannot change into something different.” Mao Tse-tung’s dialectics “advocates the study of the development of things from the inside.... The contradiction within a thing is the basic cause of its development, while the relationship of a thing with other things—their interconnection and interaction—is a secondary cause.”⁹⁹

(3) The next among Mao’s methodological postulates is that while contradictions in things are universal, each contradiction in itself is particular and concrete. The particularity of a contradiction is its unique quality. Qualitatively contradictions are not identical and not equal. “In the process of development of a complex thing, many contradictions exist; among these, one is necessarily the principal contradiction whose existence and development determine or influence the existence and development of other contradictions.”¹⁰⁰ Hence, it is necessary to find the principal contradiction and to distinguish it from secondary ones. The principal, or basic, contradiction is always that one which “at the various stages in the long process of development assumes an increasingly intensified form.”¹⁰¹ What criteria Mao uses to measure the intensity of contradictions is not clear. Somehow the more acute contradiction must become obvious compared to the less acute ones. In the process of development, however, they may switch places: the more acute may become the less acute and vice versa.¹⁰²

(4) The next step in Mao’s method is to study the processes inside a contradiction. The basic axiom at this stage is that “the basic state is unevenness. Of the two contradictory aspects [inside a contradiction], one must be principal and the other secondary.”¹⁰³ Criteria for selection are again not quite clear and are assumed to be self-evident in each particular case. The rule is that “nothing in the world develops with an absolutely all-round evenness” and that therefore “we must oppose the theory of even development or the theory of equilibrium.”¹⁰⁴ What makes the principal aspect of a contradiction conspicuous is that, firstly, it is in the state of

activity and, secondly, that it is, temporarily or not, predominant inside the contradiction. As such, the principal aspect of a contradiction attributes to it its quality. "The quality of a thing is mainly determined by the principal aspect of the contradiction that has won the dominant position."¹⁰⁵ Presumably, the "bourgeois society" is called bourgeois despite the presence of the proletariat inside it, because the bourgeoisie dominates it, and so forth.

(5) The last step in Mao's dialectical method is to discover the tendency of the development of the given contradiction. The rule is that "all contradictory aspects transform themselves, under certain conditions, into their opposites."¹⁰⁶ The conditions are as follows:

The movement of all things assumes two forms: the form of relative rest and the form of conspicuous change. Both forms of movement are caused by the struggle of the two contradictory factors contained in a thing itself. When the movement of a thing assumes the first form, it only undergoes a quantitative but not a qualitative change and consequently appears in a state of seeming rest. When the movement of the thing assumes the second form it has already reached a certain culminating point of the quantitative change of the first form, caused the dissolution of the unity, produced a qualitative change, and consequently appears as conspicuous change.... Things are always transforming themselves from the first into the second form, while the struggle within the contradictions exists in both forms and reaches its solution through the second form. We say therefore that the unity of opposites is conditional, temporary and relative, while the struggle of mutually exclusive opposites is absolute.¹⁰⁷

It must be said that this statement makes the traditionally abstract dialectical law of the transformation of quantity into quality much simpler and clearer. The rule in (4) above that the internal state of a contradiction is continuous unevenness implies a continuous process of quantitative change in it, while the quality of the whole contradiction is determined by its principal (dominant) aspect until it transforms itself into its opposite, that is, until it loses its dominant position. Accordingly it can be restated that the quality of the whole contradictory thing is determined by the relative quantities of its principal and secondary aspects (parts of the whole). If and when this quantitative ratio changes, a qualitative change in the whole will result and become conspicuous. In other words, qualitative change occurs in the whole, while quantitative change takes place inside it, in the proportion of its parts relative to each other. For example, the share of the proletariat inside the bourgeois society presumably grows from a minority to a majority, revolution occurs and the quality of the society

changes. "The proletariat, once the ruled, becomes the ruler, while the bourgeoisie, originally the ruler, becomes the ruled, and is transferred to the position originally occupied by its opposite."¹⁰⁸ What is to be noted, however, is that Mao does not say that the proletariat becomes the bourgeoisie, or changes itself into the bourgeoisie, for then, of course, quality of the society would not have changed and the whole movement would have been along a circular, repetitive route.

The final question may be this: How can the quantitative change inside a contradictory thing take place? Why does the ratio between the principal and the secondary parts of the contradiction change? Mao's answer is postulative, of course: So it is, such is the basic law of dialectics; whereas in each particular case the causes of the change are concrete, and it is the task of the dialectician to find them out.

It cannot be known, of course, to what extent Mao really uses this dialectical method in his own study and practice. However, there is no doubt that in quite a few concrete cases Mao obviously did think, write and act in the manner described by his method. It even seems probable that his writing about dialectical materialism was motivated by his desire to explain and formalize his own way of thinking and acting.

The efficiency of this method is another question. A Chinese nationalist study of Mao's military strategy and tactics has arrived at the conclusion, for example, that he "succeeded in many of his battles" among other reasons because his "materialistic dialectics applied in military principles" and as a result his opponents were often unable to understand and predict many of his manoeuvres.¹⁰⁹ Some of Mao's recent moves in international politics can perhaps also serve to illustrate the efficiency of his dialectics. His completely unexpected Himalayan attack on India not only attained such immediate aims as the demonstration of China's military superiority in South-East Asia, shattered India's serene neutralism and considerably retarded her economic growth, but also created new important contradictions in the West's defence arrangement, with Pakistan breaking off and edging toward neutrality with China. The same move put also before Khrushchev the timely dilemma of siding either with China or with India and the West, and so forth. Mao's use of Laos as a lever on war in South Vietnam and as the source of contradictions among the major world powers may also belong to this category. In any case there is little doubt in my mind that Mao applies his dialectics in his political strategies and tactics in no lesser way than the Western statesmen apply their traditional balance-of-power calculations. In politics, especially, the two methods appear to be practically similar, except that the method of contradictions is dynamic, whereas the method of power balances is essentially static.

