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E. A. PREOBRAZHENSKY AND THE THEORY OF EXPANDED REPRODUCTION
IN THE
USSR DURING THE PERIOD OF PRIMITIVE SOCIALIST ACCUMULATION

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SUMMARY

Evgeniy Alekseyevich Preobrazhensky was one of the great Marxist thinkers of the generation of Bolsheviks that prepared and carried out the October Revolution. Yet his work has remained relatively unexplored by Marxists. Those non-Marxist accounts of Preobrazhensky's writings and political activities, even where well-intentioned, are hopelessly inadequate. They grasp neither the Marxist categories he used nor the fact that his economic theories can only be understood within the context of his work as a whole and his theory of the transitional society.

As a result this thesis opens with an extensive and in-depth Introduction into the nature of Preobrazhensky's Marxism, touching upon its most important philosophical roots and stressing the role of class consciousness in Preobrazhensky's theory of the transition.

The main body of the work deals specifically with Preobrazhensky's theory of expanded reproduction in the Soviet system during the period of its primitive socialist accumulation. We start with Marx's use of the reproduction schemes, and show their connection with his theory of the circulation of industrial capital and with the reproduction of specific production and social relations under capitalism. Then we use Marx's theory of the reproduction of fixed capital under simple capitalist reproduction to demonstrate the need for reserves within the system and to derive the two-sector scheme of separate industrial and agricultural sectors that Preobrazhensky was to use. Further, we use this to introduce the question of the importance of the material exchange of specific use values under reproduction, as well as their exchange on the basis of their value.

Next we analyze and expand upon Preobrazhensky's theory of simple and expanded reproduction under concrete capitalism. Here we show that, given unequal organic compositions of capital in department I and II, and the tendency for the organic composition of capital to rise, there is a tendency towards under-production of means of production. This can be overcome by drawing the petty-commodity sector into the orbit of capitalist exchange, and impelling that sector to make the necessary adjustments in its production so as to allow the capitalist sector to overcome its own internal disproportions via exchange with the peasant sector.

Then we open up an unexplored area of Marxist economics, the expanded reproduction of fixed capital. Starting off from a problem that Preobrazhensky had touched upon in an entirely different context, we examine the effects that the extended turnover period of fixed capital has upon expanded reproduction: It gives rise to a chronic deficit of means of production. After exploring a number of possible solutions to the problem we find that under pure capitalism the only solution is the transfer of capital from department II to department I.

In order to apply the above findings to the Soviet goods famine we must first take a detour and examine that goods famine in its general morphology. Following in large part Preobrazhensky's argument, we trace out the inherent, structural tendencies towards the under-production of means of production within the Soviet system, which it cannot overcome because of its backwardness. This deprives it of all the economic and social flexibility that a socialist economy would have for anticipating and circumventing these disproportions, and makes the economy inherently weaker and more prone to crisis than even the advanced capitalist countries.

From there we introduce another new aspect to the Marxist theory of expanded reproduction, by examining the circulation and reproduction of the individual components of the annual product of all sectors in the

Soviet economy. Although we start off from Preobrazhensky's own treatment of the topic, this was sparse and incomplete. It proves necessary to trace out in great detail the circulation of the individual elements of expanded reproduction from the point of view of both their quantitative exchange as values and their material exchange as particular use values. Here the primary division is between those products produced in the private and state sectors--it turns out that no category of expanded reproduction can be reproduced except via a complex circuit of exchange involving all departments of all sectors. What is more, under Soviet conditions, this exchange involves strict proportionality between each distinct department and all of the others. Any disequilibrium between two departments, either in value or material terms, will lead the entire system into stagnation.

Finally, we apply these findings to our discussion of the expanded reproduction of fixed capital. We trace out the expanded reproduction of fixed capital under both concrete capitalism and in the Soviet system. Here we find that the conditions of expanded reproduction dictate that the peasant sector's department I assumes an increasingly larger share of the production of the circulating part of the constant capital in all departments. Yet this condition contradicts the conditions of material exchange under a goods famine of the type that existed in the Soviet Union. As with virtually every aspect of Preobrazhensky's analysis, this confirms the validity of his long-standing position that, both from an economic and from a political point of view, socialism in one country was impossible. Only massive material assistance from other socialist countries could help pull the USSR out of its impasse. Only the political intervention of the Western proletariat could save the Revolution from degeneration.

PREFACE

This thesis was originally intended as a study of the methodological foundations of the works of E. A. Preobrazhensky, the Soviet economist who was one of the leading members, both theoretically and politically, of the Trotskyist Oppositions of the 1920's. At the time it seemed to us that Preobrazhensky's economic writings were so rich in their political and philosophical implications, that they could only be properly appreciated if these basic philosophical premises were made explicit, and their connection with Marx drawn out as extensively as possible. We still believe this to be the case. Preobrazhensky's writings in the 1920's show him to be one of the most original and exciting thinkers, not just of his own time, but of all of twentieth century Marxism. We hope that we can give at least some indication of the validity of this appraisal in the Introduction of this thesis, which deals with the character of Preobrazhensky's Marxism.

In any case, a quick glance at the table of contents will tell the reader that little of our original plan actually made it down onto paper. This was essentially for two reasons. First, any such study of Preobrazhensky as a methodologist and as a representative of a particular tradition within Marxism would necessitate a fairly thorough-going examination of the philosophical evolution of Marxism itself--starting with Marx's own battles with his philosophical predecessors, Kant, Hegel, and Feuerbach, and wending its way through a critical assessment of the various currents of Marxism that arose, and came into conflict, beginning with the end of the nineteenth century and the bastardization of Marx embodied in the dogmas of the Second International. Such a study, while invaluable and, as we say, still necessary to an appreciation not merely of Preobrazhensky, but of the entire Trotskyist movement within the Soviet Union in the twenties, simply could not have been undertaken within

the bounds of a PhD thesis, particularly by someone whose academic training is not in philosophy proper. This is not to say that we have ignored this problem. To the contrary. Not simply in our Introduction, but throughout this thesis we have tried to draw a constant connection between Preobrazhensky's economic ideas and the philosophical assumptions and political goals that lay behind them.

The second reason lies in the nature of the material that eventually did become the subject of our study. After the publication of his major *finished* work, *The New Economics*, Preobrazhensky published in article form what we can only take as drafts of chapters that he intended to include in successive volumes as Part II of Volume I of *The New Economics* and as Volume II. The first of these was a pair of articles, entitled "Sotsialisticheskie i Kommunisticheskie Predstavleniya Sotsializma" ("Socialist and Communist Ideas About Socialism"), published in *Vestnik Kommunisticheskoi Akademii* (hereafter referred to as VKA), Nos. 12 and 13, 1925. These were to comprise most of the second, historical part of Volume I of *The New Economics*, with the final portion of this volume being promised by Preobrazhensky to go to the printer some time in 1926.¹ To the best of our knowledge, it never did. In addition, there was a group of three articles, coming under the general heading of "Economic Equilibrium Under Concrete Capitalism and in the System of the USSR," which were to form the first section of Volume II. The latter volume, according to Preobrazhensky, was to be "devoted to a concrete analysis of the Soviet economy, that is, of Soviet industry, Soviet agriculture, the system of exchange and credit, and the economic policy of the Soviet state, together with an examination of the first rudiments of socialist culture."² The first of these articles, VKA 17, is marked, "A chapter from Volume II of *The New Economics*;" all three carry the words "To be continued" at their close. In addition, we can infer from the closing passage of VKA 22 that together they were to

constitute the theoretical portion of Volume II, presenting an analysis of the regularities of expanded reproduction, both under modern capitalism and in the particular economy of the Soviet Union. The remainder of Volume II was to take up the task of "filling/ⁱⁿthe algebraic scheme of reproduction in the USSR that we have outlined here with concrete data provided by Soviet statistics and, above all, by the Control Figures of Gosplan." It would as well "touch upon certain theoretical questions that, in the interests of shortening the purely methodological section of the study, we prefer to illustrate with figures from the present-day living Soviet economy."³

These three articles are in no way complete. In the first place, they were written in obvious haste, no doubt due to the pressures of the political struggle in which Preobrazhensky was so actively involved. There are numerous misprints, especially in the numerical examples, and the arguments themselves are usually presented only in the barest form. Preobrazhensky rarely followed up the particular analyses to their logical conclusions, and the mode of elucidation of the individual theoretical points is often jumpy and leaves a lot to be presupposed by the reader. In addition, many of the seemingly obvious political conclusions are left unstated. The arguments, which are on the surface highly technical, rarely draw out the conclusions to which they are pointing, except in the most round about way. This again must be explained in terms of the political context within which they were written. As theoretical, academic pieces, Preobrazhensky must have certainly felt that, by 1926 and 1927, he was not free to draw the openly political conclusions from his work that he had done in *The New Economics*. Once more, it was left to the reader to cull out of the mass of reproduction schemes and the sparse political commentary the inferences that Preobrazhensky had clearly intended.

Even so, there is a clear coherence to these works which in its turn also helps explain their overtly abstract and even technical character. They represent a rigorous attempt to work out for the emerging Soviet economy the regularities of economic reproduction and their relation to the highly unstable social relations within the Soviet system, on the one hand, and the proper development and application of the analytical categories needed for such an analysis, on the other. In this Preobrazhensky, as we will demonstrate at some length in the body of this thesis, was undertaking a task quite similar to that which Marx had embarked on in Volume II of *Capital*.

Originally we had planned our discussion of these articles to occupy one part of one chapter. Once we began to pore over Preobrazhensky's use of the reproduction schemes, however, more and more problems arose that demanded our attention and attempted solutions. This was almost inevitable, given the fact that in his treatment of Marx's schemes Preobrazhensky was himself breaking entirely new ground. In the first place, Preobrazhensky's argument in VKA 17--which lays the basis for all his subsequent analysis--is less than straightforward. In this article he made two fundamental alterations in Marx's schemes. First, he added two new departments to those that Marx worked with: To Marx's scheme for capitalism he added a sector of petty-commodity production. The object was then to define the regularities of expanded reproduction under the historically more realistic conditions of capitalist and pre-capitalist production coexisting with each other. Second, he dropped Marx's assumptions that a) the organic composition of capital remains constant over time and b) that accumulation in department II "adjusts" to that in department I (which was the expositional procedure employed by Marx). The problem, as we will go into in some detail below, was that all of these represent distinct tendencies in capitalist development, which must be analyzed separately from one another. Preobrazhensky

failed to do this in his treatment of the organic composition of capital, where his analysis of what happens when the organic composition of capital rises runs into that which traces out the effects of equal rates of accumulation, given unequal organic compositions of capital in the two capitalist departments. In addition, his numerical examples are constructed in such a way that it is less than obvious to the reader exactly how he has worked things out. The end result has been that we have had to radically rework Preobrazhensky's argument, often constructing entirely new examples, in order to make what he was saying clear.

The second important innovation Preobrazhensky introduced was to apply (in VKA 22) Marx's reproduction schemes to the Soviet economy. Preobrazhensky's problem was far more complicated than Marx's, since the latter's categories of political economy could be applied to both the state and peasant sectors only conditionally. Both the state and peasant sectors differed significantly from capitalist production; yet they did so in different ways, and this further complicated the application of Marx's categories to them. There was the further difficulty in that the argument in VKA 22 is based almost entirely on the principles of reproduction in a mixed peasant-industrial economy worked out in VKA 17. But not only did Preobrazhensky not make the connection clear where it would have helped him elucidate his argument, he at times failed to even notice where certain results that were conditional upon the peculiar circumstances of the USSR would undergo profound change as long-term tendencies.

So once again we had to make substantial additions to what Preobrazhensky had done, in order to draw out the full impact of the tendencies he had uncovered.

In going over Preobrazhensky's use of the reproduction schemes it seemed to us that Marx's discussion, in Volume II of *Capital*, of the reproduction of fixed capital and of the difficulties posed for a

capitalist economy by the fact that fixed capital does not turn over all in one year, was key to Preobrazhensky's entire theoretical construction. First, it allowed us to trace the basis of Preobrazhensky's two sector scheme back to Marx, thus highlighting the methodological continuity between the two thinkers. Second, it permitted us to work out a more elaborate analysis of the *material* basis of reproduction, as distinct from, but also in addition to an analysis of the necessary value relationships. For expanded reproduction, whether under capitalism, or a commodity-socialist economy like the USSR, has two dimensions. On the one hand, expanded reproduction can only continue if the products that must exchange between the various departments and sectors are produced in the right value proportions--that is, if the quantities to be exchanged against each other have equal values. On the other hand, these products must also exist *in the correct material form*. If, say, department I of the capitalist sector has 1500 in means of production to exchange against 1500 in means of consumption in department II, but department II requires 1500 in heavy machinery, whereas department I produced only 1500 in rakes, then exchange simply will not take place, even though proportionality in value terms has been satisfied. Preobrazhensky had begun an analysis of this problem in VKA 22, but it was sketchy and incomplete. It was only by first dissecting and then building upon Marx's discussion of fixed capital that we could elaborate both the essentials and the finer implications of Preobrazhensky's analysis.

This, however, did not exhaust the problem. Both Preobrazhensky and Marx had examined the question of the material composition of exchange and reproduction in terms of simple reproduction, i.e., without taking into account any changes that would take place in the conditions of proportionality with accumulation. As it turned out, we--somewhat unexpectedly--found at least the key to solving this problem in a book Preobrazhensky had written in 1931 when back inside the Communist Party,

entitled *Zakat Kapitalizma* (*The Decline of Capitalism*). This was allegedly a book designed to put forward a theory of the contemporary capitalist crisis, but in it Preobrazhensky stated in no uncertain terms that he was building upon the analytical tools he had forged in his Trotskyist days, i.e., the analyses of VKA 17, 18, and 22. In his discussion of capitalist reproduction in *Zakat Kapitalizma* Preobrazhensky proposed that a further modification was needed in Marx's schemes of reproduction, over and above those he had already introduced in his previous works. This was that we could no longer assume that the value of the fixed capital turned over all in one year. (We found this a little surprising, since we had not been able to find a single reference to this part of Marx's analysis of reproduction in Preobrazhensky's writings before this date.)

Preobrazhensky had raised this point in order to address himself to a problem quite distinct from the one/^{we}were concerned with. He wanted to illustrate what he considered crucial structural differences in the patterns of capitalist accumulation between the era of so-called free competition and the era of monopoly capitalism and finance capital that succeeded it. As a result he did not even begin to work out the solution we needed. But the way he set up the reproduction schemes in order to reflect this new condition of a prolonged turnover of fixed capital proved exactly the key we required to unravel the question of the material composition of expanded reproduction.

By working out, on the basis of Preobrazhensky's altered reproduction schemes, the process of accumulation of fixed capital ^{were}we/able to do three things: 1) We could extend Marx's analysis of the reproduction of fixed capital under simple reproduction to expanded reproduction; 2) we could then work out the conditions of proportionality not just in value terms but in terms of the material composition of expanded reproduction, as well as the necessary conditions for exchange that flowed

from this; 3) we could then apply these results to the problem of the goods famine in the Soviet Union during the New Economic Policy--an analysis which, not surprisingly, led us to virtually identical conclusions to those Preobrazhensky had reached in VKA 22.

It should be fairly evident from the above account that this is not properly a thesis about Preobrazhensky per se. It is rather a study of Preobrazhensky and Marx, and our own application and extension of the incomplete work of both these men to the reproduction schemes *in general* and to the specific question of the Soviet goods famine. Yet at all times we have used Preobrazhensky's basic *approach* as a starting point. We have in a sense taken the rudiments of his theory of reproduction to the conclusions he himself might have reached if he had had the opportunity to continue his work. This is why we said above that it is not surprising that our own conclusions are so similar to his. By the same token we think the fact that we could arrive at virtually identical results by using what we consider were more developed and refined tools testifies to the genuine insight that Preobrazhensky brought to his analysis of the Soviet economy, an analysis which, for political reasons, was left woefully incomplete and embryonic. Preobrazhensky did not need embellished presentations of Marx's reproduction schemes in order to see where Soviet society was heading. He could do this readily enough on the basis of the overall analysis of the transitional period that he had been developing since the turn of the twenties, and whose outstanding feature was methodological solidity and freshness, not sophisticated algebra. It was, we might add, an analysis of the Soviet Union that excelled anything else we have come across, either from that period or since.

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The plan of the thesis is as follows:

The Introduction deals with the character of Preobrazhensky's

Marxism. Since the main body of our study has a distinctly technical slant, and since the reproduction schemes have been so often subject to an improperly technicist interpretation ever since the publication of Volume II of *Capital*, we felt it essential to give some idea of Preobrazhensky's methodological approach and where he fits in among the diverse philosophical traditions that have claimed to be Marxist. Here we have given particular attention to Preobrazhensky's theory of class consciousness. The Introduction then, affords what we see as the necessary theoretical context within which Preobrazhensky's and our own discussion of the reproduction schemes must be seen.

We next take up Marx's use of the reproduction schemes--not to cover ground that other Marxists have already gone over in terms of their mechanics, but in order to deal at some length with the question of the material basis of reproduction. Our major illustrations are his discussion of the reproduction of articles of luxury and articles of necessity and--more important--his treatment of the reproduction of fixed capital. From both of these we hope to establish the foundations of the two sector scheme that Preobrazhensky was to use, as well as some fundamental conclusions that are, we think, indispensable to understanding Preobrazhensky's theory of the goods famine.

In Part II we turn to Preobrazhensky's analysis of expanded reproduction under concrete capitalism. We have structured our presentation with the specific purpose of establishing here only the basic tools that we will need in our further application of the reproduction schemes, and have emphasized two aspects of Preobrazhensky's argument in VKA 17: First, the use of a two sector scheme, involving capitalist and petty-commodity production in mutual interaction; and second, the pattern of expanded reproduction under both pure and concrete capitalism that emerges when we assume unequal organic compositions of capital in the two capitalist departments, and a constant rise in the organic composition of capital as a whole.

Following this discussion we turn to the problem of expanded reproduction of fixed capital, which is perhaps the key to all of our following analysis. Here we will find that the tendencies Preobrazhensky thought he had uncovered in VKA 17, namely that towards over-accumulation in department II, hold true even at a more concrete level of analysis. At the same time we will see that an attempt to solve the problem of over-accumulation in the department producing means of consumption from the value side compels us to simultaneously find a solution in terms of its material aspect as well.

Finally, we take up the question of the goods famine in the USSR. This discussion has three parts. 1) We will briefly outline Preobrazhensky's general presentation of the problem in VKA 22, with regard to his theory of non-equivalent exchange between the state and private sectors; his determination of the need for maximum contact with the world division of labor as a means of overcoming the worst disproportionalities inherent in the Soviet economy; and the implications of the conclusions from VKA 17 for the question of economic reconstruction in the context of the Soviet Union's backwardness. 2) We will go into Preobrazhensky's analysis of the separate elements of reproduction and complexities that arise from an economy based on exchange, but where the two sectors operate with different levels of technique and according to different modes of regulating the application and distribution of human labor. It is out of this discussion that we will try to demonstrate the basic patterns of exchange in such an economy in both their value and material aspects. 3) We will return to the question of the expanded reproduction of fixed capital. First we will see how the reproduction of fixed capital takes place under concrete capitalism and how this affects the inter-relation between the capitalist and petty-commodity sectors. Then we will examine the same problem from the point of view of the Soviet Union, in particular in terms of the Soviet goods famine.

Here we will see, on the one hand, how such a solution, though hypothetically possible, contradicts the very conditions of economic scarcity (especially a poverty of fixed capital) that existed within the Soviet economy. As such we are led back to the conclusions Preobrazhensky had drawn out with such force in VKA 22--namely that the Soviet Union was a highly contradictory society which could not possibly develop on its own resources. If the socialist character of the workers' state was to be preserved, the USSR would require substantial material assistance from other socialist countries. In other words, the necessity for a revolution in the West was the inexorable conclusion not just of the overall political analysis of Preobrazhensky and the Left Opposition, but of his specific economic analysis of the conditions of expanded reproduction under Soviet conditions.

We should perhaps say a concluding word as to why we have ignored a topic that would seem to follow logically from our discussion, that is, Preobrazhensky's theory of capitalist crisis. We know of nowhere where Preobrazhensky presented a unified theory of crisis. Even *Zakat Kapitalizma*, despite its comparative intellectual freshness when compared to other works of the period, is a highly flawed and inadequate work. It deals with only one aspect of crisis, the disproportionality and structural obstacles to capitalist accumulation that arise from the evolution of monopoly capitalism. We think that such a one-sided and almost monistic theory is highly questionable as a sufficient explanation of crisis, although in places Preobrazhensky's analysis shows the same kind of sophistication and insight as his works of the previous decade. Nor would we consider this work an adequate summary of Preobrazhensky's other writings about capitalism. From the side of production we would have to deal at some length with the argument in VKA 18, which was specifically devoted to the problem of declining capitalist reproduction and which, though following directly on from the analysis in VKA 17, stands

apart from it in terms of its subject matter. VKA 17, though dealing with capitalist development, actually describes the specifically Russian capitalism out of which the Soviet regime emerged and is quite clearly anticipating the equally specific conditions of the commodity-socialist economy of the USSR. VKA 18, on the other hand, is genuinely about the decline of capitalism during the twenties, and shows, by the way, almost uncanny insight into the onslaught of the great depression.

To deal with Preobrazhensky's theory of crisis would also necessitate a detailed look at his monetary writings. The seminal work here is that which he wrote in 1930, *Teoriya Padaiushchei Valiuty* (*A Theory of Depreciating Currency*), a work which deserves to be translated into English, since it is one of the few--and extremely stimulating--Marxist treatments of the theory of money. Yet *Teoriya* builds heavily upon Preobrazhensky's other monetary writings from the early twenties, which dealt specifically with the Soviet Union, especially the book, *Prichiny Padeniya Kursa Nashego Rublya* (*The Reasons for the Fall in the Exchange Rate of Our Ruble*).⁴ In short, any discussion of the theory of crisis would require the quite extensive examination of Preobrazhensky's theory of money in general, which would itself be enough to exhaust another thesis.

Finally, there is the way in which Preobrazhensky actually presented the various snippets of his theory of capitalist crisis. Not only are they disparate and scattered throughout the twenties and early thirties, but the connections between them are by no means always made clear. Preobrazhensky must have understood their interdependence well enough, but he very often neglected to let the reader in on the secret. There are, for instance, entire passages in VKA 18 that are virtually incomprehensible unless the reader is *already* familiar with the argument in *Teoriya Padaishchei Valiuty*. Yet the latter was published *four years* after the former!

As a result we have had to confine our remarks about Preobrazhensky's theory of crises to a handful of passing remarks in the main body of the thesis. This is unfortunate, for the most provocative aspect of his work on this subject was not in fact the strictly economic side of it, but the way in which he treated the category of human labor, and the transformations that profound crises bring about in the basic relationship between the working class as the sellers of labor power and the capitalist class as its purchasers. For Preobrazhensky, as we shall describe in the Introduction, this was the most crucial bedrock of any analysis of a society, be it capitalism or the transitional society of the USSR--how was human labor to be organized, through what structures, towards what goals, and under whose control?

NOTES TO PREFACE

1. E. A. Preobrazhensky, *The New Economics*, translated by Brian Pearce (Oxford, 1965), p. 2.
2. *Ibid*, p. 2. The articles from *Vestnik Kommunisticheskoi Akademii* are:

"Problema Khozyaystvennogo Ravnovesiya pri Konkretnom Kapitalizme i v Sovetskoi Sisteme," ("The Problem of Economic Equilibrium Under Concrete Capitalism and in the Soviet System"), VKA, No. 17, 1926, pp. 35-76.

"Khozyaystvennoe Ravnovesie pri Konkretnom Kapitalizme i v Sisteme SSSR" ("Economic Equilibrium Under Concrete Capitalism and in the System of the USSR"), VKA, No. 18, 1926, pp. 63-84.

"Khozyaystvennoe Ravnovesie v Sisteme SSSR" ("Economic Equilibrium in the System of the USSR"), VKA, No. 22, pp. 19-71.

The last of these has been partially translated in Nicolas Spulber, *Foundations of Soviet Strategy for Economic Growth* (Bloomington, Indiana University Press, 1964), pp. 124-73. This translation, aside from being incomplete, is highly inadequate from virtually every point of view, since the translators had simply no sense of the meaning of the Marxist categories Preobrazhensky employed. The terminology the translators have used is quite arbitrary, and mistranslations abound, often rendering whole passages practically useless.

All passages cited from VKA 17, 18, and 22 are from H. H. Ticktin and D. A. Filtzer, eds., *E. A. Preobrazhensky, Selected Economic Writings*, translated by Clifford Gaddy and to be published by

Allen Lane. Paginations are for the Russian originals, as obviously none exist for the English translation. Page numbers are also given for the Spulber translation of VKA 22, wherever the corresponding passages also appear in that edition.

3. VKA 22, p. 71.

4. The most important of Preobrazhensky's monetary writings are:

Bumazhnye Den'gi v Epokhu Proletarskoi Diktatury (Paper Money in the Epoch of the Proletarian Dictatorship, Tiflis, 1921).

Finansy v Epokhu Diktatury Proletariata (Finance in the Epoch of the Dictatorship of the Proletariat, Moscow, 1921).