Perhaps the most intriguing and controversial problem these days is the meaning and purpose of the Chinese dialectica ("We do not want it, but

neither are we afraid of it") statement on the possible outcome of the Third World War. Was it merely a foolish error, as some think, an error that cost China the Soviet Union's friendship, to suggest to the Russians that they should not be afraid to commit atomic suicide and sacrifice themselves, along with the Americans and Europeans, for Communism's postwar triumph, and perish for its sake in a thermonuclear holocaust? Or was it, as I tried to argue elsewhere,¹¹⁰ powerful albeit cynical dialectics calculated for the times to come and aimed at ideologically disarming and knocking out the Russians once and for all from the position of the defender and leader of the revolutionary masses of Asia, Africa and Latin America? Mao's statement on the Third World War might have been really addressed not to the Russians but to the present and future guerrillas in the Vietnamese jungle, Congolese bushes, or Chilean and Peruvian Andes. The message was brutally simple: the Russians belong with the imperialists, for they are scared to risk a nuclear war and therefore will not aid your revolutions. It is China alone who stands now on your side.

The interesting and important things to watch now are Mao's future statements on what is in his view the principal contradiction of today's world. It is certain that a few years ago the main contradictions ran between the Western capitalist and the Soviet socialist camps. Lately, however, Mao seems to believe that the principal contradiction lies between Western imperialism and the countries of Asia, Africa and Latin America. This leaves the Soviet Union in between and compels it to choose sides in Mao's view. Undoubtedly Mao is aware of the fact that the absolute gap between the economic, demographic, military and political potentials of the developed and the underdeveloped parts of the world is rapidly increasing. He is sure that this growing abyss inevitably portends many struggles and revolutions to come. Hence, this must be the principal contradiction to him. Furthermore, after the Soviet refusal to help make China an atomic power and after the failure of the Great Leap Forward to industrialize China by a short cut, Mao must have realized that China's place in the world is going inevitably to be among the underdeveloped and underprivileged. Hence, it must be better for China to side with the latter openly and seize in advance the opportunity of becoming their leader for the time and troubles to come. If Mao has in fact decided that the principal contradiction in today's world lies now and will lie in the future in the growing gap between the developed and underdeveloped parts of the globe, and if the USSR would not change its position, would not admit that Mao was right, and would not side with the underdog, then the present contradiction between China and the USSR would inevitably intensify to the point where the two would become the mutually excluding opposites. That point would be reached when both would declare that the

other one was no longer communist and revolutionary.

Notes

1. This article, written in November 1963, is in part a condensation of the author's earlier monograph, *Der dialektische Materialismus Mao Tse-tungs im Vergleich mit den Klassikern des Marxismus-Leninismus, untersucht als Faktor zur Beurteilung der chinesisch-sowjetischen Beziehungen*, which was first published in September 1962, in the quarterly report of the Friedrich Ebert Foundation, Bonn, Germany (*Der Ostblock und die Entwicklungsländer*, no. 8–9, 1962). The parts of the original paper that are here largely omitted contain, in particular, more details on the comparison of Mao's dialectics with that of Marx, Engels, Lenin, Stalin and modern Russian philosophers; a discussion of interpretations of Mao's philosophy in China, the USSR and the West; a survey of the preceding literature on the subject of this paper; and some specific examples of the relation of Mao's dialectics to the development of the CCP's ideological conflict with the CPSU prior to 1962. A shorter German summary of the original paper appeared also under the title "Der dialektische Materialismus Mao Tse-tungs" in *Merkur, Deutsche Zeitschrift für europäisches Denken* (Munich) 27, no. 185 (July 1963).

In referring to the Chinese language sources I was aided by my wife, Mrs. Lydia Holubnychy.

2. Chang Tung-sun, "A Chinese Philosopher's Theory of Knowledge" (in English), *Yenching Journal of Social Studies* 1, no. 2 (January 1939): 164, 168, 169, 171, 184. An even earlier paper in Chinese is also known, but it was not available: Chang Tung-sun, "Ts'ung Yen-yü Kou-tsao Shang K'an Chung-hsi Che-hsüeh Te Ch'a-i" [Sino-Western philosophical differences as seen through the structure of language], *Tung-fang Tsa-chih* [Eastern Miscellany] 33, no. 7, 1936.
3. Cf. Needham, who touches upon "the extent to which the structure of the Chinese language itself encouraged [China's] ancient thinkers to develop an approach to the type of thinking usually called Hegelian." J. Needham, *Science and Civilization in China, 2: History of Scientific Thought* (London: Cambridge University 1956), 77 and passim. See also Mei Tsu-lin, "Chinese Grammar and the Linguistic Movement in Philosophy," *Review of Metaphysics* (New Haven, Conn.) 14, no. 3 (55) (March 1961). A short and still uncertain step in this direction was also taken in Communist China; see Wang Teh-ch'un, "Discussion Pertaining to 'The Relationship of Language with Thinking' and 'The Relationship of Language with Politics'," *Wen-hui Pao* (Shanghai), 19 August 1959 (translated in *Survey of the China Mainland Press* (Hong Kong: U. S. Consulate-General), no. 2105). Some parallel comparisons between philosophical terms of clearly religious origin in