Prichiny Padeniya Kursa Nashego Rublya (The Reasons for the Fall in the Exchange Rate of Our Ruble, Moscow, 1922).

"O Dvukh Spornykh Voprosakh Marksovoi Teorii Deneg" ("On Two Contentious Questions in Marx's Theory of Money"), in *Arkhiv K. Marksa i F. Engel'sa* (Moscow, 1930), pp. 132-59.

Teoriya Padaiushchei Valiuty (A Theory of Depreciating Currency, Moscow, 1930).

In addition Preobrazhensky published a number of other articles, lectures, and pamphlets on Soviet monetary policy and edited a volume on Russian financial history (for which he provided the introduction). For a more detailed list of titles, see the Bibliography.

INTRODUCTION

PREOBRAZHENSKY'S MARXISM

It is truly surprising that such a prolific writer and thinker and someone so active politically as Preobrazhensky was during the Soviet twenties should receive so little attention from Marxists. In Preobrazhensky's case it is even more striking, since his major theoretical work, *The New Economics*, is cited by most secondary sources as providing the conceptual underpinning for the economic ideas of the Trotskyist Opposition, at the same time as he^{is} credited with the leading political role in the 1923 Opposition (which grew up around the "Platform of the 46"), and a place second only to that of Trotsky in the Opposition of 1926-27.¹

As a result the English-speaking audience, including Marxists, knows Preobrazhensky more or less only second-hand. Only two of his books, *The New Economics* and *From NEP To Socialism*, currently exist in translation, while his very important article, published in *Vestnik Kommunisticheskoi Akademii* (No. 22, 1927), used to be available in Spulber's anthology, which is now out of print.² The effect has been that virtually the only studies that have even pretended to examine a major portion of Preobrazhensky's work have been carried out by non-Marxists, primarily by bourgeois economists.³ It is from these sources that many, if not most interested scholars have received their impressions of Preobrazhensky's theory of the Soviet transition in the 1920's and of his contribution to Marxist thought in general.

For reasons that will become obvious, we think, in the course of this Introduction, we consider these accounts wholly inadequate. Preobrazhensky was perhaps one of the richest Marxist thinkers of his age, and he can only be properly understood within a Marxist framework and by utilizing Marxist concepts and categories. This is something that

no non-Marxist can possibly do, no matter how well-intentioned. To make Preobrazhensky--or any Marxist--comprehensible the non-Marxist must translate their ideas into bourgeois categories, i.e., into a conceptual framework that is simply too poverty-stricken to retain the depth, complexity, and subtlety of Marxist theory. The result is an interpretation that emasculates the ideas in question, strips them of their vitality, and as such actually falsifies what was said.

Hence logical contradictions appear where none existed. The most wildly divergent interpretations are given to positions that to a Marxist would seem straightforward. Alexander Erlich, for example, strongly implies that Preobrazhensky was admitting having worked himself into a theoretical and logical dead end when, in 1927, he concluded that the autonomous development of socialism in the USSR was impossible and that the proletarian dictatorship could only survive if its political isolation was ended via revolution in the West.⁴ It is interesting that in taking this position Erlich, and others who share this view, come very close to adopting the standpoint of socialism in one country--that is, they implicitly accept the premise that the construction of socialism *should have been possible* under Soviet conditions, if only the economy hadn't been *quite* so under-industrialized. Such a point of view should not surprise us, since bourgeois economics sees development as taking place in abstract, isolated national units, where industrialization is a technical problem pure and simple. The primary value of this sort of analysis, in our view, is that it at least gives us some insight into the ideological genesis of the "theory" of socialism in one country and its incompatibility with Marxism.

At the other extreme Richard Day, whose feigned familiarity with Marxism and genuine sympathies for Trotsky have given his ideas a certain persuasiveness, arrives at a conclusion precisely opposite to that of Erlich. Day considers that Preobrazhensky had made some sort of

tacit accommodation to the "theory" of socialism in one country--a thesis he then uses to "explain" Preobrazhensky's capitulation in 1928.

Such interpretations, no matter how much they are at odds with each other, share one major thing in common. They all treat Preobrazhensky strictly as an economist and divorce his economic theories from both his general methodology and the *goals* to which they were applied. This approach can be countered in two ways. At one level we can engage in textual refutations by referring to the material various authors have allegedly gone over and showing that certain facts are wrong, they have been misinterpreted, or that they have been inadequately selected at the expense of other essential pieces of information.⁵ This can be a useful and often necessary exercise, but in and of itself it will not suffice. We must go further. First, we must challenge the validity of employing bourgeois categories in an analysis of someone like Preobrazhensky. Second, we must counter the propensity that non-Marxists have of equating industrialization with the construction of socialism, a tendency that is almost ubiquitous in non-Marxist (and many Marxist) writings about the industrialization controversy in the 1920's. Against this we would argue that it is impossible to properly comprehend the ideas of Preobrazhensky, Trotsky, and others on the Left except as part of a political struggle to create a very particular type of society, and within the context of their conception of what socialism was and how it would--and would not--be built in the USSR. Before examining any particulate theory of such thinkers we must first establish the goals they worked towards and the premises behind their ideas and actions. Having done that we can then evaluate the premises, as well as the ideas and actions that sprung from them, and assess whether such premises and/or such actions would actually allow the goals to be achieved.

This approach necessarily leads us to try and reconstruct exactly

what Preobrazhensky's concept of socialism was. No one that we know of who has written about Preobrazhensky (at least in English)--not even Deutscher--has done this. They have all, Marxist and non-Marxist alike, tacitly accepted the terms of reference created by the non-Marxists and consistently treated Preobrazhensky^o as an economist who wrote about nothing other than economics. The version of Preobrazhensky we get is therefore technicist and one-sided. What is called for is a presentation of the totality of Preobrazhensky's thought and an investigation into its philosophical foundations.

We believe that this would be a momentous task, and we propose in the Introduction to make only a modest start in that direction. For the moment we would be content to give some indication of Preobrazhensky's views on the emerging socialist society in the Soviet Union and of how they evolved in the course of the twenties, with particular reference to the role that class consciousness played in his theory of the transition. If we can do that, then it will become clear that Preobrazhensky, Trotsky and the many Bolsheviks who came to join the Left Opposition, fit within a much larger philosophical tendency inside the Marxist movement. We feel it particularly important to give this overview, since the main body of this thesis--which deals with some of the more intricate and narrowly economic theories that Preobrazhensky developed in the mid-to-late twenties--could otherwise very easily serve to reinforce the economistic interpretation that we reject in its entirety, and no matter what intellectual or political guise it appears under

I. The Recrudescence of Marxism Following the Bolshevik Revolution

It is an indisputable fact that the decade following the Bolshevik Revolution witnessed a virtual rebirth of Marxist theory. In the Soviet Union the twenties saw a flowering not just in the traditional realms of Marxist thought, such as politics and economics, but also in literature

and (a sphere often sadly overlooked) science.⁶ Yet this creative outburst was by no means confined to the Soviet Union (where its presence would be more immediately understandable). Throughout Western Europe Marxist ideas gained a new currency, a process which had as its reflex the further development of that theory itself. We do not pretend to be able to give even a summary of these intellectual events, for we are concerned with one specific field of human knowledge here, that of philosophy. Nor is it difficult to explain why, after decades of stultification, Marxism should suddenly experience this kind of awakening. The Bolshevik Revolution, and the mass upsurges that seized much of Europe in the years immediately following it fundamentally altered the entire practice of the workers' movement. Revolution and decisive changes in the existing capitalist social fabric were now on the order of the day. People^{do}/not simply act with their feet and hands. They act with their heads as well. And so it was only to be expected that once the Bolshevik achievement had posed anew problems of revolution and social transformation, Marxists would respond to these problems with new ideas. The existing conceptual apparatus of the Second International--which had more than adequately corresponded to the reformist practice of that movement--was simply inoperative. It could not cope with the tasks at hand.

Two, inseparable questions arose for philosophers. How was the previous ossification of Marxist theory to be explained; and what new theory would have to supplant it if the revolutionary movement was to succeed in establishing a world socialist order? The most decisive attempts to tackle these problems did not, as it turned out, come from within the USSR. They came from Western Europe, primarily through the intellectual and political work of Georg Lukács, Karl Korsch, and Antonio Gramsci.⁷ Although there were definite differences between them, especially in the evolution of their ideas in response to the deadening

hand of Stalinism upon the international Marxist movement, they broadly speaking crystallized a tendency in Marxist philosophy that was sufficiently distinct from most of what had gone before and from what surrounded it, that we feel safe in referring to them as a coherent school. They were certainly not the sole possessors of its tradition. The novelty of their work was not that they developed any new philosophical "system" or radically redefined Marx in response to the new historical conditions, but that they in fact *went back to Marx*, not as quotation-mongers or hagiographers, but as rediscoverers of the vital aspects of Marx's theoretical achievements that had long been abandoned by the official movement. Other thinkers were profoundly influenced by their work. In the early thirties the American philosopher Sidney Hook openly expressed his debt to Lukács and Korsch, as did Paul Sweezy in his *Theory of Capitalist Development*, published in 1942.⁸ Both these men have, in our view, made important contributions towards systematizing the essentials of Marx's methodology. Of more modern thinkers whose work clearly shows the profound effect of Lukács, Korsch, and Gramsci, perhaps the most important--at least among British Marxists--has been Lucio Colletti.⁹

If there existed fairly crucial differences in content and approach among the three initial philosophers we mentioned, this was even more true of their later followers. Hook has become a violent anti-communist; Sweezy a Maoist; and Kolakowski the archetype of the ex-Marxist-now-liberal emigré. Yet it was what they shared in common that was and remains so important. For although their achievements were far surpassed in the field of politics by countless other men and women, Lenin, Trotsky, and Luxemburg not the least among them, these men systematized and put in coherent form the premises and assumptions upon which others were to operate.

There is an interesting unanimity with which virtually all of these

individuals identified similar problems as the object of their investigations, specifically what they termed as the positivist-deterministic Marxism that had gained currency under the Second International. All of them quite correctly cut beneath the open "renegades," such as Bernstein, and found the roots of the degeneration of Marxism within the official movement. We do not wish to recapitulate their arguments, either as expressed collectively or separately. This has been adequately done by the authors themselves.¹⁰ Our concern is rather to attempt to distill out, in concise form, the positive formulation of Marxism that they did so much to resuscitate.

First, there is the emphasis on the active side of Marx's theory of knowledge and their opposition to the reflection/cognition theory that gained such prevalence (largely due to certain, highly selectively emphasized statements by Engels) under the influence of late nineteenth century positivist science. Hand in hand with the battle against the reflection theory went an attack on the false dichotomy that this same scientific influence had established between man, on the one hand, and an "objective" nature, or external world, which man passively perceives, on the other.

What to put in place of these theories? We can start with Marx himself. It is remarkable that neither Korsch, Gramsci, nor Lukács had access to the full manuscript of *The German Ideology* (which was not published in its entirety--including the crucial section on Feuerbach--until the 1930's, and which was the direct stimulus to Hook's two important books), since this is possibly the most direct statement Marx made about the relationship between man's consciousness and his practical activity. In any society human beings must enter into definite relations with each other in order to ensure their subsistence and continuation of themselves as a species--continuation not simply in a biological sense, but in terms of preserving the social structures through

which these relationships take place and through which man's laboring activity finds coherence and meaning. When Marx emphasized time and again throughout his life that man's consciousness of his environment and his relationship to it (which included his relations with other human beings) is determined by the production relations through which all his activities are channelled, this is *not* a one-sided, deterministic statement. There is not some previously-given activity that automatically produces a given consciousness; ideas do not passively reflect external reality. If that were the case we could never explain social change and the fact that these changes are desired and *theorized* by people before such acts take place. These theories are not, of course, always totally accurate accounts either of the existing society or of that which emerges--prior to Marx's discoveries about the nature of capitalist production this was, in fact, impossible. That is not the point. People reflected upon (not reflected) their world, they formed conceptualizations about it, and these became motivations and knowledge for subsequent action.

Marx's statement that human consciousness corresponds to (and not reflects) human productive activity is not, then, a statement about mirror or reflex mental activities. *It is a cognitive statement.* Human beings learn through a constant and active interaction with their environment, where they must necessarily conceptually break down its elements, manipulate them, and form concepts on the basis of this mental activity. Nor is the environment in any way simply "matter." Language and the manipulation of other ideas are also objects which people encounter and out of which their ideas and mental activities develop. If consciousness is determined by reality, this only makes sense if we first of all recognize that reality is *social*, and second of all if we are very careful about how we use the notion of "determination." People encounter their environment through various structures, and these are

always broadly defined by the mode of production. Capitalism has certain specific premises without which it would not be capitalism. For example, the fact that capitalism has as its motive force the production of surplus value already presupposes the social relationship of wage laborers to capitalists; it presumes that large sections of the population have been forced out of previous occupations as small farmers or petty producers; that production takes place on a more or less mass scale, in large manufactories or factories. Thus the kinds of activity that people engage in will be decisively different from what they would do if they still tilled the land or if, as under socialism, they collectively controlled social resources. This does not just refer to their specific laboring activities: Their types of recreation, culture, and art will all differ, depending upon these basic forms of economic organization.

The first point is that natural conditions are not just passively accepted. What is more they do not exist in their own right for they are a function of the techniques and way of life of the people who define and give them a meaning by developing them in a particular direction. Nature is not in itself contradictory. It can become so only in terms of some specific human activity which takes part in it; and the characteristics of the environment take on a different meaning according to the particular historical and technical form assumed in it by this or that type of activity. On the other hand, even when raised to that human level which alone can make them intelligible, man's relations with his natural environment remain objects of thought: man never perceives them passively; having reduced them to concepts, he compounds them in order to arrive at a system which is never determined in advance: the same situation can always be systematized in various ways.¹¹

This statement by Levi-Strauss, which more accurately captures the spirit of Marx's theory of knowledge-creation than do most "Marxists," has some fairly profound implications. Man's relationship with nature is one of constant struggle and attempted mastery. What is more, this activity is not blind, but is at all times a cognitive process--i.e., men conceptualize it and learn from it. From this we see that ideas, and such ideologically-determined institutions as culture and even science, have a very palpable independence from the so-called economic

infrastructure. Ideas from previous epochs almost always survive, though in drastically modified form, into the present; there they become part of that present and influence the further activities that people engage in. At the same time man is always working out new ideas, which provide much of the basis for the development of yet newer concepts and theories. If this were not the case all science and philosophy would be impossible.

However, within this independence consciousness is determined by activities which are themselves molded and shaped in a highly particular fashion by any mode of production. Modes of production, as we said above, have certain premises without which they could not continue. And it is around these premises that people both find their activity structured for them, and out of which arise specific choices through which they can structure it in the immediate future. Social formations are not simply matters of what people desire. The desires will themselves be socially and historically determined; but, far more to the point, radically new forms of social activity can only come about with the abolition of the premises of the old social formations people seek to supercede. It is here that we see the unavoidable need for social revolution as the precondition for socialism.

If the desirability, the need, and the means of achieving socialism were all readily transparent, however, the revolutionary overthrow of capitalism would have proven far easier than it has done historically. It was for this reason that Korsch, among others insisted upon the materiality of ideas. They exist as social facts and constitute an integral part of the social relations out of which they grow. People's consciousness of reality is part of what makes that reality what it is.

...the *coincidence of consciousness and reality* characterizes every dialectic, including Marx's dialectical materialism. Its consequence is that the material relations of production of the capitalist epoch only are what they are in combination with the forms in which they are reflected in the pre-scientific and bourgeois-scientific consciousness of the period; and they could not subsist in reality without these forms of consciousness. Setting aside

any philosophical considerations, it is therefore clear that *without this coincidence of consciousness and reality, a critique of political economy could never have become the major component of a theory of social revolution.* The converse follows. Those Marxist theoreticians for whom Marxism was no longer essentially a theory of social revolution could see no need for this dialectical conception of the coincidence of reality and consciousness: it was bound to appear to them as theoretically false and unscientific.

The second passage in italics is worth noting. For it reveals a second common theme that the philosophers we are discussing all shared: A re-emphasis of the central importance of Marx's theory of commodity fetishism. If man's activity gives rise to particular forms of consciousness; and if the latter are part of what sustains the social relations which define that activity, then overcoming those conceptions of society becomes an inseparable part of overthrowing it. It is interesting that all of the men we are referring to thought it necessary to directly challenge the view, prevalent in the Second International, that Marx's economics was an "objectively neutral" theory of the capitalist economy. Against this interpretation they unanimously asserted the practical-political goal of Marx's critique of capitalist production. By laying bare the realities of capitalist production Marx was equipping the proletariat with the means to throw off the reified view of capitalist relations that it derives from the normal course of its existence within capitalist society. *Capital*, as Korsch emphasized, was not a critique of bourgeois economics, but a critique of the bourgeois social order in its entirety.¹³ Without appropriating the knowledge contained in that critique the proletariat could never comprehend either the necessity or the possibility of overthrowing capitalism.

This requires some further clarification. It was not sufficient to simply draw the attention of Marxists to the importance of Marx's theory of commodity fetishism. That theory had itself to be properly understood. In it Marx is not saying that people have some fantastic conception of capitalism foisted upon them, as some sort of sophisticated

halucination. This would be a completely idealist understanding of fetishism, which would leave its origin and social function completely unexplained. Commodity fetishism arises out of the specific form in which social relations between producers are established in capitalist production. It is only through the translation of man's concrete labor into value, into abstract, alienated labor that has had its concrete and useful characteristics completely effaced from it and is thus common to *all* producers, that exchange, as the *sine qua non* of capitalist production, can take place. The act of exchange *requires* and presupposes that direct relations between producers are abolished and that all production and social relations are mediated through things. Hence these relations become objectified in human consciousness *precisely because they have become objectified in social life*.¹⁴

To fully appreciate the political implications of the theory of fetishism we should back track a bit. Some years before fully elaborating the theory of commodity fetishism in Volume I of *Capital*, Marx had presented it in more general form in *The German Ideology*. There he did not specify the particular relations of commodity production and exchange as the critical factor in the determination of bourgeois consciousness, but the division of labor, which had, according to Marx, reached its height under capitalist production. By necessity man could only obtain a distorted consciousness of capitalist society given the narrowness of the social activity to which he was confined by the division of labor. This pertained not just to the realm of direct production, but to the production and perpetuation of ideology.

The hitherto existing production relations of individuals are bound also to be expressed as political and legal relations...Within the division of labor these relations are bound to acquire independent existence in relation to individuals. All relations can be expressed in language only in the form of concepts. That these general ideas and concepts are looked upon as mysterious forces is the necessary result of the fact that the real relations, of which they are the expression, have acquired independent existence.¹⁵

The particular--and mystified--ideas that people have about capitalist

society arise directly from the way their activity is organized in that society. If consciousness is something active, and is both determined by social activity and in its turn influences human action, then certain political conclusions follow--conclusions, we might add, that absolutely *do not follow* from a reflection theory of knowledge and a positivist conception of the relationship between man and nature.

Political activity becomes, on this theory of consciousness, at all times a question of altering human consciousness from the alienated and reified view of the world that people will spontaneously develop in the course of their daily lives towards that self-consciousness of the proletariat which alone will allow it to see its way clear to effect a political revolution. It is this, we think, that forms the basis of Lenin's theory of revolutionary organization. When Lenin asserts that trade union consciousness is what the working class will spontaneously arrive at out of its normal existence, he is merely saying--some two decades before *The German Ideology* came to light--that as a result of the division of labor the working class's experiences will be so narrow and constricted that it cannot, at least solely on the basis of *these* experiences, work out a full understanding of the *totality* of capitalist relations that it would require to carry out a revolution. Such knowledge can only come through a political organization which has the capacity to synthesize these particular experiences and disparate shreds of knowledge into precisely that totality that the individual worker or group of workers (or anyone else in the society, for that matter) cannot possibly develop on their own.

In addition, once we accept that consciousness is conditioned by the structure of activity that people engage in, it follows that *only by altering that activity* can revolutionary consciousness be acquired. This is why it has always been a central premise of Marxist political organizations that their members receive a thoroughgoing education in

political, economic, and philosophical theory, and that the focus of their daily work move from the locale where they are compelled to earn their living to that of the organization. The place where people carry out much, if not most of their political work may well continue to be the individual factory, hospital, school, etc., where they spend much of their laboring time; but the work is no longer orientated to a single site, but to the aims and structures of the revolutionary organization-- i.e., to the goal of changing society as a whole.

In conclusion, we have tried to establish three basic points: First, that consciousness is intimately bound up with the totality of praxis that human beings undertake in society. Second, that a transformation of that consciousness, at least to the extent of breaking with the reified view of the world that spontaneously develops in the course of daily life, is one of the conditions for altering human activity on a ^{where} scale/the changes become generalized and socialized, and are reproduced from one generation to the next. And finally, that this is basically a political task.¹⁶

II. Preobrazhensky's Treatment of Economic Categories

As we have already intimated, the practico-active tradition in Marxism was in no way restricted to simply philosophical elaboration. In the Soviet Union, and in the Russian Social-Democratic movement prior to the Revolution, it had found its political expression in the activities of Lenin, Trotsky, and, after the Bolsheviks seized power, in the struggle of the Left Opposition. Philosophies need not always be made explicit.¹⁷ In the case of Preobrazhensky, his implicit philosophy permeates all of his writings, be they on economic theory, culture, financial policy, or politics. In the rest of this Introduction we will demonstrate this by concentrating on his theory of the inter-relation between economic activity and the transformation of class consciousness.

One aspect of the positivist legacy within Marxism is that it posits an essentially fixed, static relationship of man to nature. Nature is seen as something objectively real; its order exists independently of human intervention and attempts to discern that order; all that remains for theory is to uncover this pre-determined natural structure. The political consequences of such a theory proved devastating for the Marxist movement. If nature is fixed, and the task of science is simply to uncover that which already exists, then there is no room for human beings to try and change this outside world. We are caught in a dead end. Ideas are a reflection of reality. Yet the task of socialism is to change that reality. This in turn cannot occur unless people alter their ideas about the world. The dog chases its tail.

The Second International got out of this dilemma the only way possible. It opted for an essentially religious solution. Socialism was no longer a contingent phenomenon, for which capitalism had established the prerequisites and objective possibility; socialism became inevitable, an abstract historical "process" that would arrive regardless of human desires and activities. The obverse of this conception was bound to be political passivity. If socialism was to be a product of divine creation there was no need to struggle for it, to take risks, to jeopardize anything already gained in order to shatter the integument of capitalist production and social relations.

It seems to us that the nexus of this theory of cognition is very close to Kant's thing-in-itself. Real matter always exists objectively and outside our perceptions. It is unknowable. We can never discern the pure essence of things, for we can never abstract out that which the human mind imparts to our investigation and which immediately renders our perceptions imperfect.

This problem has been the subject of much debate within modern Marxism, not to mention more conventional philosophy. Kolakowski's

solution was to deny that the problem even existed and to conclude that the thing-in-itself was simply irrelevant, once we accepted that all that exists in nature is what we encounter and define through our practical activity within and against it.¹⁸ Although we think Kolakowski is basically correct, his formulation can give rise to a certain confusion, one which, moreover, we doubt he would have intended: He might be taken as implying that reality is only what we make it to be through our conceptualization of the environment; reality is a construct of the mind. Gramsci seems to us to have posed the question in similar terms, but subject to less ambiguity:

What are phenomena? Are they something objective, existing in and for themselves, or are they qualities which man has isolated in consequence of his practical interests (the construction of his economic life) and his scientific interests (the necessity to discover an order in the world and to describe and classify things, a necessity which is itself connected to mediated and future practical interests).

Accepting the affirmation that our knowledge of things is nothing other than ourselves, our needs and interests, that is that our knowledge is superstructure (or non-definitive philosophy), it is difficult not to think in terms of something real beyond this knowledge--not in the metaphysical sense of a "noumenon", an "unknown God or an "unknowable", *but in the concrete sense of a "relative" ignorance of reality, of something still unknown, which will however be known one day when the "physical" and intellectual instruments of mankind are more perfect, when, that is, the technical and social conditions of mankind have been changed in a progressive direction.* We are then making an historical prediction which consists simply in an act of thought that projects into the future a process of development *similar to that which has taken place from the past until today.*¹⁹

There is no denial of the "real" world or of the fact that matter exists outside our perceptions of it. The crucial point, it seems to us, however, is that as soon as we begin to make any statements about that "real" world its primeval purity must certainly vanish. Matter exists apart from our observations, well enough, but in and of itself this is completely uninteresting and has no meaning for human beings. It is the starting point of our apprehension of reality, and nothing more. This, we think, is the only valid meaning that can be given to the oft-

cited passage in the Introduction to the *Grundrisse*, where Marx affirmed the "autonomous existence outside the head" of the real world, but countered that the only way we can know that world as a "concrete totality," is as "a product of thinking and comprehending," as "a product... of the working-up of observation and conception into concepts."²⁰ The passage from Gramsci we just quoted, which is quite faithful to Marx's formulation, stresses perhaps the most fundamental point of all: The universe is always potentially knowable; what we do not know is not inherent in the nature of matter, but is a product of the limitations of human knowledge at any given point in history. No one would deny that iron ore "existed" prior to its discovery. The physical entity that we eventually came to recognize as iron long antedated man's finding and using it. But at another level this matter only became "iron ore" through the process of its social utilization. Men had to discover it, they had to test out its various properties, they had to relate the latter with other pieces of knowledge that they had already discerned from the environment; only then could they decipher how to work it up and give it the social function that we associate with the concept of "iron ore." If men had simply uncovered rocks containing the mineral and treated them as trinkets, they could have quite legitimately endowed them with any name, say, "jewelry." And so long as their social function remained ornamental the properties of "iron ore" would have been unknown--in a social sense they would not have existed. It was only human activity that gave what once were no more than rocks their properties of ore.