- Russian and the peculiarity of their uses in Lenin's philosophy can be found in this writer's German monograph, cited in Note 1. A different hypothesis concerning the importance of the connection between the Chinese written language (hieroglyphs) and Chinese thought is in J. K. Fairbank, *The United States and China* (Cambridge: Harvard University, 1958), 65-6.
4. A. C. Graham, "'Being' in Western Philosophy Compared with *Shih/fei* and *Yu/wu* in Chinese Philosophy," *Asia Major* (London), N.S., 7, parts 1-2 (1959).
 5. Marx had died before he could read Engels' two main contributions to materialistic dialectics, *Dialectics of Nature* and *Ludwig Feuerbach and the End of Classical German Philosophy*. Marx himself did not contribute much to dialectics per se; rather, his contribution was to materialism, materialistic epistemology, and to the criticism of idealistic dialectics.
 6. Cf. F. Engels, *Anti-Dühring*, chapter 13 of part 1 in any complete edition. The same definition appears also in *Ludwig Feuerbach, etc.*, chapters 1 and 4.
 7. Cf. D. Joravsky, *Soviet Marxism and Natural Science, 1917-1932* (New York: Columbia University, 1961).
 8. Editorial departments of *Renmin Ribao* [People's Daily] and *Hongqi* [Red Flag], *The Origins and Development of the Differences between the Leadership of the CPSU and Ourselves* (Peking, 1963), 22.
 9. Cf. O. Brière, "L'Effort de la philosophie marxiste en Chine," *Bulletin de l'Université l'Aurore* (Shanghai), Série 3, 8, no. 3 (1947). Cf. in addition his "Les courants philosophiques en Chine depuis 50 ans (1898-1950)," *ibid.* 10, no. 40 (1949). His earlier work on the subject, "Philosophie marxiste en Chine," *Dossier de la Commission synodale* (Peking) 13 (1940), was not accessible.
 10. *Ibid.*, and also Kuo Chan-po, *Chin Wu-shih-nien Chung-kuo Ssu-hsiang Shih* [Intellectual History of China of the Last Fifty Years] (Peking, 1935), chapter 8 and the appendix.
 11. Brière, "L'Effort," 322, 327-31.
 12. It is, of course, true that Mao "has not claimed to be a philosopher, and he has not been labelled as such" even in Communist China, as witnesses Wing-tsit Chan, "Chinese Philosophy in Communist China," *Philosophy East and West* (Honolulu) 11, no. 3 (October 1961): 115. Some three articles on philosophical subjects are too modest an output for a professional philosopher. However, Wing-tsit Chan agrees with many other writers in the West that these articles are philosophical in their content, method and purpose. Others, of course, may call them ideological rather than philosophical, reserving the term "philosophy" only for pure metaphysics, logic, ethics and aesthetics.
 13. It is well known, of course, that Mao does not read in any foreign language.
 14. Main bibliographies of the pre-1949 Chinese translations of the writings of Marx, Engels, Lenin and Stalin are: Chang Ching-lu, ed., *Chung-kuo Ch'u-pan Shih-liao Pu-pien* [A Supplementary Collection of Historical Materials on Publishing in China] (Peking, 1957), 442-75; Hsia Tao-yüan

- and Kao Ning-che, "Publication of Writings of the Classics of Marxism-Leninism in China" (in Russian), *Voprosy istorii KPSS* (Moscow), no. 4 (1957): 133-9; Chang Yun-hou, "Dissemination of V. I. Lenin's Philosophical Writings in China" (in Chinese), *Che-hsueh Yen-chiu* [Philosophical Research] (Peking, no. 11-12 (1959): 26; G. Y. Smolin and I. I. Tutov, "Publication of the Works of Marxist-Leninist Classics in China" (in Russian), *Voprosy istorii*, no. 10 (October 1954): 180-7; V. M. Alekseev, "V. I. Lenin in Chinese" (in Russian), *Vestnik Akademii nauk SSSR* (Moscow), no. 1 (1933): 13-20.
15. Its complete translation was made only in 1957 (cf. *Jen-min Jih-pao* [People's Daily], 22 October 1959). All thirty-eight volumes of the fourth Russian edition of Lenin's works were translated and published in China only during 1955-9.
 16. Chang Ching-lu, *Chung-kuo*, 450.
 17. *Ibid.*
 18. This thing was also unknown to Lenin, by the way. The latest advertisement on the back cover of the *Ching-chi Yen-chiu* [Economic Research] (Peking), no. 1 (1963), announces that thirteen out of the planned thirty volumes of the second Russian edition of the works of Marx and Engels were translated and published in China by the end of 1962.
 19. Chang Ching-lu, *Chung-kuo*.
 20. *Kratkii filosofskii slovar*, (ed. M. Rozental and P. Yudin), 3d ed. (Moscow, 1952), 558.
 21. Brière, "Les courants," 638. Lately the writers in China refer to the 1955 edition of *Dialectics of Nature*, published by the Jen-min Ch'u-pan-she.
 22. Chang Ching-lu, *Chung-kuo*, 471.
 23. Cf. *Mao Tse-tung Hsuan Chi* [Selected Works of Mao Tse-tung] (Peking, 1951), 1: 1-2.
 24. Cf. *Mao Tse-tung Chiu-kuo Yen-lun Hsuan-chi* [Mao Tse-tung's Selected Speeches on National Salvation] (Chungking, 1939).
 25. Cf. Hsiao T'ang, ed., *Mao Tse-tung Ssu-hsiang Ch'u-hsueh Ju-men* [Beginner's Introduction to the Thought of Mao Tse-tung] (Tientsin: Tu-che Shu-tien, 1949). Part One of this book deals explicitly with Mao's dialectical materialism, but all quotations and references stem from his political and military writings only. Cf. also A. I. Strong, *The Thought of Mao Tse-tung* (Chefoo News Co., 1947); and her article, "The Thought of Mao Tse-tung," *Amerasia* (New York) 11, no. 6 (June 1947).
 26. However, as far as this article of Stalin is concerned, no evidence has been found that it was translated into Chinese before April 1952, when the last of Mao's articles appeared. Moreover, the translation and publication of the thirteen volumes of the last Russian edition of Stalin's works were completed in China in 1958, but it did not include *Marxism and the Problems of Linguistics*.
 27. To be exact, in his *On Contradiction*, Mao speaks at two places of the "different forms of leap" and of "non-antagonistic contradictions"; cf. his