What, then, are laws? Do they exist outside of human activity, repositied in nature, only to be unveiled by objective enquiry? We would say, no. The ordering and inter-relation of the objects of our environment are very much a product of human enquiry, which is why what we know as scientific "laws," for example, undergo such profound change. It

is not "nature" that is changing, but the complex of human action within nature, in the process of which man uncovers new relationships that had been inaccessible to "discovery" previously. And he will discover still newer relations and associations in the future. In short, knowledge is a social process. The concepts and categories that we employ in order to make sense out of the world are not simple reflections of that world, but products of the very particular forms of activity that we undertake within it.

The positivist conception of nature, on the other hand, attributes to analytical categories fixed, naturalistic properties, as though they were physical entities. Yet if this is the case, how does analysis take place; how is theory developed? The entire question of the logical order of categories in the movement from the abstract to the concrete becomes irrelevant.²¹ Science once again becomes mere description. If, for instance, surplus value is seen as something tangible and material, it is hard to see how political economy could be anything more than an account of the technique under which this material is created and of the property relations by which it is then "stolen" from the working class. The importance of surplus value as an analytical category that conceptually expresses particular social relations is lost; and with it goes the ability to use this category to derive other, more complex categories that afford us a richer conceptual picture of social being. From another standpoint, the naturalization of categories is itself a consequence of the fetishization of social relations, where the latter appear as crystallized things. It is a direct capitulation to bourgeois economics, which sees capital as machines and quantities of money, rather than as the basic social relation that defines an historically-specific form of society.

Against this notion Rubin, among others, argued that "economic categories express different production relations among people and the

social functions which correspond to them, or the social-economic forms of things. These functions or forms have a social character because they are inherent, not in things as such, but in things which are parts of a definite social environment, namely things through which people enter into certain production relations with each other. These forms do not reflect the properties of things but the properties of the social environment."²²

Preobrazhensky, with whom Rubin seems to have shared a great deal in common from the point of view of method, delivered what is probably the best clarification of the role of categories in Marxist analysis:

What we call the categories of political economy are the logically pure, ideal descriptions of the real relations of production, exchange, and distribution which take shape on the basis of commodity-capitalist production. Under this economic system we have, if the expression may be used, congealed groups of people engaged in the process of production and distribution, as they are formed on the basis of spontaneous self-regulation of the economy by the law of value; with all the fluidity of their individual composition, these groups are constantly reproduced at each fresh state of capitalist development, forming the definite types of relations of production and distribution. The scientific descriptions of these types of relations of people to people (and not of things to things or people to things), on the basis of commodity and commodity-capitalist production, are called by Marx the categories of political economy; these categories adequately describe, therefore, the real relations under capitalism in the sphere of everyday life, but in science these relations are reproduced abstractly, in their pure forms. Rent, as a category of capitalist economics, is not the real values which the capitalist tenant pays to the owner of the land, but the distributive relation between tenant and owner which guarantees the regular pumping of part of the surplus value from one to the other. Wages and surplus value are the essence of the relations of production and distribution between workers and capitalist...the commodity is the most general category of political economy, characterizing as a whole the type of production-relations between people which is under examination as one of relations between separate independent commodity-producers, connected up into a single economic whole by a system of market relations...

...Behind the stream of things which flow, say, from the exploited workers to the capitalists, from the capitalists to the bankers or the landowners, from one branch of production to another, which are bought and sold on the market and then consumed, and so on, they [Soviet students] often fail to see the constancy of the groups of people from whom and to whom this movement goes on, that constancy of the production-relations between men under the system of commodity economy which is precisely the subject of political economy. This mental materialization of human relations which are also outwardly materialized in real life leads, likewise to an

incorrect conception of many relations in our own economy. Here, too, behind the movement of material values which *in natura* are the same as under capitalism and which often move along lines which outwardly are the same (wages, "accumulation," "rent"), behind the identity of the relation of people to nature (the same technique, "the same" workers), the changes which have taken place in production-relations are not seen.²³

We have quoted Preobrazhensky at such length because it is on this interpretation of analytical categories that his *entire theory of the Soviet economy stands or falls*. Preobrazhensky's theory, that the Soviet economy was governed not by the existence of a single economic regulator, but by the conflict of two historically distinct laws of economic activity, would not hold up without it. We will clarify this point in much greater detail below, when we discuss his theory of class consciousness.

Most Bolsheviki agreed that with the end of capitalism political economy as a science would cease to exist; after all, its object, capitalist society, would have vanished from the historical scene. Yet it would seem to have followed from this that the economic categories which formed the basis of political economy would undergo a profound transformation during the period of transition. Now, this point of view, which, as we say, would appear to ensue logically from its historical premise, was held by Preobrazhensky, but not by his opponents. Preobrazhensky was arrayed against the mainstream Bolshevik economists on this question and was almost alone in drawing this premise out to its proper conclusion.

For Preobrazhensky all economic categories were historically specific. They had to be, for they were the mental representations of social relations that were transient insofar as they were structured by a particular mode of production.

Though this proposition might seem fairly uncontroversial to a Marxist, its converse certainly was not. For if the categories applicable to the analysis of the Soviet economy were in a process of

transformation, that is, they no longer purely represented those that Marx had employed in his analysis of capitalism, yet had not attained the level of crystallization we would associate with a socialist society, then it automatically followed that at least *two different principles were at work which were determining the structure of human activity within the society*. If it could be shown, as Preobrazhensky attempted to do in *The New Economics*, that the categories of political economy no longer applied to the Soviet economy, then this fact could only be explained by the existence of two regulators. In other words, Preobrazhensky's theory of primitive socialist accumulation, which was the focus of controversy during the intra-party struggle, necessarily depended upon his methodological premise that analytical categories were both historically transient and the ideal representations of specific types of social relations. It was impossible to grant the latter without conceding the former.²⁴

In terms of the development of his theory things obviously went the other way around. It was on the basis of the analytical abstraction/^{that} two regulators were at work within the economy that Preobrazhensky was able to determine the transformation of categories within the Soviet economy. This is not the point. In the first place, this would in no way negate the fact that the two theoretical strands are inseparable. Secondly, it was only on the basis of his philosophical understanding of Marx's use of categories and of the method of abstraction in general, that Preobrazhensky was able to derive the law of primitive socialist accumulation.²⁵

Preobrazhensky's treatment of economic categories is but one indication of his appreciation of the active content of Marx's theory of consciousness. Within his general method it also showed up in the analytical primacy that he gave to the organization of human labor. It is interesting that in almost every one of his economic writings, whether

they dealt with the Soviet Union or the rise of fascism in Western Europe, his starting point was always to first define, and then explain, how human labor was organized within production. Economic theory was nothing if it was not a theory of social relations.

But Preobrazhensky was also a revolutionary. His interest in the social relations of Soviet society was not descriptive or academic. The point, as Marx's dictum goes, was to change them.

III. Preobrazhensky's Theory of the Soviet Transition

Marxists have always held that socialism entails the conscious control by society over the distribution and utilization of both its means of production and labor power towards particular ends. This presupposes that in this process society is working out qualitatively new social relations and the socialist consciousness appropriate to them. When dealing with the transition period we have the further complication that unless these social relations and this embryonic socialist consciousness are already in the process of formation the post-revolutionary transition to socialism will of necessity be abortive--at least, that is, without further fundamental social upheaval. If the division of labor, commodity fetishism, or reified production and social relations exist we cannot call such a society socialist. This, however, is not the end of the matter. The capitalist legacies that every post-capitalist society will have to overcome can either be deprived of their material basis, that is, their basis in the specific production relations of society--in which case they will wither away--or they can be more fundamentally embedded in those production relations and find there the soil for their persistence and reproduction, as was the case with the Soviet Union. Only a detailed examination of the concrete production relations of the society in question can tell us which way these manifestations of capitalism--which we must also view as analytical categories expressing particular social relations--are tending.

It is in this context that we have to situate the controversy over industrialization. Marxists have never claimed that economic development pure and simple guaranteed either the abolition of the vestiges of capitalism during the transition period or the smooth path to socialism. Material wealth and highly developed techniques make these possible and nothing more. Preobrazhensky, like all Marxists, held this view. Those who describe Preobrazhensky (or Trotsky and other members of the Left, for that matter) as a "super-industrializer" are themselves victims of the most banal Stalinist propaganda. Industrialization offered nothing more than the material prerequisite for building socialism. It made the development of socialist education and the acquisition of socialist culture, for example, possible, but not necessary.

In the Soviet Union, however, the very absence of a class conscious proletariat meant that both industrialization and education had to be the conscious decisions of the party. The problem that both Trotsky and Preobrazhensky faced was that even by the early twenties the party had already become bureaucratized. Even if there had been sufficient material wealth to industrialize the country the party would still have had to act as guardian of the proletariat's interests until the latter had acquired the numerical strength and political sophistication to manage its own affairs, something we could not expect a bureaucratized party to do. And without that wealth, we would argue, the political awakening of the working class was made virtually impossible by virtue of the Soviet Union's backwardness and political isolation.

By 1927 Preobrazhensky had concluded that the Soviet Union could successfully overcome its burdensome inheritances from capitalism in the following manner: a) The state sector must expand its material resources absolutely. By doing this it would extend the field of socialist production relations and would group ever-larger numbers of the population around *collective* production. Simultaneously socialist

education and party democracy must be extended as far as was materially possible. b)The state sector would have to accumulate the major part of its resources off of petty production and the private trading network. This was necessary to ensure the expansion of the state sector, which was too weak to accumulate what it needed on its own; to reduce the challenge of the private economy against the state sector, especially in the countryside; and to provide the basis for collective agriculture. c)While these were essential in order to attenuate the country's economic and social conflicts, they could in no way eliminate them. There could be no question of enduring success without a revolution in the West. This was true economically, so that the Soviet Union could overcome its backwardness. And it was true politically, in order to relieve the distortions imposed upon it by a hostile capitalist encirclement.

At the same time Preobrazhensky's assessment of the prospects of achieving these aims had become extremely austere. As we will show in Part IV of this thesis, he had demonstrated that, at the economic level, the contradictions within the economy were simply too deep to be resolved domestically. Every attempt at primitive socialist accumulation would entail so many other fundamental economic disruptions and set in motion such potentially dangerous social upheavals that the process as a whole could not be carried beyond a certain point without massive aid from the West. Moreover, this had to be socialist aid, since the integration of the Soviet Union into the international capitalist division of labor would effectively spell the end of the Soviet state.²⁶

The impasse, however, was not solely economic. Although Preobrazhensky never expressed it as such--at least not in writing--his entire analysis of the country's backwardness, the extent of bourgeois privilege, and the cultural primitiveness of the working class and the peasantry leads to the conclusion that the Soviet working class could not have offered a sufficient counterweight to the bureaucracy and

exercized the effective control over the transition to socialism that alone could have defended the revolution. This, too, required the guardianship of a mass-based workers' movement which could only come from outside the Soviet Union. Thus for Preobrazhensky revolution in the West becomes the lynch-pin in the entire transitional process.²⁷

III-a. The Concept of "Two Regulators"

Perhaps the pivotal concept, around which Preobrazhensky built up his entire theoretical edifice, was his recognition that the USSR's course of development was governed by the conflict of two historically antagonistic types of regulation of economic life: The law of value vs the so-called principle of planning. It was from this that Preobrazhensky worked out his famous law of primitive socialist accumulation, which he termed the historically specific form the planning principle took during the period of the Soviet Union's transition to socialism. Preobrazhensky did not deny that some form of conflict between these two laws would take place in any post-revolutionary society. Given that the socialist revolution would not take place simultaneously in every advanced country, so that the emergent socialist states would have to make certain adaptations to the capitalist market, and given the fact that some forms of private production and exchange would remain in the period immediately following the proletarian seizure of power and the socialization of the means of production, central credit institutions, transport, etc., this conflict was inevitable. There was no reason to suppose, however, that the law of value would find in the transitional society any basis for its prolonged survival, much less the constant reproduction of the specific production relations to which it gives rise.

What was unique about the Soviet Union was not that the law of value existed, but that it thrived. Far from being transformed "simply

into laws of resistance to the new form," i.e., socialism, the law of value penetrated in some way or another into every aspect of the Soviet economy and society. It is important, however, to distinguish the various forms the law of value assumed in the Soviet Union at this time, for only then can we properly assess the distortions it imposed upon the state sector's economic development and the *depth* to which it penetrated its production relations.

It is almost self-evident why Preobrazhensky considered this economic duality so crucial. The law of value and the law of primitive socialist accumulation each represent distinct modes of organizing human labor power and each, therefore, will give rise to qualitatively different types of social relations. The social relations corresponding to a society organized on the basis of the law of value (simple commodity and capitalist production) have nothing in common with, and are indeed incompatible with those that arise out of socialism and planning. If, as Preobrazhensky often chided his critics, the law of value was the sole regulator in the economy, how was it that the Soviet Union was constructing different production relations and a different distribution of the productive forces--means of production and labor power--than we find under capitalism?

In our state economy we have a distribution of labor which could not be maintained if the law of value were operating, nor if the law of labor-expenditure were operating in its pure form, that is, if production for demand prevailed. This is because the existing distribution of labor has also to meet the task of *reproducing the given system* (that of collective state economy) *on an expanding scale*, in spite of the fact that, technically and economically, the state economy is as yet weaker than capitalism, and expanded reproduction of relations of a certain type, which are linked with a backward level of technique is quite irrational from the standpoint of the world law of value and can take place only on the basis of struggle against this law.²⁸

It is significant that Preobrazhensky had first arrived at this theory of conflicting regulators quite early in the twenties, in an article published in 1921, and that he had done so by examining the pal-

pable reality of the class conflict that existed within the country.²⁹ This had its roots in the fundamentally different ways in which petty production (primarily agriculture) and the state economy were organized, and found its expression in "two different 'natural laws of development' in the territory of the Soviet republic--two laws that are centuries apart on the scale of history, but which, by the irony of fate, are operating in the same country and at the same time." One of these, the "natural law of development" of petty-commodity production, was known well enough from the past history of capitalism and of pre-revolutionary Russia. The other, however, the "laws of development of socialist accumulation and the development of socialist relations" were historically unprecedented and were known only in their barest outlines. What is more, these laws would work themselves out in the historically peculiar circumstances of the USSR which, as Preobrazhensky emphasized, were "by no means characteristic of the future development of socialist relations in the West."³⁰

Preobrazhensky went on in this article to explain how these two systems of production could coexist for a time, until the state and private economies had each got back on their respective feet and faced the problems of positive accumulation. Then the conflict between their particular types of production relations would come to the fore. The kulaks and private merchants would press for a widening of market relations, the employment of wage labor, the relaxation of the monopoly of foreign trade, etc. On its part the state would find that it would have "to make deductions" from the private sector. Preobrazhensky left open the actual political form this collision would take, whether via attempted foreign intervention and open domestic revolt, or through an attempt on the part of the private merchants and producers to strangle the state economy by means of their control over agricultural supplies (which is how events actually unfolded in the mid-twenties). What is important

is that Preobrazhensky had here put forward the basic shell of most of his later analysis of the twenties, including the embryo of the theory of primitive socialist accumulation and its assertion that sooner or later the state sector would have to subordinate and subsume the private one.

Private production, then, was one form--and the most visible--that the law of value took in the Soviet economy; and it was clear that the state sector could subordinate it only through the market, which was the common meeting ground of the two systems. This was due to the nature of private production. Agriculture was not even remotely subject to state control and/or planning for the simple reason that it could not be planned. Had Soviet agriculture grown up on the basis of large-scale capitalist, i.e., industrial farming, with large units worked by relatively few workers, the matter would have been different. But this was petty production, peasant agriculture, with its millions of small holdings, whose relationship with each other was through commodity exchange, via the market. Thus the junction at which the state and private economies would meet would itself be the market. The state could subordinate private production and trade by means of its price policy and by developing the technical superiority of state industry as a lever of competition; it could accumulate off of the private sector by issuing loans through the state bank and accumulating the interest; it could develop its own trading network and oust that of private trade; it could use the monopoly of foreign trade to purchase peasant grain below world market prices and export it at world prices, thus using the differential to purchase relatively cheaper foreign-made producer goods. But all of these methods of gaining economic, and ultimately political and social superiority over the private sector meant that the state made *adaptations* to the private economy's structure, either to peasant agriculture and private trade inside the country, or to the

world market. Preobrazhensky consistently emphasized that by exercising political control over this process, and by achieving economic control through the development of state industry, the state would transform the essence of these market relations. Their external form might be that of capitalism, but their content would alter, and the market--along with the economic relations it presupposed--would become a tool for advancing the state economy and concurrently subordinating petty production.

It is not difficult to imagine the extent to which this conflict introduced severe distortions into the state economy. The state was not free to allocate its means of production and labor power according to its own inherent needs, but always had to adjust its internal division of labor to meet the demands of the peasant market. Similarly, it depended on private agriculture for vital supplies of grains and raw materials which, if not forthcoming, would disrupt the entire process of reconstruction. The same held true for the inter-relations between the Soviet economy and the world market, although the distortions here were somewhat tempered--negatively by the relatively low level of interaction between the two, and positively by the monopoly of foreign trade.

The aspect of the law of value that we have just described is quite independent of its other side, which consisted of the persistence of bourgeois norms in the production relations of the state sector, primarily in industry. In analyzing the influence of the law of value upon the state economy it is absolutely essential that we distinguish between those capitalist forms the state was compelled to adopt because it was producing for the market and those that were forced upon it because of its own *internal* weaknesses. Phenomenologically the consequences of these two factors may have been indistinguishable, but conceptually we must keep them apart.³¹ The fact that the state had to produce more tractors for sale to the countryside, that to do so it

first had to build factories it did not possess, and that as a result it had to accumulate at the expense of the wages of the working class and thus retard the growth of the latter's standard of living--all this had little directly to do with the fact that the state had to use piece-rates as the only means to get the workers in the plants to labor at maximum productivity, or that the factories themselves were managed by non-proletarian specialists. The latter derived from the combination of a low level of technology, an unskilled and *historically young* (and hence uncultured) labor force, and the absence of extensive interconnections between the various branches of the state economy--all of which meant that under NEP state enterprises and trusts had to produce according to capitalist methods of accounting and management. The fact that the need to restore industry so rapidly and to such a sweeping extent coincided with tremendous material scarcity and a working class that was both numerically weak and politically and culturally unable to manage industry on its own had a special significance. For as a result the state sector had to employ strictly bourgeois labor incentives at the same time that non-Bolshevik, *non-socialist* specialists dominated managerial ranks and enjoyed bourgeois material privileges.

If we accept that planning requires the direct democratic control of the producers over the distribution and application of society's productive resources, then planning in any meaningful sense of the term was impossible in the Soviet Union. While it is true that state industry could act as a concerted whole more than any capitalist economy, nevertheless the *capitalist* and *bourgeois* forms that the state sector either inherited from the old society or had to adopt effectively meant that planning was something towards which the state economy was *tending* but for which it did not currently have either the material or human resources.

Ultimately, of course, these external and internal manifestations

of the law of value shared a single cause--the tremendous poverty of the country. Suppose, to pursue our original example, there had been a revolution in Western Europe and a sudden infusion of tractors into the Soviet Union. This would have greatly relaxed the pressures on Soviet industry and alleviated many of the distortions associated with them. But it would not have done away with the need for a bourgeois wage system and a hierarchical system of plant management, which were a function of the low level of working class culture. The material means for gradually doing away with these bourgeois norms would have now been on hand, but the norms themselves would have remained.

Therefore the bourgeois forms that interlaced state production (and there was no revolution in the West to help overcome them) were not just capitalist residua of the kind Marx described in *The Critique of the Gotha Program*--that is, their withering away was not guaranteed. Rather they were fundamentally rooted in the very process of production and distribution. As such, *if left to develop on their own* they would *perpetuate* bourgeois consciousness within the working class and would reproduce alienated, if not fetishized and reified social relations within the state sector; it goes without saying that the abolition of capitalist relations in the countryside would have become virtually impossible under such circumstances.

We say "if left to develop on their own" precisely because these forms were not allowed to. That is how things would have turned out if the law of value had enjoyed free rein. We do not, however, mean to imply that the production relations in the state sector were bourgeois. They were not. Instead these production relations were highly unstable and contradictory, where the bourgeois tendencies in them were organic, rather than residual.

It is consistent with the economistic interpretation of Preobrazhensky that most people pay almost exclusive attention to the parts

of *The New Economics* devoted to the law of primitive socialist accumulation and the conflict between the private and state economies. Even here the subject is treated from a narrow economic point of view. As a result the whole question of production relations in the Soviet Union gets pushed to one side, in spite of the fact that Preobrazhensky dealt with this question at great length in the chapter entitled "The Law of Value in the Soviet Economy," a chapter which from a methodological standpoint is crucial to understanding Preobrazhensky's theory of the transitional society. It is here that Preobrazhensky assessed the extent to which the law of value influenced the internal workings of the state economy. His starting point was his view -- already discussed by us in the previous section -- that in the transitional society Marx's categories of political economy, such as commodity, surplus value, wages, profit, etc., would undergo such substantial modification as to become new categories expressing the essence of the qualitatively different production and social relations that were emerging. For instance, the commodity would become the product of state industry, surplus value would become simply surplus product, wages would become the consumer ration of the worker, and so on. It was only by analyzing the degree to which these categories had already withered away and the *tendencies* of this movement in the future that one could properly define the production relations within the state economy.

The property relations in the state sector were naturally anything but bourgeois. The fact that the "commanding heights" of industry and finance had been socialized brought with it a certain logic which demanded the extension of these gains at the expense of the non-socialist elements of the economy. This was what Preobrazhensky's law of primitive socialist accumulation was intended to explain. To the extent that the state was successful it meant the further erosion of the bourgeois legacies within state production, e.g., increasing cen-

tralization of industry and the abolition of the market would be reflected in the attenuation and gradual elimination of the category of commodity. But against this were arrayed a whole series of characteristics that tended in a capitalist direction: The piece-wage, the need for labor power to be sold as a commodity, bourgeois privileges for specialists and managers, etc.

What Preobrazhensky did not, and probably could not have seen at the time was that the social relations these bourgeois forms implied were so potentially strong, even within the state sector. We are referring specifically to the bureaucracy, *which was a non-proletarian stratum within the state economy and apparatus and which found its material basis precisely in the capitalist elements of state production.* On the surface these appeared mainly as bourgeois forms of distribution. But in the USSR bourgeois labor incentives and bourgeois norms of distribution were not distributive problems. They stemmed from production relations which had not yet congealed in a socialist direction and which eventually--with the appropriation of power by the bureaucracy--allowed these distributive relationships to be reproduced. If, as Preobrazhensky determined, the category of surplus value was *only in the process* of being transformed into surplus product, or if the category of wages was merely *growing over* ^{into} a consumer ration, then the social relations that the transitional status of these categories described were themselves highly contradictory and were embodied, at least potentially, in coherent social forces. Within the conflict between the law of value and the law of primitive socialist accumulation there stood not just the class conflict of the proletariat with capitalist social groups, but also the nascent conflict between the proletariat and the bureaucracy. In terms of production this found expression in the particular relationship between the working class and the layer of managers, specialists, and party functionaries who came to exercise control over the

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means of production and the system of distribution. This does not mean that the bureaucracy was a new class of capitalists. The law of value was genuinely abolished in the Soviet Union, but only by establishing relations of production which, though capable of a temporary consolidation and consequent reproduction, are nevertheless inherently unstable. This is explained by the fact that the bureaucracy was unable to appropriate power and control other than through the property relations that had survived with the revolution and on the basis of adopting "marxism" as its legitimating ideology.

There is a certain symmetry to the bourgeois influences upon the state sector which is worth noting because of its profound consequences. The very circumstances that allowed the bureaucracy to nurture itself on the bourgeois tissue within state production at the same time undermined the social basis of that sector's socialist element, i.e., the proletariat. For it was precisely the weakness of the proletariat and its cultural backwardness that made the application of bourgeois norms unavoidable. The working class--and even more so the peasantry--could only enter into production relations where there were strong bourgeois elements because they could not be induced to work at any reasonable level of productivity in any other way. Preobrazhensky emphasized this point time and again during the twenties and, as we shall show, noted that at a certain moment it would act as a real brake upon the progress of the state economy. Bourgeois norms, which largely arose out of the fact that the working class was not able to manage production in its own interests, soon became one of the factors that *ensured the perpetuation* of that state of affairs. Their persistence effectively deprived it of the internal cohesion and the rudiments of socialist consciousness that would have allowed it to contest with the bureaucracy for power.

Preobrazhensky had defined the production relations in the state

economy as being a highly contradictory and untenable cohabitation of capitalist and socialist elements. His theory of primitive socialist accumulation was intended to show what was necessary if these production relations were to change and the conflicts resolved in a socialist direction. He accorded the acquisition by the proletariat of socialist consciousness a central role in this process, for without it the Soviet Union's social relations could never take on a truly socialist character. And this, we would argue, led him into a political position that was itself contradictory.

III-b. Culture, Class Consciousness, and the Development of Industry

Throughout his writings in the twenties Preobrazhensky noted that the development of state industry was always limited not just by economic factors, but by the low cultural level of the population in general and of the working class in particular. There was, however, an important shift in emphasis over the course of this period. The early writings, while defining the problem, more or less confined themselves to outlining what would have to be done to overcome this particular aspect of Soviet backwardness. The later works, on the other hand, focus on the working class's level of culture and class consciousness as a fundamental source of tension and contradiction within the Soviet system. The need to accumulate conflicted with the need to rapidly provide the material resources essential for the expansion of socialist education and culture. Without the latter, however, industrialization of a socialist type would soon run into a dead end.

In 1927 he complained that "the enormous non-productive expenditures of the state and cooperative trade and industrial apparatus...are due not only to the general low level of development of the productive forces in the state sector, but also to the rudimentary level of socialist culture of the working class itself. The culture of all bodies

of society always tends to be drawn to the same level as that of the ruling class. Raising the cultural level of Soviet society means above all raising the cultural level of the working class. A steady rise in the material standard of living of the proletariat is necessary not only for social reasons, but for economic reasons as well."³² Behind this conclusion stood a well-worked out theory of consciousness and culture that Preobrazhensky had stated most explicitly in his two books *From NEP To Socialism* and *On Morality and Class Norms*, which appeared in 1922 and 1923 respectively. Of these the latter is the more important from this aspect, as it contains the most detailed statement on the topic of culture Preobrazhensky was to make.³³

One of the striking things about *On Morality and Class Norms* is its consistency with Preobrazhensky's economic writings and his general methodological approach to the transitional society. Like his early formulations of his economic theories, this book was also written to tackle a specific political problem, namely the inadequacy of previous Marxist investigations into the questions of morality and norms of behavior, primarily from the direction of analyzing their class content, forms of ideological expression, and their historical specificity and transience. In overthrowing capitalism the proletariat breaks through the old norms of behavior of the ruling class, but does so before it has worked out new norms appropriate to a socialist society, or even to its struggle to create such a society. The content of the book was therefore highly practical. It was written as a popular manual for party activists to enable them to clarify their ideas on what he considered a critical aspect of socialist construction. In discussing the book we should keep in mind that it is not a theory of class consciousness per se, much less a theory of how the individual acquires knowledge or how individual consciousness is formed.

Morality, as a constituent part of ideology in general, obviously

has a determinate link with the historical and material interests of a class. It would be wrong, however, to assume either a crude correspondence between class interests and articulated morality or that a class is fully conscious of its own interests in the first place. Classes, and ruling classes in particular, have always formulated their momentary, historically-determined needs as general moral truths, and it is in this way that ruling classes have been able to impose their morality upon subordinate classes and reinforce their class domination.

Matters become extremely complex, however, with regard to these subordinate classes. They too, have class interests, which necessarily conflict with those of the ruling class. In the course of their daily life and the development of the class struggle they work out a system of class norms and moral principles that correspond to the demands of that struggle and help give the subordinate classes coherence and internal strength. The problem is that these principles never emerge in pure form. They are constantly influenced by, and intermingle with the moral values inherited from the dominant class, or which the latter imposes upon them. Thus historically we see that the ruling class uses religion to justify its wealth and domination, while the masses invoke it (to the extent that they have not completely freed themselves from religious mystification) as an ideological basis for their opposition to this same wealth and class oppression. This, of course, was particularly true of utopian movements.

Like any other ideological form, e.g., art, literature, philosophy, etc., the morality of the ruling class must broadly conform to its class interests. If it did not, if its morality constantly demanded that the ruling class act in opposition to its objective interests, to its role in production, or to its historical role at a given point in society's overall development, then the ruling class would find itself in an impossible position: Everything it did would contradict everything

that its system of morality said it ought to do. This much should be obvious. Preobrazhensky then adds:

Matters stand otherwise as regards the morality of the oppressed class, in the sense that here it is difficult to follow the connection between the morality that actually dominates the practice of a class and the interests of the given class. This is because the oppressed class is not always conscious of its class interests; and its functioning morality at a given stage of the class's development thus might not correspond to its class interests. The oppressed class first takes shape as a class in-itself (*an sich*), that is, it occupies a definite social position with regard to the other classes of society; and only then, sometimes by means of a formation of its class consciousness that takes many years, is it transformed into a class for-itself (*für sich*), that is, into a class which is conscious of its interests and which has constituted itself under the circumstances of being surrounded by other classes. And here, while the oppressed class still has not constituted itself in this way, at a definite period of its existence it is led not by its own inherent class norms, which answer its own class interests, but is under the thumb of the ruling morality, that is, of the morality of the class which dominates economically and politically.³⁴

...we see that morality in class society is always class morality; but often a class is led by the morality of another class, to which it is economically subordinated, and with the ideology of which it has not yet broken. Thus for the oppressed classes it is necessary to seek their specific class norms not in the period of the birth of these classes, and not in the first steps of class struggle, but in the period of the formation of the class "for-itself," in the period of sharp class conflict with enemy classes, and finally in the period of rule of the new class in the economy and politics of the country.³⁵

Class norms do not cease to exist merely with the seizure of power, any more than other vestiges of bourgeois society regarding either the economy or the state. The proletariat will have evolved a system of class norms during the period of its struggle for power, when it utilized them to help bond itself, as Preobrazhensky calls it, into a unified fighting force. But though some of its interests may change after the revolution, so long as the proletariat continues to exist as a *class* it will require some form of class norms. These norms will change their content, to be sure; but they will still remain until such time as class divisions themselves have been liquidated and class norms have been transformed into general social norms.³⁶

In *The New Economics* Preobrazhensky elaborated in some detail the

structural and historical differences between capitalist primitive accumulation and the period of primitive socialist accumulation. In the former case, capitalism of necessity began its primitive accumulation within "the pores" of feudal society. It could conquer economically simply by building a handful of manufactories, which immediately demonstrated their superiority over craft production and made the latter's eventual destruction inevitable. In the same way the establishment of these manufactories presupposed a prior accumulation of resources which had also been acquired *within* pre-capitalist economy, i.e., the plunder of petty production by merchant capital. In this sense the political revolution under capitalism "is only an episode in the process of bourgeois development, which begins long before the revolution and goes on more rapidly after it." It is both an affirmation of this already-established capitalist superiority and one of the preconditions for generalizing it and placing capitalist production relations on a footing where they attain constancy and reproduction.

The proletariat enjoys no such luxury. Its primitive accumulation can begin only after the proletarian revolution, when the forms of property have been completely altered and adapted to the future construction of socialism. It is impossible to socialize the economy piecemeal, within capitalism. Capitalist property relations and political institutions simply do not permit it. It is only after the working class has taken power that it can organize the economic resources into that real infrastructure which will give socialist production relations that reproducible stability which makes it a mode of production. Here again we see the importance of the conscious element in the transition period. A socialist economy, like socialist society as a whole, will not evolve spontaneously. It must be planned for, with each step along the way anticipated in advance and consciously put into practice.

It is similar with the question of class consciousness. The pro-

letariat cannot create a genuinely socialist culture until after the revolution, because such a culture can only grow up out of new social relations that have yet to be built and developed. Of course the rudiments of that culture will be formed under capitalism out of the specific practice of the proletariat in its struggle to overthrow the old regime. Nevertheless, the fact remains that culture is not something abstract that can be willed or "consciously" adopted. It must come organically out of relations of production whose emergence requires prior planning and control by the working class. The contrast that Preobrazhensky drew between capitalist and socialist primary accumulation applies not simply to economics but to his conception of the transitional society in general. Socialist consciousness presupposes the preliminary "accumulation" of a certain level of culture and certain habits of work and behavior on the part of the working class which, though beginning under capitalism, cannot be completed until after its overthrow.³⁷

In the field of culture, as in economic development, the Soviet Union suffered from a chronic lack of correspondence between what it had to do and what it had the means to accomplish. Here it was a question not just of physical wealth but of the so-called "human material" the country had inherited from capitalist Russia. Rather than having a cohesive working class with a mature class consciousness, the most class conscious sections of the proletariat--which had been a minority of the population in any case--had been killed in the civil war, leaving a working class which was raw, which was newly recruited from the countryside, and which brought with it not a proletarian consciousness formed in the course of the class struggle, but a peasant consciousness which was only on the verge of becoming proletarian. We should not underestimate the depth of this "medievalism"³⁸ in Soviet society. Lenin, in his last article, "Better Fewer, But Better," lamented the absence of even real bourgeois culture among the working class, not to

mention the remainder of the population, and characterized Russia as having a "pre-bourgeois culture, i.e., bureaucratic culture or serf culture," which had still to be supplanted. "Our state apparatus," Lenin went on, "is so deplorable, not to say wrteched, that we must first think very carefully how to combat its defects, bearing in mind that these defects are rooted in the past, which, although it has been overthrown, has not yet been overcome, has not yet reached the stage of a culture that has receded into the distant past. I say culture deliberately, because in these matters we can only regard as achieved what has become part and parcel of our culture, of our social life, our habits." "...the workers...are not sufficiently educated. They would like to build a better apparatus for us, but they do not know how. They cannot build one. They have not yet developed the culture required for this; and it is culture that is required."³⁹ Preobrazhensky echoed this theme throughout the twenties. In *From NEP To Socialism* there are repeated references to the backward culture of the Soviet working class, which lagged far behind that of the bourgeois enemies of the Soviet state both at home and abroad, and which placed the proletariat at a serious disadvantage in its struggle against them. A few years later, as we have already cited, he identified this lack of culture as an actual impediment to the further advancement of industry. We could draw an apt analogy with the theory of permanent revolution. It was not the Russian bourgeoisie but the proletariat that would have to lead the masses out of their semi-feudal way of looking at the world and their semi-feudal way of life. In this sphere, as in those of politics and economics, the proletariat and the mass of the population would have to work out during the transition to socialism what they should have acquired under capitalism.

This is why we emphasized in the previous section that it was the existence of the market, nor the internal disarray of the state economy

that necessitated the application of bourgeois norms of distribution and labor incentives within the state sector, but primarily this low level of culture among the proletariat.⁴⁰ The other side of this dilemma was that attempts to rectify the situation came up against the intense poverty of the country.

In his discussion of wages in *From NEP To Socialism* Preobrazhensky dwelt at length on the connection between the "human material" inherited from capitalism and the Civil War and the application of capitalist labor incentives. Even communists, he noted, did not know how to trade or how to manage enterprises, while the mass of the people was, as he said, "tainted by capitalism, with a psychology which is a field of battle between 'yesterday' and 'tomorrow.'" And so it was the piece-rate system--the capitalist wage form *par excellence*--that predominated in Soviet industry under NEP. The question Preobrazhensky posed was how would the evolution of new wage forms correspond to and *facilitate* the emergence of new attitudes towards work more in keeping with the development of socialist consciousness? Preobrazhensky maintained that there had to be a gradual transition away from individual work incentives towards collective ones. He insisted that the piece-wage must go as soon as possible and that it was necessary to begin paying workers not according to their individual output, but in line with the output and relative efficiency of the plant or even branch of industry in which they worked. He advocated a system of collective bonuses, where, in addition to the individual wage, all of the workers in a section, plant, or industry would receive a bonus insofar as they economized on production costs, boosted output, improved quality, etc. He hoped that eventually all wages would be paid in this way. The objective, as it should be fairly clear, was to move workers away from a consciousness of themselves as part of a collective. Gradually the very incentive to work would change, and the next generation of workers would feel

responsible not to the individual job and their private remuneration, but to the entire factory or branch of production, i.e., to their fellow workers.⁴¹

Preobrazhensky repeated this argument in *The New Economics*, stating that "socialist incentives to labor do not drop from heaven; they have to be developed through prolonged re-education of human nature as it has been shaped in commodity economy, re-education in the spirit of collective relations of production." He warned that "the piece-wage system may at a certain moment begin to act as a brake on the new system of organizing labor and the education of people in new stimuli to labor, even where it is applicable technically. Undoubtedly, in proportion as the socialist elements in our economy are intensified we are brought up against the need to go over to a combined method of individual and collective payment and we can regard as certain a transition in the future to payment of the 'collective worker' instead of payment to the individual worker for an individual job of work."⁴² His admonitions were fully justified. In the same passages he attacked the inaction of the leadership in implementing any sort of new wages policy. "We undoubtedly often copy capitalist relations even where this is not only not necessary in order to raise the productivity of labor but where such copying is directly harmful from the economic and cultural standpoint."

Yet even in the early stages of his thinking Preobrazhensky noted that such transitional forms of wage payments could eliminate only some of the inherent inequalities within the working class. Others would inevitably remain. There were, for instance, inequalities between more economically favored enterprises (those that were very productive, had special strategic importance, or could return to full output with little capital renewal) and those whose productivity was low. Obviously the workers in each of these would earn different incomes so long as

equal norms were applied. Likewise there would continue to exist inequalities between workers who would be paid the same, but who had different needs, e.g., married versus single workers. And of course there was the most basic inequality of all, in the division between skilled and unskilled workers. These inequalities, Preobrazhensky pointed out, went beyond the capacity of transitional methods of wage payments and labor incentives to solve them. Their solution lay in overall economic growth and the attainment of greater proportionality between the sectors of the economy--that is, the economy *as a whole* would have to overcome its basic poverty.

The situation was very similar with regard to the family, which Preobrazhensky wrote about in *On Morality and Class Norms*. In dealing, he said, with questions of personal behavior such as sexual relations, one had to be careful to distinguish between those aspects which had genuine public political consequences and those which were purely personal and did not actually affect the struggle for socialism. Preobrazhensky considered that the type of sexual relations that individuals entered into were just such questions of taste and could not be dictated from outside, *provided that society could solve the problem of introducing collective education and social upbringing of children*. As for personal sexual relations, society would work out its own patterns of sexual conduct in the course of the transition. The matter was made all the more complicated, however, by the fact that people tended to pass off their personal preferences as universal political truths. Against this Preobrazhensky maintained that once the question of personal sexual relations was divorced from the social problem of the family and particularly the raising of children, these would cease to be of political concern to society. Thus he gave paramount importance to two questions: 1) Social responsibility for educating and rearing children and 2) the related question of the economic and political liberation of women.

Preobrazhensky insisted that communists must defend the principle of equality between the sexes in sharing responsibilities and social obligations. Under no circumstances could the major burden of educating and raising children fall upon women workers, who were in, in fact, materially worse off than men. It is quite obvious that so long as women remained tied to the household they could not participate fully as communists in the task of social reconstruction. Ideally society would be rich enough to afford a comprehensive system of social education and bringing up children. As in every other aspect of the society, new, socialist forms of education would be needed in order to produce future generations of socialist cadre. The problem in the Soviet Union was that these material resources did not exist, and such forms of social education could only remain embryonic. Given this fact, Preobrazhensky said, the family would continue as a primary unit of raising children, with the result that within the household these responsibilities must be shared equally between women and men.⁴³

This is where Preobrazhensky left the matter, but the dilemma he posed here is revealing. If the society were wealthy enough to socialize education and child rearing, then the personal relations between men and women would, at least to a significant extent, lose their political character. They would continue as questions of "personal taste" until such time as society had evolved new types of personal relations in line with its other new forms of economic and social organization. But in the Soviet Union this could not happen. Precisely because it did not have the resources to socialize education, personal and family relations between the sexes retained a social function, as under capitalism. What *should* have been relegated to the essentially non-political realm of free choice and experimentation *could not be*. Once again a real qualitative break with bourgeois modes of behavior was not materially possible, and would not be possible until the society had acquired sufficient economic wealth.

Of all the examples we could cite from these early writings to show how closely the persistence of bourgeois patterns of behavior and bourgeois consciousness were linked to the country's poverty, the most politically important is undoubtedly Preobrazhensky's discussion of the internal life of the party (again in *On Morality and Class Norms*). Here Preobrazhensky went out of his way to attack two ailments in particular: The pervasiveness of lying and deception within party ranks, and the emerging bureaucratism associated with material inequalities and privileges. This aspect of Preobrazhensky's work is hardly surprising, since it clearly went hand in hand with the political fight the Left was preparing at this same time.

As to the first of these, the propensity of party members and other government officials to deceive one another as a more or less common practice, Preobrazhensky drew the distinction between conduct which may have been *necessary* before the revolution, and that which is *permissible* during the period of socialist construction. When the party operated under conditions of clandestinity then obviously members had to resort to all kinds of ruses and lies in order to advance the struggle and keep the movement intact. But what might have been unavoidable then was now impermissible in relations within the working class and between communists. This was far more than a question of "re-educating" the working class: It was a serious problem *within the party itself*. And it was here, inside the party and among the vanguard of the working class that the effort to do away with this especially pernicious legacy of capitalism had to begin. Preobrazhensky's prognosis of what would happen if matters continued to drift in this sphere is most interesting. On the one hand, economic efficiency would be impossible. When you had, as he described, people within the state apparatus fabricating statistics and tables as a matter of course, and simply having no sense of responsibility for the veracity of their word, the economy

simply could not function. On the other hand, such behavior could only lead to profound demoralization within the ranks of the party and working class. In light of the Soviet Union's subsequent development and the institutionalized misinformation that passes from plant level to the center, we can appreciate Preobrazhensky's insight. Here again was an instance of the worst bourgeois habits directly impeding the development of a socialist economy.

Related to the question of lying and deception was that of material inequality, graft, and corruption within the party and state machine. Preobrazhensky rejected what he termed reactionary cries for the blanket levelling of standards of living, arguing that any analysis of the question had to start from what could actually be achieved in the given material conditions, and not from some abstract principle. He went on, however, to make a strong attack on the growth of inequality within the party, which had far exceeded what was called for by the need to sustain the party's most important cadre, and which posed the danger of a bureaucratic degeneration.

Thus as regards the situation within the working class as a whole this protest against inequality is in essence a protest against the fact that socialism grows out of capitalism. This protest is reactionary if at its basis lies a striving for a petty bourgeois equality which takes no account of the needs of production. It can be progressive to the extent that it represents a protest on the part of the growing socialist consciousness of the workers against the residue of capitalist relations and is directed above all against those forms of inequality which in no way arise out of the necessities of production...This inequality within the communist party and the privileged position of certain of its layers, which goes far beyond the bounds of the purely physical protection of the party's most important cadre from exhaustion, is extraordinarily harmful in that it can lead to a struggle to maintain these privileged positions, to the ossification of the tissue of the party, to careerism, and to the bureaucratic degeneration [*chinovnichee pererozhdenie*] of certain party layers. This process will be all the more dangerous as increasing numbers of newly-trained youth pour into leading posts within the party and Soviet apparatus and as these forces encounter an opposition that is in noway dictated by the interests of socialist construction.⁴⁴

It is worth observing that what Preobrazhensky did not warn against here was the fact that these youth who did take up party and state jobs

would not necessarily be trained and educated to defend "the interests of socialist construction," but would themselves enter into a bureaucratic structure where they would enjoy--and learn to defend--a privileged position.

The unifying thread of all these examples--wages, the family, and internal party life--is that none of the problems they refer to could be resolved in an environment of scarcity and where the working class was in a position to exercise control over the reconstruction process. Man's consciousness, as Marx emphasized time and again in *The German Ideology*, is molded by the way he is organized to satisfy his material needs. In these terms the Soviet Union was clearly contradictory, as we attempted to show in the preceding section. The state sector was compelled towards greater planning, greater socialization of production, and ultimately towards greater self-consciousness of its own paths of development. Yet it was also forced to organize production and to organize labor in ways that were incompatible with socialism, but which were borrowed from its capitalist past or were imposed upon it by its encirclement, both internally and abroad. State industry worked not just for itself, but for the peasant and international markets. And to so it had/distribute its resources accordingly. It could not even begin to produce strictly for human need. At the same time, even where it did produce for itself it had to organize labor power largely according to capitalist methods. Up until 1924 Preobrazhensky did not really treat this antagonism as an integral contradiction of the Soviet system, although he had both identified its individual aspects and analyzed them in some detail. Because he was speaking largely hypothetically, because he was using "descriptive" accounts to actually advocate a political position inside the party, he assumed, at least on the surface, that these problems would be overcome. His aim, we think, was to defend and fortify a very basic Marxist principle within the party:

Socialist development in the Soviet Union had certain fundamental economic and political prerequisites, specifically the industrialization of both industry and agriculture and a simultaneous, but dependent, reshaping of the "human material" that had to carry out this task.

It is true that matters advanced very slowly in this respect [the institution of the collective wage system], because the triumph of the new form of wages was closely connected, as we have already said, with a growth in the level of culture and consciousness of the working class which was not attained in a few years. How difficult was the advance in this direction can be seen from the fact that we have still not achieved communist distribution.⁴⁵ Here it is a question of transforming the human character in the expectation that there will come to be done by instinct what was formerly done by compulsion or by the promise of material reward, or else was an act of collective enthusiasm and self-sacrifice. The replacement of one generation by another, and a new system of education, was needed before the new collective man could replace the individualist of the period of commodity production. The moment when collective incentives become dominant in the working class, as compared with individual incentives, is a triumphant moment in the building of socialism, of *no less importance for the future than the socialization of the instruments of production.*⁴⁶

Preobrazhensky repeated this theme in *On Morality and Class Norms*:

This revolution in public opinion, with which the revolution in norms of behavior is connected, has a colossal significance. The construction of socialism in those areas which concern man, his habits, his instincts, class norms, this construction begins with the beginning of this revolution in the psychology of the average worker-organizer. Now the industry of the workers' state begins to acquire the worker it deserves, *without whom it is not socialist industry.*⁴⁷

It would be difficult to overemphasize the importance of these passages. For a long time in the Marxist movement, and in the Trotskyist movement in particular, there has been a tendency to equate "the productive forces" with the means of production, and to perceive the working class as standing outside and apart from the latter as a so-called "subjective factor." This introduces a specious and politically dangerous dichotomy between the so-called "objective factors" (the productive forces-qua-means of production and the historical presence of the working class) and the "subjective factors" (i.e., the consciousness of the working class) in revolutionary politics. Thus being is counterposed to consciousness. Such formulations beg the questions of

how this consciousness is formed in the first place and its relationship to the way in which the working class is organized around the means of production. At the same time it excludes the working class as an active agent in actually defining the stage of development the productive forces have attained at any given moment in history; it need only be "convinced" of the necessity of revolution and events will take care of themselves. Trotsky himself made a number of such statements, which has left a rather unfortunate political legacy--although Trotsky's own politics implicitly contained an altogether different conception of the relation between consciousness and praxis.⁴⁸ Although Preobrazhensky referred, both in *The New Economics* and his 1927 article, to the rudimentary level of class consciousness impeding the development of the productive forces, he elsewhere carefully defined the productive forces as embracing both means of production and the proletariat.⁴⁹ Therefore, both in a formal linguistic sense and in his usage of his terminology in the passages cited above (in addition to numerous others), Preobrazhensky explicitly denied this duality between the activity of the working class and the way it is organized in relation to the means of production, on the one hand, and its consciousness of that activity on the other. The productive forces are not synonymous with the means of production, but encompass the proletariat as an *active*, and not as a passive agent. Any talk about the "development of the productive forces" must therefore include the proletariat and *its level of class consciousness*. Otherwise we have no way of differentiating the particular stages through which capitalism and the class struggle pass. This is not to say, as some Maoists maintain, that class consciousness is "a productive force." Quite the contrary. It is the working class, as the embodiment of human labor power, that is a productive force, and its class consciousness is one of its defining characteristics. This is especially true under socialism, where the development of class

consciousness must be a consciously-articulated aim of the workers' state. Socialism cannot be conceived as consisting of the development of the means of production alone--no Marxist could take such a view--but only in terms of the development of the productive forces as a whole, that is, the material and human resources of society simultaneously. If the lack of correspondence between the development of the human and technical aspects of the productive forces is too great, if the material resources do not exist or if, conversely, the working class's relation to them is structured in such a way that "the new collective man," as Preobrazhensky called it, does not emerge, the transition to socialism will be bottled up and will flounder.

III-c. The Impossibility of Socialism In One Country

Although Preobrazhensky insisted upon and defended Marx's position on the indissoluble and organic connection between consciousness and the material basis of man's economic and social existence, it is doubtful, at least judging from his writings of 1922-23, that he considered the Soviet Union incapable of solving the specific contradictions engendered by this inter-relationship. His works from these years have an almost strict logicality to them that caused him to pose the Soviet Union's dead end primarily in economic terms.