Selected Works (New York: International Publishers, 1954), 2: 38 and 50–1. However, he does not explain there what he means by “different forms” of the qualitative leap, and while speaking of the “non-antagonistic contradictions” he says explicitly that they may appear “in a socialist country and in our revolutionary bases.” If the “revolutionary bases” are not a 1952 insertion into the 1937 text, then these words evidently mean that Mao thought of the notion of “non-antagonistic contradictions” before Stalin. That this may be so is suggested by the fact that Mao explicitly postulates an obviously non-Stalinist proposition that “based on the concrete development of things, some contradictions, originally non-antagonistic, develop and become antagonistic, while some contradictions, originally antagonistic, develop and become non-antagonistic” (*ibid.*, 50). Neither Stalin nor Lenin assumed anything similar. That this particular postulate of Mao’s dialectics is not only non-Stalinist but also anti-Stalinist has recently been pointedly stressed by a Yugoslav professor, Predrag Vranicki, in his *Historija Marksizma* [History of Marxism] (Zagreb, 1961), 512–14. Vranicki also points out that while writing again on the subject of non-antagonistic contradictions in his 1957 paper, *On the Correct Handling of Contradictions Among the People*, Mao assumed the possibility of non-antagonistic relations even among the classes of exploited and exploiters under the particular conditions of a socialist regime (*ibid.*, 514).

28. Ch’en Po-ta, *Stalin and the Chinese Revolution* (Peking, 1953), 24–5. In fact, subsequently, on page 27, Ch’en implies that Mao read Stalin’s *History of the CPSU Short Course*, which contained the *On Dialectical and Historical Materialism*, only in 1942.
29. Mao Tse-tung, *Selected Works*, 2: 27.
30. *Ibid.*, 46.
31. *Ibid.*, 17.
32. Cf. in particular S. Hummel, *Polarität in der chinesischen Philosophie* (Leipzig: O. Harrassowitz, 1949); and his *Zum ontologischen Problem des Daoismus (Taoismus)* (Leipzig: O. Harrassowitz, 1948); D. Bodde, “Harmony and Conflict in Chinese Philosophy,” in A. F. Wright, ed., *Studies in Chinese Thought* (Chicago: Chicago University Press, 1953), especially page 59; H. G. Creel, *Chinese Thought from Confucius to Mao Tse-tung* (Chicago: Chicago Univ., 1953), 63–5; Liu Pai-min, “The Epistemology of the Great Appendix of the *Yi-ching*,” *Journal of Oriental Studies* (Hong Kong) 2, no. 2 (July 1955): 215–59; J. Needham, *Science and Civilization*, 518–82 and *passim*; D. C. Lau, “The Treatment of Opposites in Lao Tzu,” *Bulletin of the School of Oriental and African Studies, University of London* 21, part 2 (1958): 344–60. Of great interest is also Tang Chün-i, “A Comparison between the Hegelian Metaphysics of Change and Chuang Tzu’s Metaphysics of Change” (in Chinese), *Chung-shan Wen-hua Chiao-yu Kwan Chi-kan* [Quarterly of the Sun Yat-sen Institute for Culture and Education] 3, no. 4, (1936): 1301–15.
33. Hsiang Lin-ping, *Chung-kuo Che-hsueh Shih Kang-yao* [Outline of the History of Chinese Philosophy], (n.p.: Sheng-huo Shu-tien, 1939), 662 pages.