Allowing that industrialization was the precondition for socialism, his argument then turned on showing that this was impossible under Soviet conditions. Industry, after all, could not revolutionize itself without sufficient resources from agriculture. Yet agriculture was itself the most backward sector of the economy. The economy was therefore caught in a vicious circle. Industry could not provide agriculture with the technical means to lift it out of its semi-feudal methods of production; and agriculture could give industry neither adequate foodstuffs and raw materials for sustained accumulation in the state

sector nor an export fund of a size needed to purchase means of production abroad. The conclusion followed almost automatically for Preobrazhensky that revolution in the advanced capitalist West was the only way out for the Soviet Union.

Beginning in 1924, the time of publication of the first extracts of *The New Economics*, this analysis began to change--not in detail or even in structure, but in the central role the problems of culture and class consciousness now occupied among the basic contradictions within Soviet society. It was in *The New Economics* that Preobrazhensky detailed what he considered the conflict between the "automatic, quantitatively-increasing reproduction of socialist production relations" embodied in the law of primitive socialist accumulation, and "the quality of socialist relations" which would be retarded by the demands of accumulation.

The law of primitive socialist accumulation, in so far as it regulates the level of wages in the state economy, conceals within itself an internal contradiction. As the law which expresses all the conscious and elemental tendencies towards increasing the tempo of expanded reproduction in collective state economy, it is thereby the law of development of socialist production relations generally. But, on the other hand, as the law of the restriction of wages in the interests of socialist accumulation it restricts the tempo of transformation of wages into the consumers' ration of the worker in socialist economy, a transformation which, ever since the instruments of labor have been socialized, is assisted by a rapid increase in wages, because that leads both to the divorce of wages from the value of labor power and to the material precondition for the development of socialist, proletarian culture. This internal contradiction of the law results entirely from its historically transitional character. The tendency to overcome the category of wages, that is, the tendency to intensify the *quality* of production relations, comes into contradiction with the tendency to quantitative extension of the territory of the state economy and its production relations in their *present* form, that is, production relations at an extremely low stage of development in their socialist character. Already the term "primitive socialist accumulation" expresses this dual nature of the law: the adjective "socialist" comes into contradiction with the noun "accumulation" to which it is bound not only grammatically but also in the real historical process.⁵⁰

Just after this, Preobrazhensky was to go even further, in the article, "Economic Equilibrium in the System of the USSR" (VKA 22), which we

have referred to on several occasions: "If the growth of socialist culture lags behind the development of the productive forces of the collective sector of the economy, this lag itself can become an obstacle to the further development of the productive forces."⁵¹ This obviously led to an impasse. If raising the level of culture of the proletariat is a condition for being able to reconstruct the economy on a modern footing, while the latter is at the same time a prerequisite for the development of socialist culture, then clearly there was no possible way forward. Yet it is important to keep in mind that the "cul de sac" had relevance only within the context of the Soviet Union's isolation--it could not break out of the circle *if left to its own resources*.

This argument was of course consistent with Preobrazhensky's emphasis on the "qualitative" aspect of production relations and his general conception of socialism. As such it mirrored his analysis of the industrial contradictions which he also concluded were inaccessible to solution without the intervention of the Western proletariat.

What is essential here is that the economic and political strands of Preobrazhensky's argument had become inextricably meshed together. *The New Economics*, in spite of its abstractness, is a highly political work. Nearly half its pages are devoted to polemics against Preobrazhensky's various opponents, and it is through these that he refines and elaborates many points of basic theory contained in the main text. Even the latter has this consistently polemical undertone--and small wonder. For *The New Economics*, while being a tentative step in constructing a theoretical analysis of the Soviet economy, is at the same time a statement about the politics of the transition. It is a "negative" politics, to be sure, in that it is largely an attack against *what must not be done* if socialism is to be possible. But there is an unmistakable theoretical depth to this book that none of his earlier

works possess, something that can only be explained by the political struggle that was coming to a head at this same time.

Theoretically this had two consequences. First, it compelled Pre-obrazhensky to explicitly link the *purpose* of industrialization with the means for carrying it out. He did this by locating the question of the development of class consciousness within the abolition of the division of labor and the generalization/^{of} knowledge throughout the working class, and by demonstrating how the failure to effect these two tasks was concurrently the result of continued economic backwardness and a cause of its prolongation.

This situation [the divisions and inequalities within the working class] is connected with the heterogeneity of the working class as regards the management of industry, its heterogeneity in technical training, organizing abilities, and so on. The new system receives this heterogeneity as a legacy from capitalism, and it can abolish it gradually, as the productivity of labor rises, as the cultural and technical training of the entire mass rises on the basis of the new educational system and the development of the system of workers' democracy in all spheres of leadership and management; finally, on the basis of a quite conscious struggle against tendencies toward conservatism and stagnation. The existing material inequality and the comparative slowness of the rise of the general mass of the working class to the level of the organizing cadres result not from the present structure of production relations, they persist *in spite of* this structure, and they will be abolished as the hard-set division by occupations is eliminated, as the gap between science and labor is abolished, as there passes away that "enslaving subordination of the individual to the division of labor," inherited from bourgeois society, of which Marx spoke in his *Critique of the Gotha Program*.⁵²

So long as the division of labor persisted and the movement towards its supercession was so ephemeral, reification and fetishism would continue to characterize the social relations in the USSR, and the progress of the working class towards socialist consciousness would be cut short. Transcending the division of labor is, then, both a political and an economic problem. In the first case, a certain development of the means of production was required before there could be a general system of proletarian education and before the country could do away with the differentiation between skilled and unskilled workers. Only then,

for instance, would it be possible to rotate jobs and eliminate rigid occupational divisions within the economy and state apparatus, as well as do away with the material privileges that accompanied them. Conversely, Preobrazhensky warned, "the congealing of cadre and occupational divisions can be a consequence of the checking or slow development of the productive forces."⁵³

If material inequality and the division of labor persist during the transition period this, we would argue, expresses above all else the fact that society is still encumbered with, in Preobrazhensky's words, a "*de facto* inequality as regards possession of knowledge, technical information, and organizing experience." Hence the *primary* task is for *knowledge to be generalized* and made the "property" of the entire working class. Behind this lies the fundamental assumption that knowledge is public and is *potentially* accessible to every member of the working class. Without this assumption both the proletarian revolution and socialism are unthinkable. And without it the struggle of the Left against Stalin is reduced--as the bourgeois voyeurs of this period reduce it--to a debate over economic policy. Once put in these terms the argument about transcending the division of labor becomes immediately political. Along with the augmentation of social wealth there must be proletarian democracy and a struggle against bureaucratization. No matter how highly skilled the working class, if the division of labor and reified social relations remain entrenched in the society, without proletarian democracy the working class could never generalize the knowledge that each individual or each sector of the class had acquired out of their experience and practice. Knowledge would not be the public possession of the class as a whole and, what is more, the class would have no means to act upon that knowledge in order to control its own destiny. The inability to generalize and act upon this knowledge makes its further acquisition fragmented and haphazard at the

precise moment when the major task is to make this process self-conscious and systematic. The validity of this view is amply demonstrated by the Soviet Union today, where there is a skilled and relatively well-educated working class, but where the regime is able to rely on overt political repression and the atomization of the proletariat to maintain its domination.

The political battles of the Left had a second profound effect upon Preobrazhensky's theoretical evolution, namely its methodological refinement and its use as a weapon in the political struggle.

Even though he had discussed the conflict between the law of value and the logic of planned production as early as 1921, *The New Economics* is the first place where Preobrazhensky actually tried to work out the laws of development of Soviet society and to elaborate the processes whereby production relations of/particular, socialist type would be reproduced. What were the laws of their reproduction; what contradictions arise from within these laws or out of their conflict with those regulating other systems of production? In taking up these questions Preobrazhensky was attempting to do for the Soviet economy what Marx had done in the first two volumes of *Capital*, though Preobrazhensky's effort was a good deal more modest. No matter how seemingly "technical" Marx's discussion becomes, e.g., in his treatment of the reproduction schemes in Volume II, he is at all times showing that the regularities of capitalist production are not simply technical (though they certainly have a technical dimension, as does any system of social production), but govern the reproduction of capitalist social relations. Marx employs the reproduction schemes to show how wage labor is constantly reproduced, to reappear on the market with each new production cycle as wage labor. Similarly with capital, and how the capitalist class is reproduced cycle after cycle in its social relation to wage labor. What emerges from Marx's discussion is a sense of the constancy

of bourgeois social relations and an understanding of the connection between their reproduction and that of the economy. In *The New Economics* Preobrazhensky undertook an analysis of the same order and set out to define the regularities of the economic processes at work within the society and to show how they gave rise to the reproduction of very definite social relations. The difference is that *The New Economics*, much more so than *Capital*, is about social change and how the society will have to develop in the future if the given social relations--which are not socialist--are to evolve into socialist ones.

The original political and economic problems of his previous works still preoccupied and guided Preobrazhensky's thinking. This is undeniable. But there was now a further problem, the deeper and more abstract one of formulating a theory of the Soviet economy and of giving that theory *an analytical framework*. In short, it was only in *The New Economics* that Preobrazhensky began to *articulate his method*. Had he not done this the theory of the Soviet economy that he was working out could not have developed beyond certain limits. From the political point of view, without making his theory more abstract and his method explicit the theory could not have been generalized and made accessible to others. His students would not have been able to see where it had come from, nor would they have been able to use it to arrive at similar and consequent conclusions on their own. In addition, unless the method had been articulated in this manner the theory would not have been adaptable and capable of changing to meet new, historically evolving stages in the Soviet Union's development.

Preobrazhensky was quite aware that his theory of the Soviet transition was itself part of the process of educating the working class and providing it with the tools it would need to construct socialism. Its usefulness resided in the fact that it was capable of generalization, i.e., that it was communicable and therefore the potential

property of others, who would use it for political ends. This in turn was conditioned by the fact that under the dictatorship of the proletariat the concepts of law, development, and regularity all undergo a profound change: They now have a conscious element ⁱⁿ ~~ot~~ them, as we argued at the outset of our discussion of Preobrazhensky's theory of the transition. Capitalism could drive feudalism from the historical stage in complete spontaneity and in virtual oblivion of its own inner workings. This is not true of the proletarian state. The outcome of the transition period is not given in advance, but depends on the conscious policies of the proletariat. If the working class in the Soviet Union did not understand how petty production functioned and how it interacted and conflicted with the state economy, the state would not be in a position to control this process. This does not mean that the regularities of the economy would not operate simply because the state didn't recognize them. That would be absurd. The peasant market would still exert its pressures upon state industry; the latter would still have crises of disproportionality which would stifle its growth. The difference is that these regularities would then make themselves felt blindly, after the fact. The workers' state would always be reacting to events, and not anticipating them. It is clear, therefore, that Preobrazhensky's theory of primitive socialist accumulation both uncovered *the need* for self-consciousness in the transition period and attempted to *introduce* that self-consciousness in order to ensure its socialist result.

This, however, did not solve the question of who this conscious agent was to be. Here we come up against the basic dilemma of Trotskyism in the Soviet twenties, namely that the platform of the Left Opposition presupposed itself. Its prior implementation was a condition for its adoption. The rationale behind industrialization was that, by increasing its numerical size and preparing it politically to take charge

of the party and the state, it would provide the proletariat with the means to control society. This is also why the struggle against the bureaucracy and industrialization program were inseparable. But the Left could only win such a struggle within a party that was already democratic and had a class conscious proletarian base. As such the Left was in an intractable position: The party that could have debated the Left's platform and given it the rational assessment that proletarian democracy presupposes simply did not exist. Rather the Left had to wage its fight within a party that was bureaucratized to the point where decisions were not made rationally and with the conscious interests of socialism and the international revolution in mind, but on the basis of self-interest--in the first case that of the bureaucratic strata that comprised Stalin's base of power, and in the second of those who had political positions to protect, old scores to settle, etc.

Given the very nature of its struggle, the Left could only have triumphed had it access to a mass base in the working class and if that base could have exercised the power to put its decisions into practice. For this the Left would have had to go outside the party and form its own revolutionary organization, which was something it could neither have seen the necessity for nor had the means to do at that time.

In effect the Left could only have appealed to the bureaucracy to reform itself and to adopt policies that would eventually have meant an end to the latter's authority and influence. If the Left found itself in such a position it was not simply because the Stalin group controlled the party machine. The latter was only possible because the proletariat was too weak in numbers, too politically young, and too culturally backward to challenge the bureaucracy and defend the gains of October against usurpation. The sophistication of the Left's program demanded a working class of equal maturity, experience in political struggle, and education to understand precisely what was at stake. This

task was incompatible with a proletariat that was recruited directly from the countryside and whose attitudes were still rooted in a petty-craft mentality.

Any "dispute" over Preobrazhensky's attitude towards the question of socialism in one country can finally be laid to rest. Even in "Economic Equilibrium in the System of the USSR," where his argument had taken on an overtly technical character, Preobrazhensky stated plainly that all economic disequilibria were at the same time social and affected the Soviet Union's ability to reproduce social relations of a socialist type. It was here that he included the acquisition of proletarian culture and socialist consciousness as one of the central conditions for seeing the society through its period of primitive socialist accumulation.⁵⁴ Yet, as we also stated, and will develop in great detail in the rest of this thesis, his evaluation of the state of the Soviet economy had become extremely sober. What we have tried to show so far, however, is that the "economic" contradictions within the society were at all times highly political.

One of the central themes of this Introduction has been that the law of value did not introduce distortions into the Soviet economy merely from the outside, but made its influence felt within state production as well. We also noted that these legacies of bourgeois society were in no way ephemeral but permeated to the very core of state production relations. There they coexisted and conflicted with the logic of state planned production, which demanded that they be ousted and replaced by socialist production relations. We have tried to show that there was no way in which the Soviet economy alone could have eradicated these bourgeois forms. They were too deeply implanted in the consciousness of the working class (and, of course, even more so in the peasantry) and were perpetuated by the need to employ capitalist methods of production, by the privileges of the non-socialist specialists, and by the

bureaucracy which was rapidly entrenching itself. We should make it clear that we do not mean this in a tactical sense. The tactical errors and misassessments of Trotsky in particular, not to mention those of the Bolsheviks before Lenin's death, might, if avoided, have caused the struggle for the succession to have gone in another direction, in favor of the Marxists. In an historical perspective, however, unless the USSR had broken its isolation--something that would have been far more likely if the Left had managed to win out over the Stalin group--it is difficult to imagine that some form of degeneration could have been avoided. The crucial difference would have been that the party would have been better equipped to anticipate events and steer clear of the excesses that in large part arose from Stalin's perpetual need to react pragmatically to individual situations after they had gone out of control. Still, the social and material foundations of socialism would not have existed, and it is hard to see even the Marxists holding out for any protracted period of time before the emergence of a politically powerful bureaucracy. Engels' famous dictum about the party that comes to power before the social basis for its rule has been established would have found its relevance once again.

If the Soviet Union could somehow have miraculously industrialized overnight this situation would not have appreciably altered. Its isolation in the midst of a hostile capitalist environment would have continued to impose certain scarcities and a need to produce for the capitalist world market. The monopoly of foreign trade would have permitted the state to control these relations, but the latter would still have had to adjust production and its internal division of labor in some way or another to this market. At the same time the exigencies of defense and the rigid divisions within the society in terms of access to technical knowledge would have exerted strong bureaucratic pressures.

Nor would industrialization have brought with it any automatic

awakening of the working class or the lifting of the masses out of that feudal past "that had been overthrown but not yet overcome." This could only have taken place gradually. For a very long time, for generations perhaps, there would still have been a need for a "moral" and political guardian of the class's historical interests, namely a revolutionary Marxist party which would have overseen the society's advance towards modernization and full proletarian democracy. We would argue, however, that such a party cannot avoid degeneration, either under capitalism or in the transition period, without a class conscious proletarian base, regardless of whether or not it must rely on bourgeois specialists or accord non-socialist or even party workers special privileges. Once the fulfillment of certain functions or the possession of technical knowledge becomes fixed in the hands of a few, the perpetuation of rigidity can only be blocked through control from the bottom. There can be no question of relying on a bureaucracy to carry out those political and economic decisions that might lead to socialism, as these will in the long run threaten its own interests.

Preobrazhensky never articulated the problem in terms of a bureaucratic degeneration that would take power away from the proletariat for the simple reason that this outcome was unforeseeable in the 1920's. It was only in the mid-thirties that Trotsky was willing to commit himself to the viewpoint that a non-proletarian stratum had appropriated control over Soviet society and that the bureaucracy was an outgrowth of production relations that were in many ways still fundamentally bourgeois. By that time Preobrazhensky, for whatever personal and political reasons, and along with a large number of Oppositionists, had made his uneasy peace with the new ruling apparatus. Nevertheless, by applying Preobrazhensky's method in an examination of the production relations of Soviet society, and by incorporating into that analysis his own theory of the role of class consciousness and culture in the Soviet

transition period, we are necessarily led beyond the Soviet Union to the revolution in the capitalist West. The inherently socialist tendencies in the Soviet economy could only have gained the ascendancy over the law of value if the proletariat itself could have acquired direct political control over this process. By 1923 it was unlikely that the Soviet working class could have done so. Only the Western proletariat could have overseen that transitional process that might have led to socialism in the USSR.

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This concludes our all-too-sketchy account of the background of Preobrazhensky's theory of the transitional society. To elaborate his method would have required, as we cautioned in our Preface, a thesis certainly as long as the present one. We have chosen to try and illustrate the essential components of it instead. We will now turn to another aspect of Preobrazhensky's writings which have also received inadequate attention: His analysis of expanding reproduction in the commodity-socialist economy of the USSR during the New Economic Policy.

NOTES TO INTRODUCTION

1. For the background of the 1923 Opposition and Preobrazhensky's role, see Isaac Deutscher, *The Prophet Unarmed* (London, 1959), pp. 113-34; E. H. Carr, *The Interegnum* (Pelican edition, London, 1969), Chapters 13 & 14, plus the "Note," pp. 374-80, giving the text of the "Platform of the 46" as well as the various reservations of its signatories; and David S. Law, "The Left Opposition in 1923," in *Critique*, No. 2, pp. 37-52. For the Opposition of 1926-27, see Carr, *Socialism In One Country* (Pelican, 1970), Vol. I, Part II, and Vol. II. Ch. 19; and Deutscher, *op cit*, Chs. iv & v.
2. *From NEP To Socialism* (London, 1973), also translated by Brian Pearce. For Spulber's anthology, see Note 3 on page 13, above.
3. Of these the most important are by Alexander Erlich, in an article published in the *Quarterly Journal of Economics*, Feb. 1950, pp. 57-88 ("Preobrazhenski and the Economics of Soviet Industrialization"), and his book *The Soviet Industrialization Debate* (Cambridge, Mass., 1960). See also Spulber, *Soviet Strategy for Economic Growth* (Bloomington, 1964); Alec Nove, *An Economic History of the*

USSR (Pelican, 1972) and Nove's Introduction to *The New Economics*; and Richard Day, *Leon Trotsky and the Politics of Economic Isolation* (Cambridge, 1973) and "Preobrazhensky and the Theory of the Transition Period," in *Soviet Studies*, April 1975, pp. 196-219.

4. Erlich, *Debate*, p. 59. In 1932 Preobrazhensky was attacked for a draft of an article he had submitted to the journal *Problemy Ekonomiki*, entitled "O Metodologii Sostavleniya Genplana i Vtoroi Pyatiletki" ("On the Methodology of Drawing Up the General Plan and the Second Five-Year Plan"), in which he allegedly asserted that the current industrialization push was being hopelessly mismanaged, but that the disproportions being suffered were inherently inevitable in a peasant country trying to industrialize on its own. The polemic accused Preobrazhensky of reviving his old position that the only condition under which the Soviet Union could avoid such disruptions would be with the "victory of the proletarian revolution in other countries." The article, which Erlich refers to in another context, was never published. The attack on Preobrazhensky appeared in a collection of essays criticizing his book *Zakat Kapitalizma* (*The Decline of Capitalism*, Moscow, 1931). See *Zakat Kapitalizma v Trotskistkom Zerkale* (*The Decline of Capitalism in the Trotskyist Mirror*, Moscow, 1932), pp. 52-58.
5. A comprehensive Marxist critique of Day's book is sorely needed, something we cannot possibly take up here. Like so many bourgeois scholastics, Day seems to think that industrialization and socialism are one and the same thing. As a result he reduces the debates of the twenties to disputes over the course of economic policy, while the political content of the contending sides, not to mention their underlying goals and philosophical premises, count for nothing. In Day's case he has not only seen fit to squeeze the debates into the constricting aperture of bourgeois categories, but has even invented a couple of his own, viz., Trotsky's supposed "integrationism" vs Stalin's "isolationism." The results are equally unique. Trotsky's bloc with Lenin is "explained" completely without reference to the Georgian affair, for example, while Trotsky himself winds up as some sort of liberal market socialist. It is interesting that Day, unlike Preobrazhensky, Trotsky, or others of the Left, treats the inter-relations between the Soviet economy and the world division of labor as something entirely technical, i.e., a mere balance of imports and exports, without questioning what type of relations these would be, given that the world market was *capitalist* and trade relations could only take place under very severe constraints without jeopardizing the basis of the Soviet state. As for his discussion of Preobrazhensky, which is our main concern (pp. 145-48 of Day's book), we wish to note that in the space of just over three pages Day manages no fewer than five major misrepresentations of Preobrazhensky's theoretical and political standpoint--so basic, in fact, that they cause us to honestly wonder if Day had actually read the sources he refers to. Day, for instance, claims that Preobrazhensky "placed an inordinate stress on internal accumulation" and ignored the importance of the world market. We find this accusation rather strange, since virtually every piece that Preobrazhensky wrote during the twenties stressed the necessity of maximum inter-relations between the Soviet economy and the world division of labor, so long as these did not threaten the socialist character of the state economy. The need for these connections does not mean that we can in any way deny the primacy of internal accumulation, in the

absence of revolution in the West. We will deal with both the political and economic reasons behind this in the rest of the thesis, and need not go into them here. Day also asserts that Preobrazhensky favored a policy of high industrial prices, and attributes his capitulation to the Stalin camp to the latter's adoption of this line. We find this charge equally as astonishing as the first, since Preobrazhensky consistently advocated precisely the reverse--and Day could only fail to know this if he has not read Preobrazhensky. Aside from *The New Economics*, where the need to lower industrial prices via improvements in productivity (a policy Day ascribes solely to Trotsky), is a major theme, see *Ekonomicheskie Krizisy Pri NEP'e* (*Economic Crises Under NEP*, 1923), where he also advocated raising agricultural prices in step with expansions in the possibilities for marketing agricultural products abroad. Perhaps the worst of Day's distortions is the way he panders in the most revolting fashion to the Stalinist "criticisms" of Preobrazhensky which alleged that he advocated, in Day's words, "exploiting the peasants just as a metropolis exploited its colonies." To refute this particular "argument" we merely refer both Day and the reader to a book entitled *The New Economics*, especially pp. 85-88, and 227-31. We should add that Day, in his *Soviet Studies* article rectified most of these textual inaccuracies while holding to his original thesis that Preobrazhensky had accommodated to the "theory" of socialism in one country (citing as evidence the same pages from his book that we have just detailed). Since Preobrazhensky explicitly stated in 1927 (in "Economic Equilibrium in the System of the USSR," VKA 22) that socialism in one country was impossible, Day has to skirt around this minor point by claiming that these statements were "too incomplete" to allow any "definitive judgement" of Preobrazhensky's position. The fact that Preobrazhensky had held the same "incomplete" position throughout the twenties and, it would appear, even after (see Note 4 above), seems to matter very little to Day. In this article the latter has become a kind of Trotsko-Maoist, seeing "unities of opposites" almost everywhere. It is what we might call a W. H. Smith Dialectic, strongly reminiscent of the brand of "marxism" generally available from one's local newsagent. Though allowing Day to be more textually precise, it affords him little additional understanding either of Preobrazhensky or the Soviet twenties to what is contained in his book.

6. One of the finest examples of this was in the field of cognitive psychology and linguistics. See L. S. Vygotsky's pathbreaking work *Thought and Language* (English translation, Cambridge, Mass., 1962; originally published in Russian as *Myshlenie i Rech'*, Moscow, 1934) which bears directly upon the philosophical issues taken up in this Introduction and in the other works cited below.
7. See Georg Lukács, *Lenin* (London, 1970) and *History and Class Consciousness* (London, 1971); Karl Korsch, "Marxism and Philosophy," and "The Present State of the Problem of 'Marxism and Philosophy,'" both in Korsch, *Marxism and Philosophy* (London, 1970); Antonio Gramsci, *Selections From the Prison Notebooks* (edited by Quinton Hoare and Geoffrey Nowell Smith, London, 1971), as well as the much shorter anthology under the title of *The Modern Prince* (New York, 1957), which contains some important essays not included in the *Prison Notebooks*.
8. See Sidney Hook, *Towards the Understanding of Karl Marx* (London,

- 1933) and *From Hegel to Marx* (Ann Arbor, 1962, originally published in 1936). Hook is probably the only American Marxist philosopher of any distinction. Strongly influenced by the pragmatist school, his two books tread the fine line that certainly exists between pragmatism and certain important aspects of Marx. It was undoubtedly his pragmatism that led Hook to dwell on the practico-active side of Marx and to be so strongly influenced by the publication of *The German Ideology* and the *Theses on Feuerbach*. For Sweezy, see *The Theory of Capitalist Development* (New York, 1968), p. 20.
9. Lucio Colletti, *From Rousseau to Lenin* (London, 1972) and *Marxism and Hegel* (London, 1973). Leszek Kolakowski, *Marxism and Beyond* (London, 1971), in particular the essay, "Karl Marx and the Classical Definition of Truth," although other essays in the book are important. Of all the sources we have cited here, Kolakowski is perhaps the weakest, as we point out below. Yet one should not underestimate the importance that his work obviously has, particularly as part of the "revolt" of the Polish Marxist intellectuals against Stalinist orthodoxy after 1956. Kolakowski's analysis of the difficulties of mounting a left-wing critique within Eastern Europe (in the essay "Responsibility and History") is an insightful antedote to the usual anti-communism of dissent in Stalinism regimes. Unfortunately Kolakowski was to eventually champion that same right wing that he had attacked in his days as a Marxist.
 10. Since the degeneration of the Marxist movement was one of the central problems to be explained by post-Russian Revolution Marxists, this was not surprising. It would be impossible to list all the references to this subject among these and other writers. The most important would be the following: Lukács, "The Marxism of Rosa Luxemburg" and "Critical Observations on Rosa Luxemburg's 'Critique of the Russian Revolution,'" in *History and Class Consciousness*; the two essays by Korsch already cited (Note 7 above); Gramsci, *Notebooks*, pp. 322-472; Hook, *Towards the Understanding of Karl Marx*, Part I; Kolakowski, "Karl Marx and the Classical Definition of Truth," in *op cit*; and Colletti, "Bernstein and the Marxism of the Second International," in *From Rousseau to Lenin*.
 11. Claude Lévi-Strauss, *The Savage Mind* (London, 1972), pp. 94-95.
 12. Korsch, *op cit*, pp. 77-8. Original emphasis.
 13. *Ibid*, p. 76. Colletti, following Lukács, also stressed this point: "In Marx's own *critique* of political economy, on the other hand, the whole picture is decisively altered. The mysterious trinity of Capital, Land and Labor is swept away. Since 'value' is now considered as the objectification of human labor-power, the critical-scientific or anti-fetishistic discourse of *Capital* comes to coincide with the *self-consciousness of the working class* (a further proof of the unity of science and ideology). For just as wage labor, by recognizing the essence of 'value' and 'capital,' sees that essence as an objectification of 'itself' (and hence reaches self-consciousness through this knowledge), the working class, by becoming conscious of itself, achieves--for profit and rent are forms derived from surplus value--the knowledge of the origin and basis of other classes and hence of society as a whole." ("Bernstein and the Marxism of the Second International," in *Rousseau to Lenin*, pp. 90-91; emphasis in the original).

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14. This/one of the central themes of Colletti's essay on Bernstein; see pp. 76-102. Colletti's argument is almost identical to that of I. I. Rubin, whose *Essays on Marx's Theory of Value* (English translation, Detroit, 1972; originally published in Russian as *Ocherki po Teorii Stoimosti Marksa*, Moscow, 1928), is without any question the best treatment of Part I of Volume I of *Capital* that we have encountered. There is no indication, however, that Colletti was familiar with Rubin's work.
15. Karl Marx, *The German Ideology* (Moscow, 1964), p. 396.
16. It might be objected that we are implying that the working class must already have achieved socialist consciousness before it can make a revolution. This is obviously not true, at least not in such absolute terms. But capitalism can only provide the basis for altering human consciousness; it will on its own make large strata of the population anti-capitalist, or at least potentially so. But capitalism cannot possibly provide the working class, or anybody else, with the *understanding* of the nature of capitalist society and of what possible *alternatives* are at hand. Reading *Capital*, or revolutionary literature, for example, is not part of the normal course of events for people in capitalist society. It represents a qualitative break with those day to day activities that, in and of themselves, only serve to reinforce bourgeois consciousness and inhibit the working class from developing an awareness of itself as a potentially revolutionary agent of historical change.
17. See Hook's excellent discussion on the contradiction between Lenin's formal adherence to the reflection/cognition theory and the active philosophy of consciousness that underlay all of his political and non-philosophical writings, as well as his day to day practice. (*Towards the Understanding of Karl Marx*, pp. 61-62). For a more general, and somewhat deeper treatment of the same conflict between implicit and explicit philosophies, see Gramsci, *Notebooks*, p. 403.
18. Kolakowski, pp. 62-70.
19. Gramsci, *Notebooks*, p. 368. Our emphasis.
20. Marx, *Grundrisse* (Pelican edition, London, 1973), p. 101.
21. See the passages in the *Grundrisse*, pp. 100-02, 106-08, where Marx establishes the difference between the logical sequence of categories through which the mind establishes the concrete, and their actual-historical genesis. Rubin's explication of these somewhat difficult passages is excellent:

"...the relation between financial capitalist C and industrial capitalist B consists of B's receiving a loan from C; this relation already presupposes the existence of production relations between industrial capitalist B and laborer A, or more exactly, with many laborers. On the other hand, the relations between the industrial capitalist and the laborers do not necessarily presuppose that capitalist B had to borrow money from the financial capitalist. Thus it is clear that the economic categories 'capital' and 'surplus value' precede the categories 'interest-bearing capital' and 'interest.' Furthermore, the relation between the industrial capitalist and the workers has the form of purchase and sale of labor-

power, and in addition presupposes that the capitalist produces goods for sale, i.e., that he is connected with other members of society by the production relations of commodity owners with each other. On the other hand, relations among the commodity owners do not necessarily presuppose a production bond between the industrial capitalist and the workers. From this it is clear that the categories 'commodity' and 'value' precede the category 'capital.' The logical order of the economic categories follows from the character of the production relations which are expressed by the categories. Marx's economic system analyzes a series of *production relations* of increasingly complex types." (Rubin, *op cit*, p. 32; original emphasis).

22. Rubin, *Essays*, p. 39.
23. *The New Economics*, pp. 148-50. Original emphasis.
24. Preobrazhensky's opponents were well aware of this fact. Preobrazhensky cites how, when his chapter on the law of value was originally published in article form it received a cool (as opposed to openly hostile) reception. Soon, however, it was subjected to the same torrents of vituperation as his essay on the theory of primitive socialist accumulation. See Preobrazhensky, "Ekonimicheskie Zametki III" ("Economic Notes III") in *Bol'shevik*, No. 15-16 (31 August 1926), p. 68.
25. On this see Chapter I of *The New Economics*, "The Method of Theoretical Analysis of the Soviet Economy."
26. VKA 22, p. 70 (Spulber, pp. 172-73).
27. This last comment requires some clarification and caution. When dealing with Preobrazhensky's works we have to treat 1928 as a major dividing line. He continued to write once he had gone back into the party, and there is a clear continuity between what he published after 1928 and what had come before. Still, whatever Preobrazhensky was thinking on the subject of a bureaucratic degeneration--and we must be careful not to impute too much to him on that score after his capitulation--he could not have said it straight out. His writings during this time have an interest mainly in terms of economic theory, in particular his theory of capitalist crises, and as a welcome breath of intellectual freshness in the midst of the paltry atmosphere of the age of the "red professors." Even this was enough to get him expelled from the party in 1931 and branded as a secret Trotskyist. But it would only have been during the 1930's, when the bureaucracy had finally consolidated itself and others still in opposition were thinking of the problems of a Soviet Thermidor, that Preobrazhensky would have been able to work out an analysis of the degeneration. If he did so we have no record, as we would expect. In the twenties, on the other hand, when he and the rest of the Left still had some freedom of expression, Preobrazhensky could not possibly have foreseen the prospect of a degeneration of the revolution from within. Like the Opposition as a whole he saw the main danger in a capitalist restoration which would ensue from an economic and social breakdown of the proletarian dictatorship, brought about by the disastrous policies of the party leadership and the revolution's isolation.

To the extent that we can utilize Preobrazhensky's ideas to arrive at a better appreciation of the degeneration of the revolution, this places us in the somewhat difficult position of having to apply Preobrazhensky's method of analyzing the Soviet economy to his own account of the problems of culture and class consciousness, in order to arrive at conclusions that Preobrazhensky either could not or did not come to himself. We are justified in doing this, as this was precisely what Preobrazhensky insisted had to be carried out with regard to applying Marx's method to the historically-new Soviet economy. Still, we have to be quite careful to differentiate what Preobrazhensky actually said from what we ourselves have concluded about the emergence of the bureaucracy largely by taking his theoretical premises some steps further in their application.

28. *The New Economics*, p. 29. Original emphasis.
29. "Perspektivy Novoi Ekonomicheskoi Politiki" ("The Outlook for the New Economic Policy"), *Krasnaya Nov'*, No. 3, Sept.-Oct. 1921, pp. 201-14.
30. *Ibid*, p. 202.
31. Preobrazhensky implicitly made this same abstraction in his division of *The New Economics* between the analysis of the law of primitive socialist accumulation (which dealt primarily with the inter-relation of the state sector with the private economy) and the discussion of the influence of the law of value within the state sector. He stated it explicitly in "Economic Equilibrium in the System of the USSR," when discussing the transition to NEP:

 "In examining these changes, however, we must be careful to distinguish between two different categories. On the one hand, certain changes were made in the methods of managing the state economy in order to squeeze everything of value from the usual capitalist techniques of accounting, calculation, and so on, in the first stages of socialist construction; in other words, these were changes introduced in the interests of the state economy itself at that given level of socialist culture. These changes must not be confused with the other economic changes that were imposed upon the state economy by external factors, specifically by the predominance of petty-commodity production in the country." (VKA 22, p. 23. Our emphasis.)
32. *Ibid*, pp. 64-65. Original emphasis.
33. The Library of Congress lists in its catalogue a book by Preobrazhensky entitled *O Material'noi Baze Kultury v Sotsialisticheskoy Obshchestve* (*On the Material Basis of Culture in Socialist Society*). Like so many valuable holdings of the august institution, however, it cannot be found.
34. *O Morali i Klassovykh Normakh* (*On Morality and Class Norms*, Moscow, 1923), pp. 50-51. See also the very interesting--and quite perceptive--review of this book by I. Grossman-Roshchin in Mayakovsky's journal, *LEF*, No. 4, 1924, pp. 196-98.
35. *O Morali*, p. 53.

36. Preobrazhensky's theory of culture is strikingly similar to that of Gramsci. Compare the above quotations with the following, quite representative passage from *The Prison Notebooks*:

"This contrast between thought and action, i.e., the co-existence of two conceptions of the world, one affirmed in words and the other displayed in effective action, is not simply a product of self-deception. Self-deception can be an adequate explanation for a few individuals taken separately, or even for groups of a certain size, but it is not adequate when the contrast occurs in the life of great masses. In these cases the contrast between thought and action cannot but be the expression of profounder contrasts of a social historical order. It signifies that the social group in question may indeed have its own conception of the world, even if only embryonic; a conception which manifests itself in action, but occasionally and in flashes--when, that is, the group is acting as an organic totality. But this same group has, for reasons of submission and intellectual subordination, adopted a conception which is not its own but is borrowed from another group; and it affirms this conception verbally and believes itself to be following it, because this is the conception which it follows in 'normal times'--that is, when its conduct is not independent and autonomous, but submissive and subordinate. Hence the reason why philosophy cannot be divorced from politics. And one can show furthermore that the choice and the criticism of a conception of the world is also a political matter." (Gramsci, *Notebooks*, pp. 326-27).

37. It is in this sense that we should understand Preobrazhensky's use of such terms as "instinct" and "human nature." Though borrowing this rather unfortunate terminology from an intellectual tradition that would seem to owe more to positivist science than to Marxism, Preobrazhensky in no way considered these as innate properties of human beings. Those forms of human behavior which at one stage of human development are dictated by social norms and are more or less consciously adopted, will in another epoch be so habitual as to be carried out virtually unthinkingly, i.e., they will be "instinctual." Thus for Preobrazhensky instinct and human nature are historically-acquired (and therefore mutable), and correspond to specific forms of social organization. See *O Morali*, p. 113.
38. This phrase is borrowed from Gramsci, who, like Preobrazhensky, was very much preoccupied with the problem of the dissemination and implantation of Marxist culture in a predominantly peasant country. See *Notebooks*, pp. 392-93, 395-98.
39. V. I. Lenin, "Better Fewer, But Better," *Selected Works* in Three Volumes (Moscow, 1971), Vol. 3, pp. 776-77.
40. Trotsky makes this same point throughout *The Revolution Betrayed*.
41. *NEP To Socialism*, pp. 62-68. Parts of this chapter had appeared incorporated into the article, "Ekonomicheskaya Politika Proletariata v Krest'yanskoi Strane" ("The Economic Policy of the Proletariat in a Peasant Country"), in *Kommunistichesky Internatsional*, No. 25, Nov. 1922. (This journal was simultaneously published in a number of languages, including English, so that the article is available in English).

42. *The New Economics*, pp. 193-94.
43. *O Morali*, pp. 93-99.
44. *Ibid*, pp. 105-07.
45. *From NEP To Socialism* was written in the form of series of lectures, ostensibly given in the year 1970 to a group of worker-students, about the USSR's path out of isolation and through the transition period. It was, of course, a positive statement about contemporary economic policy.
46. *NEP To Socialism*, p. 68. Our emphasis.
47. *O Morali*, p. 83. Our emphasis.
48. See, for example, *First Five Years of the Communist International*, Vol. II, pp. 305-06; "Perspectives For World Development," reprinted in *The Bulletin* (USA), Aug. 17, 1970 (and which contains such fairly remarkable formulations as, "consciousness lags behind being"); and *Writings*, 1938-39, p. 51. Korsch makes a very similar criticism of both Luxemburg and Trotsky, especially of Luxemburg's notion that the "theory" of late-nineteenth century Marxism had got way out in front of its practice, and was effectively lying in wait for the latter to catch up to it. See "The Present State of the Problem of 'Marxism and Philosophy,'" in *Marxism and Philosophy*, pp. 101-05. I am grateful to C. Marshall for calling the Trotsky references to my attention.
49. *The New Economics*, p. 147.
50. *Ibid*, pp. 195-96.
51. VKA 22, p. 64.
52. *The New Economics*, p. 188.
53. *Ibid*, p. 189.
54. VKA 22, pp. 64, 65, 70 (Spulber, pp. 166-68, 172-73; the Spulber passages on pp. 166-68 are rather heavily edited, with the most politically important paragraphs deleted).

PART I

MARX'S REPRODUCTION SCHEMES AND THE ANALYSIS OF A MIXED ECONOMY

CHAPTER 1

CIRCULATION AND SIMPLE REPRODUCTION

I. Marx's Three Formulae for the Circulation of Industrial Capital

In the opening of Volume II of *Capital* Marx analyzes the three forms by which industrial capital circulates. Industrial capital for Marx is that which engages directly in production, i.e., as opposed to merchant capital, ownership of land, finance capital, etc., forms which, in the last instance, draw their income out of the surplus value generated in production proper. If we look at the three forms through which capital is "metamorphosed" we will see a) that there can be three and only three formulae for the expression of circulation, and b) that these forms, and the reproduction process as a whole, are historically specific--that is, they pertain only to capitalist production.

First there is the formula for money capital. This derives directly from the basic relationship Marx derived in Volume I of *Capital*, that of money-transformed into commodities-transformed back into money. This is the familiar formula, M-C-M'--money invested in commodities which are then transformed into more money.¹ But now the formula for circulation must encompass the entire production process. It goes:

M-C...P...C'-M'

Money purchases commodities. Only now this is not just money in abstract, and these are not just any commodities. This is money which functions as money *capital*, i.e., as the money form of the capital relationship, of the expansion of value. As for the commodities, they are also very specific. The capitalist with money capital doesn't use the money to purchase items for his personal consumption. He uses them to purchase first, means of production (machines, plant, raw materials,

intermediary products, fuel, etc.) and, second, labor power. In short, he converts the money into *productive capital*. So, the full form of the first half of the circuit is really:

$$M-C \overset{-LP}{\underset{-MP}} \dots P \dots$$

The capitalist goes out on the market with money, as the potential purchaser of commodities. There he finds means of production (MP) and labor power (LP). We should add that it is only when he finds these commodities and actually buys them that his money functions as money capital. Up till then it is only potentially money capital. In any case, this is not the main point. Once the capitalist has found his two elements of productive capital, he can set them to work in the *process of production*. The P in our scheme represents productive capital; and the dots on either side indicate that the process of circulation is interrupted while MP and LP function as productive capital in the production process.

What emerges from this production process is a new quantity of commodities. In their physical form these will be entirely different from the commodities that our capitalist purchased. This will depend on what branch of production our capitalist is engaged in. They might be machines (though only by coincidence would they be the same type of machines that he initially bought), they might be shoes, they might be jute, or what have you. They are his commodity-product, the product that the labor power he has purchased has produced but which he, as a capitalist, appropriates for his own use and sale.

Sale here is the key word. For if the capitalist is to be a real capitalist, and not a one-shot sensation, he will have to ensure that his production can continue. The commodities he has in hand do not allow that. They have the wrong shape. So he must sell them. He must transform them back into money, for as money, which is the universal equivalent of value, he can once again go out on the market and purchase

new means of production and new labor power.

There is one thing, however, peculiar about these commodities that emerge from production. Not only is their form different from the original commodities the capitalist bought, but *so is their value*. The original value of the means of production has been transferred to the commodities in the course of production. And the labor power has added a new value equal to its own. But it has also added something/ ^{more.} It has added surplus value. It has augmented the value of the original capital. C has, via the production process, become C' (or, to follow Marx, the original value of C, plus an increment, c; $C' = C + c$). Thus when the commodity-product--which now exists as the capitalist's *commodity capital*, that is, as his capital-value tied up in the form of commodities--is sold it does not bring in simply the initial value, M, but M augmented by surplus value, M' (i.e., $M + m$). The capitalist now is truly a capitalist. He has invested money, which was temporarily tied up in production, and has got out of it a greater sum than he put in.

Now, in this circulation process of the money capital, the original capital-value has at all times remained in the hands of the capitalist. He has always possessed some repository of value equal to that of his first sum. At the start it had the form of money; from there it took that of commodities, but the particular commodities that could function as productive capital, namely means of production and labor power; the intervening production process saw these transformed into still other commodities, a commodity-product, which functioned as commodity capital; and finally, through their sale these commodities once again became money, where the entire process could begin again. And, as an added bonus (or so it seems to our capitalist, who understands little other than that he has invested a certain sum of money and has come out with more of it) there is now an increment, surplus value, over and above what our man began with.

Marx termed the money formula as the most typical form of capitalist production. For as money capital/^{it}reveals most clearly of all the compelling drive behind capitalist production: The self-expansion of value. And because money is the general form of value this process of value expansion appears as the basic process of money-making, which is the only way in which the capitalist perceives his activities. The fact that none of this could happen without the intervention of production, without the application of labor power to means of production, is lost sight of. Money is both the beginning and the end of the process.²

What of the other two forms of circulation? Aside from money capital, capital-value takes on two other functional forms: Productive capital and commodity capital. It is these, which are based in the real process of value-creation (i.e., production) on the one hand, and in the material result of that process (i.e., commodities), on the other, that we must oppose to the illusory formula of money capital.

The circuit for productive capital is precisely the opposite of that for money capital. It goes:

P...C'-M'-C...P

Whereas production was an interruption in the process of circulation in the circuit M...M', circulation is here an interruption in the process of production. It is only as productive capital that capital can actually give rise to value-creation and, more important for the capitalist, value-expansion. The capitalist begins with productive capital, that is, means of production and labor power. These give rise, out of the process of production, to the commodity-product, C', which is now the capitalist's capital existing as commodity capital. But in this form they are, as we saw in examining M...M', completely unsuitable for the renewal of the productive process. The commodities must be sold for money. And as before, this money can be broken down into

two components. The first is the renewal of the value of the original productive capital, P. P's value is embodied in a quantity of commodities whose value is C; and in addition the production process has yielded surplus value, first in the form of an increment to C, c, and then after the sale of C', in the form of an increment to M, m. Thus the formula really looks like:

$$P \dots C' \frac{C}{+} - M' \frac{M}{+} - C (L \ \& \ MP) \dots P$$

$$c$$

$$m - c$$

This looks a bit complicated, but it is not really so difficult to follow. C' is converted into M'. This much is straightforward. M' in turn represents two magnitudes: M, which contains the value of the original productive capital; and m, which contains the value of the surplus value. The capitalist then takes the first of these, M, and returns to the market and purchases labor power and means of production --that is, he purchases commodities, but commodities that are specifically suited to serve as a replacement for his initial productive capital. Thus M is transformed into C (L & MP), which serve as a renewal of P. But the capitalist also has his surplus value, represented by m. He devotes these to his personal consumption. Thus he takes the money, m, and buys commodities, c. But these commodities can be any of a whole range of commodities that he can individually consume.

As a result we see an interesting thing. The capitalist advances a quantity of value equal to P, the value of his productive capital. This functions in the process of production, gives rise to a commodity-product, which is then sold for money, which is then used to buy more commodities which restore the value of the productive capital in their original functional form. He advances a value equal to P and at the end he gets back a value equal to P. *But he also gets something more.* Not only has he restored his initial value of P (and in a shape that can once again serve to produce more commodities), but he has also wound up with an *additional* quantity of commodities for his personal susten-

ance. He has appropriated surplus value. He advances P, and receives at the end not only P but something extra to live on. This formula, P...P, then, expresses the real driving force of capitalist production --the generation of surplus value out of the process of production.

If we look at our formula a little closer, we see that this is the formula for *simple reproduction*. Production in the next year stays on the same scale as the year before. The capitalists have consumed their entire surplus value. Production gives rise to more value than when it began, but it continues at the previous level. The productive capital is not increased. All the surplus value is consumed individually by the capitalist class.

This is not the only alternative. The capitalists could have turned all or part of the second c in the formula into means of production and labor power. Then the formula would, assuming, let us say, that all of c goes to productive capital, appear as:

$$P...C'-M'-C' (L \ \& \ MP)...P'$$

The money, M' is used exclusively to purchase more means of production and labor power. Of course there may be certain technical difficulties. The scale of production of this particular capitalist enterprise may be such that the capitalist cannot purchase with his surplus value, m, enough means of production and/or labor power to actually fit into the technical structure of his production. Then he simply holds onto his m until the next period, when he has earned a new quantum of surplus value, a new m. Then, perhaps, he can add the two together and he will have enough to expand production. This is not the crucial issue. The point is that the capitalist takes his surplus value and uses it to expand production. He accumulates it as capital, as an augmentation of the scale of his capital relation between wage labor and capital. He carries out *expanded reproduction*.

It is obvious that the capitlist must, in reality, take something

to live on. He will not capitalize all of his surplus value. He will, then, devote part of the m to purchasing commodities for his own consumption; and the rest he will use to buy new means of production and labor power. He will accumulate it. We could then amend Marx's formula for expanded reproduction to look something like this:

$$P \dots C' \begin{array}{c} C \\ + \\ c \end{array} - M' \begin{array}{c} M - C(L \ \& \ MP) \\ + \\ m - c/x \ (L \ \& \ MP) \\ - \ (c - c/x) \end{array} \dots P''$$

In other words, part of m is used to purchase a quantity of commodities, c/x , where x is a fraction of c , and these are means of production and labor power, which are added to P to form P'' (where P'' is less than or equal to P'). The remainder of m is used to purchase commodities equal in value to c minus the part that has been devoted to accumulation, or a sum equal to $c - c/x$. These are for the capitalist's personal consumption. Marx did not present such a formula algebraically like this; but he did describe it exactly in this way, and we have only filled in his account of the accumulation process with an additional formula.³

Of all the formulae Marx presented for the circulation of capital, that of commodity capital is undoubtedly the most complicated. On the surface it might appear straightforward:

$$C' - M' - C \dots P - C'$$

We start with the capitalist's commodity-product after the process of production has been completed. The capitalist must, as in our other circuits, sell his commodities on the market for money. Now, each of these already contains an original capital-value, P , plus the surplus value. Thus when the capitalist reconverts the money he has obtained from the sale of C' back into commodities, he immediately differentiates these commodities into those for continued production (MP and L) plus those for personal consumption. Marx presented it as follows:

$$C' - \frac{C}{c} - M' \quad \begin{matrix} M-C(L \ \& \ MP) \dots P \dots C' \\ m-c \end{matrix}$$

That is, the initial commodity-product, C' , already contains an original capital-value and the surplus value produced in the course of production. When these are sold, of course, the money they fetch is homogeneous--it is money, an undifferentiated mass of a universal measure of value. But for that money to then act as money *capital* the capitalist must then make a real differentiation. He must take part of it to purchase new commodities that will serve as productive capital; and part for his own consumption.

Now, what is peculiar about this form, as opposed to the other two? Marx notes two things. First, the entire act of *circulation* is the precondition for the continuation of the *circuit as a whole*. In the formula $M \dots M'$ the act of production interrupted two separate acts of circulation: The first circulation of capital as money capital being converted into productive capital; and the second circulation of the commodity capital which has emerged from production back into money capital. In the formula $P \dots P(P')$ the act of circulation taken in its entirety interrupts the process of production. But in $C' \dots C'$ everything starts with circulation; without it production cannot even begin.