34. The first non-Chinese Communist study of the classical Chinese philosophy was that of A. Thalheimer, *Einführung in den dialektischen Materialismus* (Vienna: Verlag für Politik und Literatur, 1928). A leading German member of the Comintern for a while, Thalheimer discusses on pages 153 and following, Lao Tzu et al; but finds that the latter "can be designated as an objective or absolute idealist" (166).
35. Today, of course, this is a widely-held view among the communist philosophers in China. See, e.g., Chang Tai-nien, *Chung-kuo Wei-wu Chu-i Ssu-hsiang Chien-shih* [A Short History of Chinese Materialistic Thought] (Peking, 1957). Also Hou Wai-lu, *A Short History of Chinese Philosophy* (Peking, 1959). In some cases their views are not unanimous, however. For example, in 1959, there was a discussion held in Peking on the nature of Lao Tzu's philosophy. Some interpreted it as idealistic, others as materialistic. Feng Yu-lan, whom many know in the West, interpreted *Tao* as a "material substance." Cf. Feng Yu-lan, "Two Questions About the Philosophy of Lao Tzu," *People's Daily*, 12–13 June 1959 (English in SCMP 2048).
36. Brière, "L'Effort," 322.
37. "With the spread of Marxism in China, Mao Tse-tung, inheriting the excellent tradition of Chinese philosophy, developed Marxism . . .," Hou Wai-lu, *Short History*, page 3 of the foreword. See also Feng Yu-lan, "Mao Tse-tung et la philosophie chinoise," *La Pensée* (Paris), no. 55 (May-June 1954). Cf. also "Philosophy in New China According to Feng Yu-lan," *East and West* (Rome) 3, no. 2 (July 1952).
38. Cf. among others, H. G. Creel, *Chinese Thought*; J. R. Levenson, *Confucian China and Its Modern Fate: The Problem of Intellectual Continuity* (Berkeley: California Univ., 1958); H. G. Callis, *China, Confucian and Communist* (New York: Holt, 1959); G. Debon and W. Speiser, *Chesische Geisteswelt von Konfuzius bis Mao Tse-tung* (Baden-Baden: Holle, 1957); D. S. Nivison, "Communist Ethics and Chinese Tradition," *Journal of Asian Studies* (Ann Arbor) 16, no. 1 (November 1956); Etiemble, "New China and Chinese Philosophies," *Diogenes* (Chicago), no. 11 (1955); R. Thomas, "La Philosophie classique chinoise et sa valeur de resistance au marxisme," *L'Afrique et l'Asia* (Paris), no. 38 (1957); M. Inoki, "Leninism and Mao Tse-tung's Ideology," in K. London, ed., *Unity and Contradiction: Major Aspects of Sino-Soviet Relations* (New York: Praeger, 1962); Y. Muramatsu, "Revolution and Chinese Tradition in Yen'an Communism," *Hitotsubashi Journal of Economics* (Tokyo) 3, no. 2 (July 1963).
39. Explanatory footnotes and references to foreign sources in the foreign language translations of Mao's works are, of course, not his but those of the Party Central Committee's Commission on the Publication of Mao's works. For the study of Mao's references only the Chinese edition of his writings is suitable.
40. *The Autobiography of Mao-Tse-tung*, 2d rev. ed. (Canton, 1949), 4, 6–7, 11. See also E. Siao, *Mao Tse-tung: His Childhood and Youth* (Bombay: People's Publishing House, 1953). Also H. L. Boorman, "Mao Tse-tung: the Laquered Image," *China Quarterly*, no. 16 (November-December 1963): 4–11.

41. Editorial in *People's China* (Peking), no. 9, 1 May 1952, 10.
42. Cf., for example, P. Vranicki, *Historija Marksizma* [History of Marxism] (Zagreb, 1961), 504, 516. Also L. Althusser, "Sur la Dialectique matérialiste (De l'inégalité des origines)," *La Pensée* (Paris), no. 110 (July-August 1963): 26-30.
43. Soviet philosophy has never conceded anything to Mao, for example. In fact, it never discussed Mao's contribution in any other form but in reviews of individual volumes of his writings as they appeared in Russian translation. There the Russian reviewers unanimously insisted that Mao merely "followed" Lenin and Stalin, was their "pupil," etc.
44. The only partial exception encountered so far was Ai Szu—ch'i, who came to be specific in saying that Mao "added new elements to" and "developed in particular" (a) the Marxist-Leninist epistemology, especially the methods of discovery of dialectical laws in objective reality, and (b) Lenin's theory of the unity of opposites within a contradiction. Cf. Ai Szu-ch'i, "Ts'ung 'Mao-tun Lun' K'an Pien-cheng-fa To Li-chie Ho Yün-yung" [Comprehension and use of dialectics according to *On Contradiction*], in *Hsueh-hsi "Mao-tun Lun"* [The Study of *On Contradiction*] a collection of articles (Hsin Chien-she Tsa-chih She Ch'u-pan, 1952), 1: 1-5.
45. In addition to *On Practice*, *On Contradiction* and *On Dialectical Materialism*, several other of Mao's writings of political, military and ideological nature contain important passages of epistemological and dialectical character. Among them of particular interest are the following: *On Rectification of Incorrect Ideas in the Party* (1929); *Problems of Strategy in China's Revolutionary War* (1936); *On the Protracted War* (1938); *The Chinese Revolution and the Chinese Communist Party* (1939); *On New Democracy* (1940); *Talks at the Yen-an Forum on Literature and Art* (1942); *Talk with the American Correspondent Anna Louise Strong* (1946); *The Present Situation and Our Tasks* (1947); *The Bankruptcy of the Idealistic Conception of History* (1949); *On the Correct Handling of Contradictions Among the People* (1957).
46. *Pien-cheng-fa Wei-wu Lun* [On Dialectical Materialism], *Min-chu* [Democracy] 1, no. 2 (1940): 24.
47. Chang Tung-sun says: "Western thought is consistently based on the idea of substance. Consequently there is the need for a substratum, and the final result of this trend of thought gives rise to the idea of 'pure matter.' . . . There is no trace of the idea of substance in Chinese thought. . . . In China there is no such word as substance. . . . It makes no difference to the Chinese mind, whether or not there is any ultimate substratum underlying all things." Chang Tung-sun, "A Chinese Philosopher's Theory of Knowledge," *Yenching Journal of Social Studies* 1, no. 2 (January 1939): 143-4. Joseph Needham, 199-200, also remarks: "At any rate, Chinese thought, always concerned with relations, preferred to avoid the problems or pseudo-problems of substance, and thus persistently eluded all metaphysics."
48. L. Althusser, "Sur la Dialectique Matérialiste."