The practical significance of this lies in the difference between the functions of the circulation of capital and production. In both of the first two formulae the last act of the circuit [$C'-M'$ for money capital, and $M-C(L \ \& \ MP) \dots P$ for productive capital] is an act of circulation only. It is an act that allows the capital to change its functional form, from one not suitable for the renewal of the circuit in the following period, to a form that is. In the formula $C' \dots C'$, on the other hand, the last act is the act of production. As a result the change between $P \dots C'$ is not just a change of functional form, but a *change of value*.

To understand why Marx thought this was an important distinction to make, we should look at the second special characteristic of this formula as opposed to the other two. In the formula for money capital, the capitalist holding the original money could very well have been the very first money capitalist and his money the first money capital. He could find his means of production from commodity producers who were not capitalists; and he could find labor power as embodied in workers who were the first free laborers to sell their labor power to a capitalist. It is only in the very last part of his circuit, when he has to sell his commodity-product for money that this capitalist presupposes the existence of other money capitalists, i.e., other capitalists who themselves have money they must transform into commodities in order to begin production or in order to live (and we should note that these other money capitalists may need these commodities only indirectly, that is, as means of subsistence for their workers, to whom they have paid part of their money capital as a wage).

Similarly, the productive capital that begins the circuit $P...P(P')$ could have been the very first productive capital in existence. As soon as production was complete, however, that capital would have to suppose the existence of other capitals, both so that its owner could transform his product, C' , into money (and hence back into productive capital purchased from other commodity producers) and in order to live (since he does not produce his own means of subsistence).

$C'...C'$ is different. Commodities must exist already as a basis of the economic system if this circuit is ever to get off the ground. It must first be sold for money, thus presupposing a money capitalist. It must then purchase commodities, MP and L, which are either commodity capital for their direct producers or for the merchants who act as their link with the market. This commodity capital cannot be the first commodity capital in existence; it right from the start assumes commod-

ity production as the general form of production and that other commodity producers have entered the market and will supply it with the elements, MP and L, *without which the aim of the circuit, the transformation of P into C', cannot proceed.*

Perhaps this all seems like hair-splitting. After all, at what point in the circuit the capital presumes the existence of other capitalists would appear irrelevant. They all presuppose general commodity-capitalist production at some point; and in fact that is their relevance. They are the formulae for the circuits of capitals, i.e., for the premise of capitalist production itself.

Marx wasn't nitpicking here. He had a good reason for making these distinctions. Let us just ask a question that is very important from the point of view of our subsequent discussion. Which of these formulae would we choose for the basis of our reproduction schemes?

Our first inclination might probably be to say, P...P. That, after all, roots the circuit of capital directly in production. More than that, it gave rise directly to an expression for expanded reproduction, as we just saw. Yet if we look at this formula it presents certain problems. When P' appears at the end of the circuit (or M' at the end of M...M') and begins the next circuit as P (or M) it functions as a totality, as a single block of capital-value. It has already been differentiated (in the case of P...P') from that part of the value of the product that goes for individual consumption (assuming, as is more than reasonable, that not all of the surplus value can be capitalized). Even in the case of M...M', or where all of P' goes to start the new circuit in P...P', all distinctions between the various constituents of production and between capital and revenue are lost. In short, these formule can describe the circuit of a single capitalist, *but they can never describe that of society as a whole.*

C'...C' is quite different. It starts with the *total* production

of the previous year. Before that production can begin anew C' must first be broken down into C and c, into productive capital and the elements of personal consumption, and the entire process of circulation must be complete before production is possible. The premise for this circuit is the annual production of the year before. The premise for the other circuits is either only part of it (P...P') or the conversion of the capital into only a portion of those commodities that make up the total commodity stock of society (M...M'). Marx explained it this way:

But just because the circuit C'...C' presupposes within its sphere the existence of other industrial capital in the form of C (equal to L + MP)--and MP comprises diverse other capitals...--it clamours to be considered not only as the *general* form of the circuit, i.e., not only as a social form in which every single industrial capital (except when first invested) can be studied, hence not merely as a form of movement common to all individual industrial capitals, *but simultaneously also as a form of movement of the sum of the individual capitals, consequently of the aggregate capital of the capitalist class, a movement in which that of each individual industrial capital appears as only a partial movement which intermingles with the other movements and is necessitated by them...*⁴

M...M' indicates only the value side, the self-expansion of the advanced capital-value, as the purpose of the entire process; P...P(P') indicates the process of production of capital as a process of reproduction with a productive capital of the same or of increasing magnitude (accumulation). Revealing itself already in its initial extreme as a form of capitalist commodity production, C'...C' comprises productive and individual consumption from the start; productive consumption and the self-expansion of value therein included appear only as a branch of its movement. Finally, since C' may exist in a use-form which cannot enter any more into any process of production, it is indicated at the outset that C's various constituents of value expressed by parts of the product must occupy a different position, according to whether C'...C' is regarded as the form of the movement of the total social capital or as the independent movement of an individual industrial capital. *All these peculiarities of the circuit lead us beyond its own confines as an isolated circuit of some merely individual capital.*⁵

In other words, from the very outset the circuit of commodity capital must interlink with the commodities of other capitalists, commodities which represent all aspects of commodity production--means of individual consumption as well as those of productive consumption. It is in this sense that we must take the last sentence in the passage

just cited. What for one capitalist is, as his commodity-product, his commodity capital, is for its purchaser either an element of individual consumption or of productive capital. What is more, taken from the standpoint of the total capital of society, it is clear that all these types of commodities are necessary for the continued reproduction of the economy as a whole. For the individual capitalist his commodity-product, C' , is simply his commodity capital. But for the society at large it matters a great deal what the material, use form of these commodities is. It is thus from here that Marx began to study the regularities of simple and expanded reproduction.

Since in $C' \dots C'$ the starting point is the total product (total value), it turns out that...reproduction on an extended scale... can take place only when the part of the surplus product to be capitalized *already contains the material elements of the additional productive capital*; that therefore, so far as the production of one year serves as the premise of the following year's production or so far as this can take place simultaneously with the process of simple reproduction within one year, surplus product is at once produced in a form *which enables it to perform the functions of additional capital*. Increased productivity can increase only the substance of capital but not its value; but therewith it creates additional material for the self-expansion of that value.⁶

It was indeed on this basis that Marx cited the "great and true discretion" of Quesnay, who made the circuit $C' \dots C'$, and not $P \dots P$, the foundation of his *Tableau Economique*.⁷

We see, then, that all three formulae express different functional forms that any individual capital must assume in the process of reproduction. But $C' \dots C'$ is peculiar. Because it presumes other capitals and other capitalists, as well as workers, at the very outset, and because the production process cannot begin without the complete circulation of the commodity capital, involving all the other capitals of society; because a distinction is immediately made between the particular use forms of the various commodities produced by these other capitalists (and hence a similar distinction is made by them as purchasers of our first capitalist's commodities); and because the circuit starts

out by analyzing what happens to the total product of the year before-- for all these reasons Marx discerned that this had to be his starting point for the analysis of the movement of the total social capital.

Marx, of course, examined the various circuits of industrial capital in far more detail than we have done. This was natural, since he wanted to explore the paths by which capital is "metamorphosed" in all their details and subtleties; he wanted to use them to reveal as much as he could about the process of capitalist production as a whole. Our aims were much more limited.

First, we think it important to show that Marx did not dream up his reproduction schemes out of thin air. Although he derived them from Quesnay,⁸ he quite clearly based them on the analysis put forth right at the beginning of Volume II of *Capital*. In that sense the reproduction schemes presume Marx's analysis of the metamorphosis of individual capitals.

Second, already the various circuits of industrial capital show that capitalist production is a process of *reproduction*. Each year's end product represents the basis upon which production will start anew in the following year. Production is a continuous process through which the capitalist system is reproduced. In order for capital, in any of its forms, to function in that form year in and year out, it must undergo a continuing series of transformations where in each and every case what we began with represents what we end up with--and in this way the cycle can be recommenced.

Third, this process of reproduction is premised upon the historically-specific relations of capitalist production. Production can never take place directly. At all times it requires the intervention of *commodity circulation*, whether at the beginning or in the middle of the overall circuit. Capitalist production is production for exchange. It is the production of commodities, which rarely emerge from the

production process in a form in which they can reenter it *for the specific capitalist* who produces them. They must at all times be transformed, first into money, and then into other commodities that have the appropriate use form. This further presumes that the latter class of commodities exists and that other capitalists have already produced them and offer them for exchange on the market.

This last point bears looking into a bit more. What are the commodities that make up a capitalist's productive capital? Throughout this section we have designated them as means of production and labor power. The production and circulation of means of production is simple enough to understand. They are, after all, the tangible physical products of the productive process of some particular capitalist. But the production of labor power is another matter altogether. If the capitalist in any one of our circuits takes part of his money capital, *M*, and purchases labor power, he advances a certain sum of money in exchange for the laboring abilities of a worker (or group of workers). The worker sells the capitalist the only commodity he or she has, his or her capacity to work. The capitalist engages in an even exchange. He advances money and receives a comparable quantum of laboring ability. Of course, according to Marx, the capitalist also receives much more--in the process of production this laboring ability translates itself into commodities produced by this labor power. The ability to work endures in the process of production for a great deal longer than the corresponding labor contained in the commodities that allow the laborer to work. The laborer consumes in labor values much less than he or she produces. But this is not the point we are raising here. We are not out to either repeat or prove the validity of Marx's theory of value. Marx did that well enough himself; for us it is only an assumption.

What is crucial is the series of exchanges that goes on here. For

the worker must take the money he or she receives from the capitalist and spend it on means of subsistence. Without these the laborer could not live--that is childishy obvious. But here we see the peculiar quality of this exchange process between laborer and capitalist. The capitalist possesses capital, that is, a command over means of production and labor power that is constantly reproduced. We saw from our various circuits that merely by producing and selling at a constant level the capitalist will both renew his capital and his source of individual consumption. He need never go out on the market empty-handed. His capital, in at least one of its various forms, *always remains in his possession*. This/simply not so for the worker. When he or she has consumed their means of subsistence, they have nothing--nothing, that is, *except their further ability to work*. This is a commodity, well enough, but it is a source of revenue only potentially. The worker must first sell it to the capitalist for money-cum-other-commodities. And so the cycle goes. The worker receives money; the worker spends it on his or her individual consumption. The worker must return to the market as a seller of labor power in order to live. Just as the continued reproduction of capital presumes that a capitalist will find the means of production he needs for sale, so *it presumes that he will find labor power, period after period, available for purchase*. Thus we see that the process of reproduction is not just a process whereby the technical proportions of production are maintained or expanded. It is the *reproduction process of a given set of social relations--that between capital and wage laborer*. This is the real basis of capitalist reproduction, for it is only this social relationship that gives capitalism its specific historical character. If capitalism could not reproduce this social relationship between capitalists and wage laborers, it could not go on, it could not establish itself as a particular mode of production. Conversely, if capitalist production is to be halted this social

relationship must be irrevocably destroyed--something that can only happen through revolutionary action.

For us these are the most important implications of Marx's analysis of the circuits of industrial capital. Many of the difficulties that students of Marxist economics have with the reproduction schemes emanate, we think, from the fact that they are usually presented in a strictly algebraic manner. In reality the schemes are a device through which Marx highlighted a particular--but crucial--dimension of his analysis of capitalist production. Marx's analysis of the rudiments of circulation is not difficult to grasp (although this not true of the more detailed investigations in Volume II that were based on it). Nor need his analysis of reproduction as a reproductive process of capitalist *production relations* leave anyone in a fog. Yet both of these are at the root of Marx's use of the reproduction schemes. Hence, by offering a brief survey of the metamorphoses of industrial capital between its different functional forms, and by stressing the social-relations aspect of reproduction, we hope we will make all of our subsequent discussion easier to follow.

II. The Basics of Simple Reproduction

In dealing with Marx's use of the reproduction schemes we do not wish to give a detailed account of their mechanics. This is more than adequately done in other, long-standing classical works on Marxist economics.⁹ As for the intricacies of expanded reproduction, they will become quite clear in our treatment of Preobrazhensky's use of the schemes in VKA 17. Instead we want to draw out of Marx's discussion of simple reproduction what we need in order to: 1) Clarify certain methodological points about the reproduction schemes and their role in analyzing a given society, and 2) further develop Marx's analysis of the replacement of fixed capital, which is the specific aspect of his

discussion of the schemes that is most immediately related to our own study of Preobrazhensky. In the latter, dealt with in the next chapter, we will show that within Volume II of *Capital* there is the basis for deriving the schemes for simple and expanded reproduction in a mixed economy of petty and capitalist (or developing-socialist) production that Preobrazhensky was to use in his "Equilibrium" articles of 1926 and 1927.

Marx's scheme for simple reproduction under capitalism is well known. He divides social production into two departments, that which produces means of production (department I), and that which produces means of consumption (department II); and it is from here that he begins his analysis of how, under the simplest of conditions, i.e., where no accumulation of capital takes place, the individual elements of production circulate and are restored, so as to begin production once again in the next year. His numerical scheme is as follows:

- I. $4000c + 1000v + 1000s = 6000$ means of production
- II. $2000c + 500v + 500s = 3000$ means of consumption

Although each of these branches of production is but the sum total of the production of all the individual sub-branches and enterprises which produce either means of consumption or means of production, we are no longer dealing with simple aggregates. The process of reproduction of the social capital takes place, of course, only because under capitalism each particular unit of production is able to procure its needed elements of constant and variable capital (i.e., all of its productive capital) on the market, and is able to dispose of its own product in the same manner, thus being able to begin the process all over again. The two processes / reproduction, however--the reproduction of the various individual capitals, on the one hand, that of the social capital on the other--are not identical, as Marx goes to great lengths to explain.

For our present purpose this process of reproduction must be studied from the point of view of the replacement of the value as well as the substance of the individual component parts of C' [the commodity-product]. We cannot rest content any longer, as we did in the analysis of the value of the product of the individual capital, with the *assumption* that the individual capitalist can first convert the component parts of his capital into money by the sale of his commodities, and then reconvert them into productive capital by renewed purchase of the elements of production in the commodity market. Inasmuch as those elements of production are by nature material, they represent as much a constituent of the social capital as the individual finished product, which is exchanged for them and replaced by them. Contrariwise the movement of that portion of the social commodity-product which is consumed by the laborer in expending his wages, and by the capitalist in expending his surplus-value, not only forms an integral part of the movement of the total product but intermingles with the movements of the individual capitals, and therefore this process cannot be explained by merely assuming it.

The question that confronts us directly is this: How is the *capital* consumed in production replaced in value out of the annual product and how does the movement of this replacement intertwine with the consumption of the surplus-value by the capitalists and of the wages by the laborers? It is then first a matter of reproduction on a simple scale.¹⁰

With this in mind let us take another look at the scheme for simple reproduction. Because department I produces only means of production it can in the first place reproduce its own constant capital component. This will no doubt require internal exchange between the various enterprises within the department--nonetheless, the reproduction of the constant capital in its material form for the department as a whole takes place entirely within it. In the second place, it cannot reproduce its variable capital, i.e., it cannot provide its workers with their means of subsistence, nor reproduce its surplus value, i.e., the means of consumption off of which department I's capitalists live, *in natura*. People simply cannot eat means of production. Therefore, even though department I possesses in its annual commodity-product a value equivalent for both v and s , it does not possess them in a materially useful form. It must exchange this value equivalent, which consists of means of production, for useful means of consumption.

Department II, on the other hand, has just the opposite problem.

It produces only means of consumption. It can provide both its workers with their necessary means of subsistence (that is, reproduce its variable capital), and its capitalists with their fund of consumption (that is, reproduce its surplus value, *so long as* there is no accumulation and the surplus value is *entirely* consumed individually) out of its own annual product. Once again, this may require some internal exchange within the department, but as a whole the entire fund of consumption of both workers and capitalists is reproduced within department II. Unfortunately, department II cannot produce just by feeding its workers and capitalists, any more than the workers and capitalists of department I can consume just by laboring upon (or investing in) the production of means of production. Department II must replace the worn out constant capital component of its capital, which is represented in its annual product by a value equivalent of the means of production it requires--it exists, however, in the physical form of means of consumption. It, too, must exchange this value *equivalent* of means of production for the productively-useful means of production themselves.

What we have is department I, which possesses means of production that it must exchange for means of consumption, and department II, which possesses means of consumption that it must exchange for means of production. Quite naturally they will exchange with each other. Thus Marx immediately concluded that the basic condition for simple reproduction to take place is that department I would exchange its value equivalent of $v + s$ (existing as means of production) for the value equivalent of c of department II (which exists as means of consumption). In terms of material exchange, department I obtains the means of consumption it needs, and department II receives the constant capital, that is, the means of production it needs as well. This is not all. The value of the material elements required by the respective departments must be equal. If department I has means of production worth 2000 for which

it needs the same amount in means of consumption, the deal will only work if department II needs means of production worth 2000 and has means of consumption of the same value to offer. If department I had, say, a need for only 1800 in means of consumption and had only 1800 in means of production to exchange; but if department II still required 2000 in means of production and had 2000 in means of consumption to dispose of; then department I could reproduce its fund of consumption $[1800(v+s)]$ in full, but department II would still have a deficit of 200 in means of production (which department I did not have to offer) and a surplus of 200 in means of consumption (which department I did not need). Then the conditions of even simple reproduction would not be satisfied and department II could not continue to produce on the same scale in the future. It would suffer a loss of values (here 200 in unsold means of consumption), and a crisis would ensue as it cut back production, laid off workers, etc.

For Marx this little summary of the basic conditions of simple reproduction is just the starting point. Marx establishes the fundamental relationship of exchange between $I(v+s)$ and IIc very early in his discussion, and then proceeds to give a detailed analysis of some of the essential problems and complications that this seemingly elementary relationship embodies. For our purposes we will deal with only a few of them. Suffice it to say that a proper account of Marx's analysis would have to be quite intricate and cover such matters as: The distinctions between capital and revenue; the differentiation between previously-created value transferred to the annual product versus the newly-created value of the current year's labor and how these are differently reflected in the product of the individual capitals and that of the social capital; the role of money capital and the production of the money material; the breakdown of department II's product into articles of necessary consumption and articles of luxury; etc.¹¹ Only then would

the full import of Marx's study become clear; and any notion that his analysis of the proportions and relations of reproduction was static "model-building" or even essentially quantitative, would be shown simply untenable. We will touch upon this last point ourselves in a moment.

Returning to the reproduction schemes, however, the first problem we see is that it would be a very easy matter if the two departments could merely swap their commodities, and distribute the products according to their use. If department I could give its exchangeable means of production to department II in return for the means of consumption it requires, it could then parcel them out to its workers and capitalists in the appropriate proportions. This is impossible. The obstacle is not a technical one of efficiently organizing the distribution procedure. This is not just simple reproduction--it is reproduction of a capitalist, market economy. As we demonstrated in the previous section, the elements of reproduction can only exchange through a process of circulation, a circuit which is described by money.

In simple reproduction $I(v+s)$ in means of production confronts IIc in means of consumption. Each must undergo a metamorphosis and change its form. And we have seen that Marx has already identified this as a problem of both the material elements of exchange and their value. The vehicle for this metamorphosis is monetary circulation. Money here no longer functions as a measure of value or means of payment; it becomes money capital, which, as in the circuit $M...M'$, must itself be reproduced. If we look at $I(v+s)$ we see that the v part of I's exchangeable product remains a part of I's industrial capital at all times, though it frequently changes its external form. As money, however, it is simply part of I's variable capital-value (v remains part of its capital-value at all times, regardless of the functional form it takes on in the circuit). But in both the money and commodity form this capital-value is only *potentially* variable capital. In the case of

money its functioning as variable capital is conditional upon its being converted into labor power; in the case of commodity-capital it is conditional upon C' being converted back into M , and upon the reappearance of labor power on the market as a commodity. Only in the form of labor power actually functioning in the process of production is this variable capital-value functioning as variable capital--for only then is it part of the productive capital and capable of undergoing self-expansion.¹²

It is with money, however, that the capitalist begins the acquisition or renewal of his productive capital. This does not mean that $M...M'$ has suddenly become the starting point of the reproduction process, as opposed to $C'...C'$. The capitalist must still begin with a commodity-product which has to be converted into money before production can take place. For department I, however, the commodity-product is simply not usable as variable capital. It is, as we have said, only potentially variable capital. Money, to be sure, is also only potential variable capital. But we have already established that there is a definite sequence in the process of circulation. The commodities that make up C' are not a universal embodiment of value. They are specific use values that possess value. Thus they must *first* be converted into money, which is a universal equivalent and which is one step further along the path of circulation so far as acquiring the elements of productive capital is concerned. It is the same with department II. It must replace IIc . For this it must still begin with a commodity-product, C' , which must *first* be turned into money, and only then into productive capital, in this case means of production.

Yet if both department II and department I must sell their product, C' , in order to start the reproduction circuit, we would soon be in a dead end. Money must previously exist as a reserve in at least one of the departments so that it can be *advanced* and therefore initiate cir-

ulation. This is not an unreasonable assumption to make. It is an historical assumption--its validity is the emergence of money, merchant capital as the *prius* of capitalist production proper.¹³

In the present case let us assume that it is department I that has such a reserve and makes the initial advance. The collective capitalist of I advances to his workers their wages, which they reproduce as new value in the products that result from the application of their labor power to the means of production with which they work. These wages exist in the form of money. In exchange for this money the capitalist receives a commodity equivalent, i.e., the labor power of the workers he employs. The workers use the money they receive to purchase means of consumption produced by department II. The capitalists of I will only get back this money--their advanced variable capital-value--when II uses it to purchase means of production to the amount of Iv. What has taken place in this simple circuit? The capitalist of I has advanced money as wages. He receives a commodity, labor power. The labor power is expended, and the capitalist expropriates the product. So far it is an even exchange. He has given up Iv in money, and received Iv, first in labor power, and then, after the latter has altered its form and has been expended to create new values, in commodities in the shape of Iv in means of production. The worker now has money, for which he gave up a certain quantity of labor power. He can restore the latter, and thereby make himself fit for work in the next period, only if he then takes this money and exchanges it for means of consumption, which he finds in department II. He, too, then, has exchanged a value equivalent for a value equivalent. He has given up labor power that costs Iv to reproduce, and in return he has received Iv, first in money and then in useful objects which he consumes.¹⁴

The circuit, however, is not yet complete. Although all the exchanges have been equal, only the workers of department I have found

what they need in the form of use values. The capitalists of department I have means of production worth Iv which are of no use to them as they currently exist. They cannot advance these means of production in the next period as variable capital--the workers cannot consume them, productively or otherwise. The capitalists' variable capital must once again exist as money. What happened to the money they had advanced originally? It is now in the hands of the capitalists of department II. Department II needs constant capital of the amount Iv . It has an equivalent for this in money, which it received from the workers of I in exchange for means of consumption. What happens next is obvious. Department II then exchanges this money (which emanated from the capitalists of I in the first place) for means of production worth Iv . Department I's capitalists now have back their original variable capital in its initial form, money, which they can advance again to their workers to begin production once more in the next period.¹⁵ Department II now has part of the constant capital it requires to go on as well--a part represented by Iv . The circuit is now complete, at least as regards the reproduction of the variable portion of I's exchange fund and the reproduction of an equivalent fraction of II's constant capital.

Already we see that an important additional condition specific to capitalist reproduction has been established: The money originally advanced to begin the circuit must eventually return to the department that advanced it. This, under capitalism, is every bit as much a condition of reproduction as the equality between $I(v+s)$ and IIc . It is important to note it here, as it will play a crucial role later on.

Even so, we have still only covered half the circuit. The same process must take place with regard to Is and the other half of IIc . Here let us suppose that it is the capitalists of II who advance the money. They will purchase the remainder of I's disposable means of production for money, and in return acquire in full the rest of their

constant capital. II still, however, has on its hands an equivalent of Is in means of consumption. This is easily corrected. The capitalists of I have got rid of all their exchangeable commodities, and now have Is in the shape of money. They need means of consumption, and acquire these by purchasing them from department II. The capitalists of II now have back the money they initially advanced, and both departments have what they need in material form: II has means of production; I has means of consumption. Neither one has given up anything more than they first had available for exchange, as the money advanced in turn by each department has returned to its source in both cases. In fact, the capitalists of department I have received something extra, the surplus value embodied in the products produced by the workers they employed. And without this *surplus value*--which Marx assumes is totally consumed as personal consumption in simple reproduction--department II could not *restore* the constant capital it had started production with, i.e., it could not achieve simple reproduction.

As with our discussion of the metamorphoses of industrial capital, we are not concerned here so much with the mechanics of simple reproduction, which are well explained elsewhere; nor have we exhausted Marx's own exposition of the subject. We have gone over certain basic aspects of Marx's analysis in order to highlight three important points.