49. On Chinese epistemology, cf. Chang Tai-nien, "Chung-kuo Chih-luen Ta-yueh" [Outline of the Chinese theories of knowledge], *Tsing Hua Hsueh-pao* [Tsing Hua Studies] (Peking) 9, no. 2 (April 1934). Also C. Chang, "Is There No Epistemological Background for the Chinese Philosophy of Reason?" *Oriens Extremus* (Wiesbaden) 1, no. 2 (December 1954).
50. Cf. this opinion: "*Sur la Pratique* apporte une solution scientifique à un important problème traditionnel de la philosophie chinoise, le problème des rapports entre la connaissance et l'action." Feng You-lan, "Mao Tse-toung et la philosophie chinoise," *La Pensée*, no. 55 (May-June 1954): 80.
51. Sceptics had better beware at this point, however. There is really nothing unusual about this belief of Mao, for the same innate belief is evident in pronouncements of all other philosophers. One of the most amusing experiences is to watch, for example, our Anglo-American pragmatism as it denounces and spurns all ideologies in devout belief that they are all useless and foolish, without realising at the same time that it too is nothing else but another ideological creed.
52. It is undoubtedly "logical" to think as the editors of the valuable volume of the *Sources of Chinese Tradition* (New York: Columbia University, 1960), 894, did when they said that, inasmuch as *On Contradiction* "is of a more general nature" than *On Practice*, it should have preceded the latter in the course of writing and publication. But this is exactly what is not logical about materialistic dialectics, but dialectical: in it, practice is more important than generalizations, and only those generalizations are good which arise from practice.
53. *On Practice*, 291–2. The edition quoted here and subsequently is the English translation of Mao's *Selected Works* (New York: International Publishers, 1954), 1. The original edition was: Mao Tse-tung, *Shih-chien Lun* (Peking, 1951).
54. He says: "What Marxist philosophy regards as the most important problem does not lie in understanding the laws of the objective world and thereby becoming capable of explaining it, but in actively changing the world by applying the knowledge of the objective laws. . . . Marxism emphasizes the importance of theory precisely and only because it can guide action. If we have a correct theory, but merely prate about it, pigeon-hole it, and do not put it into practice, then the theory, however good, has no significance." *On Practice*, 292.
55. *Pien-cheng-fa Wei-wu Lun*, 23.
56. A similar method called "ascending from the abstract to the concrete" was also used by Marx in his *Capital*. It also has been widely misunderstood, especially by all those who think they saw a contradiction between the first and the third volumes of *Capital*. However, Marx explained this method in the first draft of *Capital*, called *Grundrisse der Kritik der Politischen Ökonomie (Rohentwurf)* (Berlin: Dietz Verlag, 1953), 21–2, which has not been translated into any other languages. The fact that Mao uses a similar method can probably be explained only in terms of an independent

- convergence, however amazing it is. In Mao's case this method probably arose from the typically Chinese objectivization and concretization of reality.
57. Mao Tse-tung, *On Contradiction*, 18. Quoted here and subsequently in the translation of *On Contradiction* in Mao's *Selected Works* (New York: International Publishers, 1954), 2. The original edition is entitled: Mao Tse-tung, *Mao-tun Lun* (Peking, 1952).
 58. Mao Tse-tung, *On Practice*, 296.
 59. Mao Tse-tung's anti-doctrinairism was recognized even by some Russian writers in Stalin's times. Cf. A. I. Sobolev, "Vydaishchiisia obrazets tvorcheskogo marksizma," *Voprosy filosofii* (Moscow), no. 6 (1952): 195, which is a review of the Russian edition of volume 2 of Mao's *Selected Works*.
 60. Mao Tse-tung, *On Contradiction*, 25.
 61. *Pien-cheng-fa Wei-wu Lun*, 23.
 62. As Engels used to say: "Being, indeed, is always an open question beyond the point where our sphere of observation ends." *Anti-Dühring*, end of Chapter 4, part 1.
 63. Mao Tse-tung, *On Contradiction*, 33.
 64. *Pien-cheng-fa Wei-wu Lun*, 23. In this connection, on page 24, *ibid.*, Mao criticizes "mechanistic materialism" for having attributed only a "passive role" to thinking and for "regarding the thought as a mirror that reflects nature." In view of this criticism of the "mirror" one must wonder whether Lenin's "photography" was also not pure "mechanistic materialism" to Mao.
 65. Mao Tse-tung, *On Contradiction*, 24.
 66. Needham noted recently that classical Chinese philosophy came "not only to the type of thinking usually called Hegelian, or approximating to that of Whitehead, but even more fundamentally or exactly, to what is now being investigated under the head of combinatory logic." J. Needham, *Science and Civilization in China*, 2: 77.
 67. Mao Tse-tung, *On Practice*, 296.
 68. Here are Lenin's words, quoted in full from the place to which Mao made his reference: "Thus, in accordance with its nature, man's thinking is capable of giving and gives us an absolute truth, which adds up as a sum total of relative truths." V. I. Lenin, *Materializm i empiriokrititsizm* (Moscow, 1951), 118, or in Chapter 2, section 5, of all other editions.
 69. *Ibid.*, 116.
 70. Engels, *Anti-Dühring*, beginning of Chapter 9, part 1. In principle, Engels classified truths according to their scientific exactness, starting with what he called "eternal truths" of the platitude type and going up to more and more complex but inexact truths.
 71. To Engels "nothing remains as absolutely universally valid except motion." F. Engels, *Dialectics of Nature* (Moscow, 1954), 317. "The whole vast process goes on in the form of interaction [and within it] everything is relative and nothing absolute." K. Marx and F. Engels, *Selected Correspondence* (Moscow, 1953), 507. "Dialectical philosophy dissolves all

conceptions of final, absolute truth.... For it nothing is final, absolute, sacred. It reveals the transitory character of everything and in everything; nothing can endure before it except the uninterrupted process of becoming and passing away, of endless ascendancy from the lower to the higher." (*Ludwig Feuerbach and the End of Classical German Philosophy*, beginning of section 1.)

72. Perhaps it may be worth mentioning here that the Yugoslavs, too, have recently concluded that the Chinese do not recognize Lenin's conception of the absolute. Cf. E. Kardelj, *Socialism and War* (Belgrade, 1960), 39–40. It thus appears that all "Greek Orthodox" Marxist-Leninist "believers" are united in the incompatibility of their ways of thinking with that of the "Taoist" Marxist-Leninist "practitioners." This may sound, of course, like a joke, but there is something serious in it too.
73. Cf. also a revealing discussion that took place in China, beginning with the paper by Shih Ch'eng, "Is the 'Identity of Thought and Existence' a Materialistic Principle?" *Che-hsueh Yen-chiu* [Philosophical Research] (Peking), no. 11–12 (14 December 1959). English in JPRS, *Communist China Digest*, no. 38 (18 April 1961).
74. *On Practice*, 293.
75. *Ibid.*, 294.
76. *Ibid.*, 288. In this connection a hypothesis may be tendered that, unlike the modern Russian metaphysical "dialectics," it ought to be easy for the Chinese dialectical materialism to accept the "indeterminacy principle" of modern nuclear physics and chemistry, since it recognizes the change in the state of matter resulting from an experiment.
77. *Ibid.*, 295–6.
78. *Ibid.*, 283–4 and 294.
79. Cf. J. Needham, "Human Laws and Laws of Nature in China and the West," *Journal of the History of Ideas* (New York) 12 (1951): 3–30 and 194–230. Also D. Bodde, "Evidence for 'Laws of Nature' in Chinese Thought," *Harvard Journal of Oriental Studies* (Cambridge, Mass.) 20, no. 3–4 (December 1957): 709–27.
80. Cf. J. Stalin, *Economic Problems of Socialism in the USSR* (Moscow, 1952), 7.
81. For the fact that Mao's views in this respect are solidly shared by others, cf., for example, the following argument by Liu Shao-ch'i against the critics of the Great Leap Forward: "Some people assert that the adoption of a leap forward rate of advance will violate objective economic laws and give rise to disproportions in the various branches of the national economy. But... objective laws cannot be violated.... If those laws are violated it is impossible for the national economy to develop by leaps and bounds." Liu Shao-ch'i, "The Victory of Marxism-Leninism in China," *Peking Review* 2, no. 39 (1 October 1959): 13. According to this interpretation of laws, therefore, the failure of the Great Leap Forward merely proved their inviolability.

82. Remarkable in this respect is his 1936 declaration that "If we copy and apply without change" the Soviet Union's revolutionary experience and strategy in China "we shall be 'cutting the feet to fit the shoes' and be defeated." *Selected Military Writings of Mao Tse-tung* (Peking, 1963), 77.
83. In Mao's view, "the initiative is not something imaginary but is concrete and material." *Ibid.*, 130.
84. Cf. *ibid.*, 24, 51-2.
85. *Ibid.*, 44.
86. *Ibid.*, 11 and 17.
87. Cf. *Imperialism and All Reactionaries Are Paper Tigers* (Peking, 1961).
88. This suggestion was first made still in the summer of 1962, in the first German version of this study. Since then, of course, Mao has eaten a good bite of this particular pear to learn its taste, as he likes to say.
89. Cf. for example, L. Althusser, "Sur la Dialectique matérialiste," 18.
90. Althusser, "Sur la Dialectique matérialiste," 30, stresses his conclusion that Mao's dialectics do not contain "any trace of the originally Hegelian categories," such as the "division of one," "alienation," "Aufhebung," etc. Although this is undoubtedly true in the literal sense, i.e., in the sense that there is indeed no connection between Mao and Hegel, still one must not disregard, as Althusser does, the fact that many of Mao's postulates and propositions lead essentially and formally to that what is meant by "alienation," "Aufhebung," etc., in Marxian dialectics.
91. Mao Tse-tung, *On the Correct Handling of Contradictions Among the People*, section 10.
92. One reader of the earlier draft of this paper has, it seems, aptly observed that there is a noticeable difference in emphasis and tone between these early views of Mao and his *On the Correct Handling of Contradictions Among the People*, written twenty years later. Although in this later work Mao still stresses the universality of contradictions, his long discussion of the non-antagonistic contradictions leaves the reader with the impression that now Mao tends to be more Confucian in his stress on a more balanced and harmonious unity of opposites than in his earlier days.
93. *Talk with the American Correspondent Anna Louise Strong*; in *Selected Works of Mao Tse-tung* (Peking, 1961), 4: 98.
94. Mao Tse-tung, *On Contradiction*, 19, 21, 34 and 52.
95. *Ibid.*, 21 and 34.
96. *Ibid.*, 45, 44. At several places Mao uses the term "identity" here as synonymous with "complementarity." The nonsensical phrase, "identity of opposites," he took from Lenin in one of the quotations, and had to struggle with it at several instances until he arrived at the concept of "complementarity." Lenin used his "identity of opposites" in a logical, rather than dialectical, sense, and also because in Russian *tozhdestvo* (identity) is synonymous with *iedinstvo* (unity) in the sense of *polnoe skhodstvo* (complete overlapping, coincidence). Lenin had never come to the idea of complementarity of opposites as the prerequisite of their unity inside a

contradiction. Cf. for more details the first German edition of this paper.

97. Mao Tse-tung, *On Contradiction*, 43.
98. It seems that in practice Mao used the principle of the unity of opposites more than Lenin and Stalin did. For instance, Mao chose to unite "national bourgeoisie" with the CCP's revolution, while the Bolsheviks chose to alienate all bourgeoisie without exception; Mao permitted, after some time, the former rich peasants and landlords to join the collective farms, while the Russians liquidated all of them physically in advance, and so forth. Somehow it seems that Lenin and Stalin tended more to divide the opposites than to unite them, perhaps because they did not recognize complementarity of opposites, as mentioned in note 96; whereas for Mao it was easier to think in terms of unity of opposites because of its overwhelming presence in Chinese thought and dialectics.
99. Mao Tse-tung, *On Contradiction*, 14–15.
100. *Ibid.*, 35.
101. *Ibid.*, 28.
102. *Ibid.*, 50.
103. *Ibid.*, 37.
104. *Ibid.*, 42.
105. *Ibid.*, 38.
106. *Ibid.*, 46. On page 44 Mao postulates again: "Each of the two contradictory aspects within a thing, because of certain conditions, tends to transform itself into the other to transfer itself to the opposite position."
107. *Ibid.*, 48.
108. *Ibid.*, 44.
109. Asian Peoples' Anti-Communist League, *A Research on Mao Tse-tung's Thought of Military Insurrection* (Taipei), October 1961), 28.
110. Cf. V. Holubnychy, "Maos Dialektik zum Atomkrieg," *Echo der Zeal* (Münster), no. 38 (22 September 1963): 10.

**Bibliography of Published
Works
by Vsevolod Holubnychy**

**Compiled by Osyp Danko
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**Bibliography of the Works
of Vsevolod Holubnychy
(1947–1977)**

This bibliography covers the work of Vsevolod Holubnychy, which appeared in book form, or as articles in collections, journals and newspapers.

Although extensive, this bibliography is not complete. Not included—in addition to works possibly overlooked—are the unsigned articles of Holubnychy from the journal *Vpered* (Munich), the authorship of which is now difficult to corroborate. This is also the case with the unsigned Ukrainian scholarly articles in the New York socialist weekly, *Labor Action*, of 1950–3. Also, although the Holubnychy archives contain press cuttings or offprints of his articles in Ukrainian newspapers, the offprints of several articles, for example from the Jersey City newspaper, *Svoboda*, are not in the archives. Unfortunately, we do not have a list of those articles and did not have the opportunity to re-examine systematically about twenty annuals of *Svoboda*, the dailies of which are lacking an index.

Holubnychy used numerous pseudonyms and cryptonyms: V., V.H., V.S.H., Vs.H., Vs-d H., Iuryi Vilnyi, Vsevolod Holub, V-s, Vs. Hol., Semen Horoshchenko, S.H., S. H-ko, S. Hor-ko, Vs. Feliks, V. Feliks, V.F., Vs. F-s, N.N. When the article is signed by one of the above, then this has been indicated in parentheses at the end of the bibliographical entry; articles signed with the author's surname, including the English form Vsevolod Holubnychy, have been given without indicating the author.

The entries appear in order of year of publication, with books given at the start of the year.

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From the unpublished works of Vsevolod Holubnychy

“*Ekonomicheskaiia sistema SSSR: Programa kursa iz 20 lektzii*” (The economic system of the USSR: a course of 20 lectures). [11 typed sheets. Lectures presented at the Russian Institute, Columbia University in 1954] UVAN, New York.

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dissemination beyond Soviet borders; Soviet economic thought; and more specialized topics in economics. In addition to his scholarly contributions, Holubnychy examined current political events in the journal *Vpered* (Forward), a Ukrainian workers' newspaper in Munich, using a variety of pseudonyms and on occasion writing anonymously.

Of the nine essays included in this volume, three are published here for the first time: "The Agrarian Revolution in Ukraine"; "Marxography and Marxology"; and the author's doctoral thesis, "V. V. Novozhilov's Theory of Value." The rest are among Holubnychy's finest works and are reproduced by permission.

Throughout his life, the author remained a controversial figure in the Ukrainian emigration. Forthright and outspoken, his works engendered much discussion. *Soviet Regional Economics* is likely to continue that tradition. Although some of the essays on economics may now be outdated by recent information, this collection is a fine tribute to a talented and perceptive scholar, one whose analytical powers had few equals during his lifetime and have been sorely missed since his death.