First. It is already clear from the above discussion that even under the most abstract conditions, unencumbered by the complications that Marx and later writers (including Preobrazhensky) subsequently introduced, the mere supposition of monetary exchange makes simple reproduction a very complex process. The fact that reproduction must take place through the mediation of monetary circulation is an historically-specific condition, the result of the development of the capitalist economy.¹⁶ By extension we can expect to encounter the same difficulties in any system of economy based on market exchange and a mature

monetary system. We will see this to be precisely the case when we discuss expanded reproduction in the Soviet economy under NEP. Neither there, nor in the present example of simple reproduction under capitalism, can we assume that the mere production of commodities by departments I and II in the proper material and value proportions (and we still presume that goods exchange at their values) is sufficient to guarantee continued reproduction. These commodities must exchange for money, and any interruption of this circulation will halt the entire process. This, then, becomes a complicating factor in any analysis of reproduction in a commodity-socialist economy like the USSR in the 1920's, at least to the extent that money, as a category of bourgeois economy, has not been totally superseded and transformed.

Second. This permits us to clarify somewhat Preobrazhensky's use of the term "equilibrium." Marx does not use the term when talking about the reproduction schemes (although he does use it in Volume III of *Capital*), but refers instead to those relationships which permit the conditions of simple or expanded reproduction to be satisfied and thus allow the continuation of the production process. Preobrazhensky's concept of equilibrium is practically inseparable from his overall political economy, so that a proper elaboration of it would take us into the realm of philosophy and politics. It must therefore be seen in the context of his method as a whole, which we discussed in our Introduction. For the moment, however, we must point out the following: Any idea that reproduction implies a static "balance" of economic "factors" (such as the idea of a "steady state" or even the "balanced growth" of bourgeois economics) is foreign to both Marx and Preobrazhensky. The schemes of simple and expanded reproduction point out certain regularities and tendencies of development of modern capitalism (and in a conditional and limited sense, of post-capitalist society as well). In reality these conditions are never achieved. The system is constantly

in motion, engendering conflict and contradiction. Its moments of "stability" are only relative, never absolute.

But inasmuch as only one-sided exchanges are made, a number of mere purchases on the one hand, a number of mere sales on the other--and we have seen that the normal exchange of the annual product on the basis of capitalism necessitates such one-sided metamorphoses--the balance can be maintained only on the assumption that in amount the value of the one-sided purchases and that of the one-sided sales tally. The fact that the production of commodities is the general form of capitalist production implies the role which money is playing in it not only as a medium of circulation, but also as money capital, and engenders certain conditions of normal exchange peculiar to this mode of production and therefore of the normal course of reproduction, whether it be on a simple or on an extended scale--conditions which change into so many *conditions of abnormal movement*, into so many *possibilities of crises*, since a balance is itself an accident owing to the spontaneous nature of this production.¹⁷

The constant supply of labor power on the part of working class I, the reversion of a portion of commodity capital I into the money form of variable capital, the replacement of a portion of commodity capital II by natural elements of constant capital IIc--all these necessary premises demand one another, but they are brought about by a very complicated process, including three processes of circulation which occur independently of one another but intermingle. This process is so complicated that it offers ever so many occasions for running abnormally.¹⁸

Marx arrives at the same conclusion when he moves from his analysis of simple reproduction to that of reproduction on an expanded scale. Here he shows that simple reproduction, the analysis of which is crucial to revealing the basic tendencies of reproduction in general, is not just an analytical abstraction, is not only the starting point from which expanded reproduction proceeds, but is, aside from all these things, nothing other than a moment in the latter process.¹⁹ For expanded reproduction to proceed smoothly it must also satisfy the condition that the consumption fund of department I equals IIc. But expanded reproduction means accumulation; and as soon as we introduce accumulation, which is the logic of capitalist production, and see that we are dealing with a system that is constantly in motion, we also see that this condition is a point around which capitalist production hovers, but can never reach.

The premise of simple reproduction, that $I(v+s)$ is equal to IIc , is not only incompatible with capitalist production, although this does not exclude the possibility that in an industrial cycle of 10-11 years some year may show a smaller total production than the preceding year, so that not even simple reproduction takes place compared to the preceding year. Besides that, considering the natural annual increase in population simple reproduction could take place only to the extent that a correspondingly larger number of unproductive servants would partake of the 1500 representing the aggregate surplus-value. But accumulation of capital, real capitalist production, would be impossible under such circumstances. The fact of capitalist accumulation therefore excludes the possibility of IIc being equal to $I(v+s)$. Nevertheless it might occur even with capitalist accumulation that in consequence of the course taken by the processes of accumulation during a preceding series of periods of production IIc might become not only equal but even bigger than $I(v+s)$. This would mean an over-production in II and could not be adjusted in any other way than by a great crash, in consequence of which some capital of II would get transferred to I.²⁰

Preobrazhensky never departed from this idea of Marx, as will be more than clear when we discuss his own analysis of expanded reproduction under concrete capitalism (VKA 17). There he derives the imbalance between the consumption fund of department I [$I(v+s/x)$] and IIc as a *fundamental tendency* of capitalist reproduction. It is important to get this clear before we launch into any examination of Preobrazhensky's writings on equilibrium. This/^{is}all the more necessary in the light of attempts by even sympathetic bourgeois economists to turn Preobrazhensky into a bourgeois "growth" theorist.²¹

Third. In talking about Preobrazhensky's use of the term equilibrium we must make a further point on method. Already in Volume I of *Capital* Marx explained that what lay behind the process of production and its reproduction was the reproduction of the particular social relationships appropriate to capitalist society.²² As we have already stressed in both the Introduction and the previous section, we must not forget this when we look at the reproduction schemes of Volume II. It is true that there Marx discerns the fundamental regularities in the movement of the social capital and of its individual elements, primarily the exchange between $I(v+s)$ and IIc . Yet in doing this Marx at the same time reveals that these regularities are those of the reproduction

of *specific social relations*. The circulation and reproduction of variable capital is not simply a matter of how the productive capital functions, or of how money is advanced to acquire labor power in the form of wage labor; it simultaneously shows how the working class is reproduced as *wage labor*. When we see in the reproduction schemes that I_v exchanges against a portion of II_c we must always remember that behind the numerical and algebraic expressions is a very real social process. The working class functions within the process of reproduction as the sellers of a single commodity, its labor power; as the buyers of commodities which they have themselves produced, but which they must purchase from the capitalists of department II; and as the agents for the creation of new values, as the producers of all past, present, and future social wealth. If the working class does not function in all of these capacities, reproduction cannot take place. There will be a rupture, either in the sphere of production or in that of circulation.²³

The same applies to the movement of the surplus value expropriated by the capitalist class. This movement details the reproduction both of a certain portion of the commodity-product of society and of the capitalists as a *class*. In simple reproduction the capitalists function as the consumers of commodities and the agents of circulation. But they also function as the owners of *capital*; they are the other half of the social relation--capitalists and wage laborers--that capital expresses. The reproduction of the one cannot take place without the reproduction of the other. Thus in expanded reproduction they represent the agents of accumulation, the driving force of capitalist production.

This explains why so much of Marx's discussion is devoted to relating the circulation-reproduction process to the particular social relations it involves. From his analysis of the fundamentals of simple--and later, expanded--reproduction, he then is able to introduce more

and more complexities into the system and obtain certain derivative relations, for instance, the emergence of the modern credit system or the antecedent presence of merchant capital which precedes and makes possible capitalist production as the dominant form of economic and social life.

From this methodological standpoint it is quite key that we recognize the strictly formal character of the reproduction schemes. They are not "objective models" which portray all the complex realities of capitalist society. They are an analytical abstraction, analytical tools which facilitate Marx in his task of laying bare the regularities and laws of motion of capitalist production.²⁴ *The very premise of the construction of the schemes is Marx's entire analysis of capitalist society, which he developed throughout his life.* As Preobrazhensky emphasized in his own analysis of the categories of political economy, they are abstract concepts which are not natural objects in themselves, but the *ideal expression* of the real, concrete social relations that comprise capitalist society at a given historical moment.²⁵

If this is true of Marx, it is equally so of Preobrazhensky. Because Soviet society, as the specific object of his analysis, is the resultant of conflicting tendencies of development, which are theoretically embodied in two antagonistic regulators of economic activity and the organization of human labor power (the law of value versus the law of socialist accumulation and planning), the problem of expanded reproduction is not that of the reproduction of a *given* set of social relations, but of their *transformation*. The tendencies that he reveals in his own use of the reproduction schemes and his application of them to the Soviet economy demonstrate certain obligatory conditions for the transition from one particular type of production relations (and one state of human consciousness) to another. *And this, too, presupposes Preobrazhensky's entire analysis of Soviet society, with all of its*

philosophical, social, and political implications.

To summarize our discussion so far, we have looked at Marx's use of the reproduction schemes mainly to emphasize and clarify a few ideas that will prove important in our examination of Preobrazhensky's writings on expanded reproduction under modern capitalism and in the USSR. We have first had to establish certain basic categories and relations crucial to further analysis. These include the inter-relations between reproduction as an exchange of values and as an exchange of the material elements of production; the role of monetary circulation as the indispensable condition of the continuation of the process of production in a market economy; the fluid, contradictory nature of reproduction and the fact that, under capitalism, crises are immanent to it; and the distinction between the schemes as objectively valid, algebraic representations of an outside world (which they are not), and as another, highly refined analytical device for revealing the real relations between human beings that make up the substance of capitalist--and any other--society (which they are). Some of these ideas are introductory, and provide concepts upon which we will build our later argument. Others are cautionary, designed to dispel any misunderstandings that might arise from the use of the reproduction schemes or from the notion of "equilibrium."

We are not yet ready to leave Marx and move onto Preobrazhensky's articles of 1926-27. First, we must make a slight digression and go into Marx's treatment of the problem of fixed capital in some detail. As we have already intimated above, the relationships we will derive there will prove fundamental to almost all of our subsequent study.

NOTES TO CHAPTER 1

1. Karl Marx, *Capital*, Vol. I (London, 1970), Chs. IV & V.
2. *Capital*, Vol. II, (Moscow, 1967), pp. 57-64.
3. *Ibid*, p. 88.
4. *Ibid*, p. 99. Our emphasis.
5. *Ibid*, pp. 100-101. Our emphasis.
6. *Ibid*, pp. 101-102. Our emphasis.
7. *Ibid*, p. 102.
8. Marx, "Letter to Engels," July 6, 1863, in Marx and Engels, *Selected Correspondence* (Moscow, 1965), pp. 142-45. Marx referred to Quesnay's *Tableau Economique* as the first scientific attempt to study the regularities of economic reproduction in numerous passages in *Capital* and *Theories of Surplus Value*. For Quesnay, see Francois Quesnay, *Tableau Economique*, translated and edited by Marguerite Kuczynski and Ronald L. Meek (London, 1972).
9. See in particular Rosa Luxemburg, *The Accumulation of Capital* (New York, 1968), Section One; and Paul Sweezy, *Theory of Capitalist Development* (New York, 1968), Chapter V and pp. 162-64. For an interesting, but much more mathematically-oriented treatment of the reproduction schemes, see Shinzaburo Koshimura, *Capital Reproduction and Accumulation* (Hove, Sussex, 1975). The Koshimura book covers only the very basics of the reproduction schemes, without taking up any of the complicating modifications we deal with in this thesis; he does, however, deal with some of their more refined aspects. Though giving the schemes a purely mathematical explication he remains fairly faithful to Marx in stressing their non-objective nature; unfortunately, it is also written exclusively in matrix algebra, and will be inaccessible to most readers.
10. *Capital*, II. p. 397.
11. For a discussion of the latter topic and its relationship to our main discussion, see the Appendix to Part I, below.
12. See *Capital*, II, pp. 450-51.
13. It would seem that we are here anticipating the problem that so pre-occupied Rosa Luxemburg in *The Accumulation of Capital* and her *Accumulation of Capital--An Anti-Critique* (London, 1972), namely where the money comes from that will allow exchange and the realization of production to take place. This is not entirely so, since Luxemburg was concerned with the problem of accumulation. Nevertheless, we consider that Luxemburg's problem was an artificially created one, in that its answer cannot be found within the reproduction schemes, but only as the real historical premise of capitalist production, i.e., the development of merchant capital and the eventual emergence of the modern credit system.
14. It would have been quite incorrect to have said that the laborer gives up *lv* in labor power. He gives up labor power for the entire

working day, only part of which is needed to cover Iv. The rest, of course, goes to create surplus value, here represented by Is. From the point of view of the capitalist, however, the laborer only gives up Iv, or an amount of labor power equal to his wages, since the capitalist is virtually oblivious to the creation of surplus value. He thinks that the worker has labored all day simply to reproduce his wages. What is correct to say is that the capitalist advances Iv and receives an equivalent for it in Iv in commodities, produced by the workers he employs. This represents only part of the day's product, however. In addition to this "equivalent" for Iv the capitalist also receives Is, which is realized separately from Iv and exchanges against a different portion of IIc (both in value and in use form; see Appendix to Part I, below).

15. Of course, the other side of this is that the workers, after consuming their means of subsistence, return to the market as a commodity, labor power. This is the other condition of the replacement of v--the capitalists must receive back their advanced money, and the workers must reappear as sellers of labor power on the market.
16. Marx, for instance, used his analysis of money and its function within the reproduction process to further develop his analysis of the modern credit system. By the same token, the following passage from the chapter on simple reproduction gives us some idea of the real complexities monetary exchange introduces into an analysis of the reproduction schemes:

"The fluxes and refluxes of money taking place spontaneously on the basis of capitalist production in the exchange of the annual products; the one-time advances of fixed capitals to the full extent of their value and the successive extraction of this value from the circulation in the course of years, in other words, their gradual reconstitution in money-form by the annual formation of hoards, a hoarding which is essentially different from the parallel accumulation of hoards, based on the annual production of new gold; the different lengths of time for which, depending on the duration of the production period of the commodities, money must be advanced, and consequently always hoarded anew before it can be recovered from the circulation by the sale of the commodities; the different lengths of time for which money must be advanced, if only resulting from the different distances of the places of production from their markets; furthermore the differences in the magnitude and period of the reflux according to the condition of relative size of the productive supplies in the various lines of business and in the individual businesses of the same line, and hence the lengths of periods for which the elements of constant capital are bought, and all this during the year of reproduction--all these different aspects of spontaneous movement had only to be noted, and made conspicuous, through experience, in order to give rise to a methodical use of the mechanical appliances of the credit system and to a real fishing out of available loanable capitals." *Capital*, II, pp. 484-85.

17. *Capital*, II, pp. 498-99. Our emphasis.
18. *Ibid*, pp. 499-500.
19. We will not deal separately with the mechanics of expanded repro-

duction. These will become clearer in discussing Preobrazhensky's analysis in VKA 17 (see also Luxemburg and Sweezy, cited in Note 9, above). For the moment we need only mention that expanded reproduction also has the equality between the consumption fund of department I (v plus the consumed part of surplus value, s/x) and IIc; but here it is a point around which the process revolves --it is never attained.

20. *Capital*, II, pp. 524-25. This extremely important passages raises a number of themes we will have particular cause to return to later on: First, when we see how Preobrazhensky derives the systematic "over-accumulation" of IIc as compared to the consumption fund of I as the basic disproportion inherent in capitalist expanded reproduction; and second, when we deal with the role of non-productive consumption in the Soviet system.
21. See Introduction, pp. 15-17, above.
22. *Capital*, I, Chapter XXIII. "But that which at first was but a starting point, becomes, by the mere continuity of the process, by simple reproduction, the peculiar result, constantly renewed and perpetuated, of capitalist production. On the one hand, the process of production incessantly converts material wealth into capital, into means of creating more wealth and means of enjoyment for the capitalist. On the other hand, the laborer, on quitting the process, is what he was on entering it, a source of wealth, but devoid of all means of making that wealth his own. Since, before entering on the process, his own labor has already been alienated from himself by the sale of labor power, has been appropriated by the capitalist and incorporated with capital, it must, during the process, be realized in a product that does not belong to him. Since the process of production is also the process by which the capitalist consumes labor power, the product of the laborer is incessantly converted, not only into commodities, but into capital, into value that sucks up the value-creating power, into means of subsistence that buy the person of the laborer, into means of production that command the producers. The laborer therefore constantly produces material, objective wealth, but in the form of capital, of an alien power that dominates and exploits him; and the capitalist as constantly produces labor power, but in the form of a subjective source of wealth, separated from the objects in and by which it can alone be realized; in short he produces the laborer, but as a wage laborer. This incessant reproduction, the perpetuation of the laborer is the sine qua non of capitalist production." *Capital*, I, pp. 580-71.
23. *Capital*, II, p. 420.
24. Preobrazhensky unremittingly insisted on this point in VKA 17, when he repeatedly warned that Marx's analysis of the reproduction schemes established the basic abstract principles of simple and expanded reproduction, but that the need to study more concrete economies and societies demanded that this analysis be built upon and the abstractions successively removed. See in particular VKA 17, pp. 35-6, 47.
25. For Preobrazhensky's discussion of the categories of political economy see Introduction, pp. 27-35.

CHAPTER 2

MARX ON THE REPRODUCTION OF FIXED CAPITAL

In Marx's initial scheme of simple reproduction we saw that the portions of the commodity-product of departments I and II that had to be exchanged were as follows:

$$\begin{array}{rcl} \text{I.} & 4000c + 1000v + 1000s & \\ & \hline \text{II.} & 2000c + 500v + 500s & \end{array}$$

That is, 2000 I(v+s) had to exchange for 2000 IIc. Marx then notes a very serious problem. We have up till now assumed that if normal conditions of monetary circulation prevailed, this necessary exchange could take place, even though it required a fairly complex circuit in the movement of the individual classes of commodities. We presume, however, that this is capitalist production, which in turn presupposes a technically advanced infrastructure to the economy. This being the case, large fractions of the fixed capital component¹ of c are physically more durable than the one year production period we have taken as the basis of the schemes. We must remember what c stands for. It is not the *total* value of the means of production employed in production, but only that element which, through wear and tear, is transferred to the value of the commodities produced. If *all* of the constant capital, that is *all* of its circulating portion (raw materials, intermediate goods, fuel, etc.) and *all* of the fixed capital which wear out or are productively consumed in the course of one year's production, had to be replaced in physical form at the end of this time, then our original relation between I(v+s) and IIc would hold.

What happens if part of the plant and machinery which make up the fixed capital last longer than this time? This, after all, is the only realistic assumption we can make under capitalism, or any other form of modern economy. Then a machine worth, say, 100 may last for ten

years. Each year, assuming average and equal depreciation, it would transfer a value of 10 to the value of the commodities in whose production it is employed. When these commodities are sold on the market for money (say, arbitrarily, for a price of 20), 10 of this money will be immediately put back into circulation to replace the advanced circulating capital (the circulating portion of constant capital plus the variable capital) and to realize the surplus value of the products. The other 10 will remain in the form of money. The capitalists will hoard this money, year after year, adding 10 in money each year to the hoard, until after 10 years they have accumulated 100 in money, on the one hand, and have completely worn out their machine, on the other.² They can then replace it because of two conditions. One, it is used up, no longer capable of being productively consumed--it has to be replaced. Two, the capitalists have the money they need to buy a new machine (assuming, of course, that the price of this type of machine has not changed). This is no difficulty for the individual capitalist. It is a great difficulty for society as a whole. Why?

Let us look again at the reproduction scheme. What is being exchanged? There is $2000 I(v+s)$, which exists in the physical form of means of production, and which must be metamorphosed through circulation into 2000 means of consumption. There is also $2000 IIc$, which exists physically as so many means of consumption and must be transformed into an equal value of means of production, again through circulation. The one represents a value of newly added labor ($v+s$), which will function as a replacement for past embodied labor (i.e., as means of production). The other represents a value equivalent of past labor (c), which will function in the present in the form of newly added labor (i.e., as means of consumption). New values must exchange against old. Values to be completely consumed in the present (means of consumption) must exchange against those whose consumption (and hence replacement) will

only take place over time (means of production).³

Therefore, in the process of reproduction, department I will immediately purchase means of consumption from II, to the value of I_{lc} , for money. Department II will then take this money and purchase means of production from I. But it will no longer buy the same value as it sold. It sold an equivalent of 2000 I_{lc} because department I needed this much in means of consumption. It buys, however, only 1800 (Marx's illustration) in means of production. It only needs to replace this value of its used up constant capital (i.e., all of its circulating constant capital and part of its fixed capital) *at the present time*. A portion of its fixed capital depreciated by a value of 200 but does not physically require replacement. Department II will keep this leftover 200 in money as a hoard, saving it towards the day when it will have to replace another set of completely worn out machines.

Two conditions of simple reproduction are violated here. Department I advanced money for the purchase of means of consumption, but not all of this money has returned to it--department II must keep part of it as a hoard. Secondly, the converse of this purchase-without-sale is that department I has 200 in means of production on its hands that II does not need. It may need them in the future, but that doesn't help us here--if I kept on producing at the same scale, the 200 in means of production would be available whenever II needed them, no matter when the transaction took place. In this given year, however, department I has a relative over-production of 200 in means of production. In addition, it has made department II a virtual gift of the 200 in money it advanced when it bought II's means of consumption. The result would have to be a crisis, with I cutting back production in the year of its over-production, and II suffering a shortage of means of production if it should need to replace its 200 in fixed capital before I had cause to return production to its previous level. How do we resolve

the problem? Perhaps I could keep on producing an extra 200 in means of production each year, storing them up without selling them, and until II had accumulated an equal amount in money and was ready to buy the whole lot. We will see later, when we discuss the function of reserves under both advanced capitalism and socialism, that this is not as fantastic a solution as it seems--except that it is incompatible with *capitalist* production, where commodities produced must be realized (and under simple reproduction totally consumed, either productively or personally) and surplus value must be earned, and where the building up of such reserves brings with it an additional cause of capitalist crises. If, in the present example, I were to produce its surplus 200 in means of production on faith, out of the goodness of its heart, while II kept up its part of the bargain and diligently accumulated its hoard of money until it was ready to get I off the hook with a massive purchase of fixed capital, we would wreak havoc with the whole logic of capitalist production. What is produced must be sold, and if it is not the individual capitals cannot complete their circulation and reproduction comes to a halt.

It is clear that we must find a solution *within* the premises of capitalist production and circulation. This is what Marx set out to do.

Marx notes that in every year a certain portion of the capitalists in department II will be replacing their fixed capital in kind, using money they have hoarded in prior years. At the same time, another part of II's capitalists will not be retiring their fixed capital in full, but only accumulating a monetary equivalent of its wear and tear. Marx then divides department II into two sections: Those who must replace their fixed capital *in toto*, and those who only accumulate money for replacement in the future. How does our balance of exchange look after we account for: The exchange of Iv for an equal part of IIc, plus the exchange of part of Is for the additional portion of IIc that II is

prepared to exchange as a replacement for its circulating constant capital and whatever fixed capital is ready for retirement? Following Marx's division of department II, we would have the following:

- I. 200s in commodities
- II. (1) 200c in money, plus (2) 200c in commodities

In such a situation II-section (1) would exchange 200c in money for the 200s of department I's means of production. With this money department I would then purchase the 200c in means of consumption from II-section (2). Everything is in order. Department I has acquired what it needs in means of consumption; II-section (1) has received the necessary means of production; and II-section (2) has 200 in money which it must set aside for the future purchase of fixed capital. In this case, unlike our first example, it was department II as a whole that advanced the money [it came from section (1)], and it is department II that gets it back [it returns to section (2)]. We could have obtained just as satisfactory a result from our first scheme. There we encountered the difficulty that department I purchased means of consumption with money it had advanced, and could not receive it back in full. That the problem does not stem from the fact that department I advances the money, as opposed to department II, is easy to see. Department I could purchase 200s worth of commodities from II-section (2). It advances money for this. It cannot in any way get this money back from II-section (2), because the latter has disposed of all its commodities and needs the money it received for its hoard--it requires no further purchases. But the circuit of exchange is not complete. II-section (1) still has 200c in money, with which it buys 200 in means of production from department I. It thereby receives what it needs in commodities, that is, means of production, which it will productively consume; and department I has its original advance of money return to it.

Marx's conclusion is tremendously significant. In any given period

of production, the portion of IIc's fixed capital which is retired and replaced in full must equal that portion which is accumulated in the form of a money equivalent.

The condition precedent is here evidently that this fixed component part of constant capital II, which is reconverted into money to the full extent of its value and therefore must be renewed in kind each year (section 1), should be equal to the annual depreciation of the other fixed component part of constant capital II, which continues to function in its old bodily form and whose wear and tear, depreciation in value, which it transfers to the commodities in whose production it is engaged, is first to be compensated in money. Such a balance would seem to be a law of reproduction on the same scale. This is equivalent to saying that in class I, which puts out the means of production, *the proportional division of labor must remain unchanged, since it produces on the one hand circulating and on the other fixed component parts of the constant capital of department II.*⁴

We can illustrate the problem very simply. Imagine that total production within both I and II stays the same, and that, as with our original assumption, department I has 200 in unsold Is. But here imagine that the division within IIc between retirements and hoards is altered and that II must replace a greater value of fixed capital than it is simply accumulating in money form. Then the exchange balance would appear as:

- I. 200s in commodities
- II. (1) 300c in money, plus (2) 100c in commodities

It is clear that I can only exchange 200 in means of production with II-section (1). I will obtain 200 in money and II-section (1) will receive 200 in means of production. Yet I can only purchase 100 in means of consumption from II-section (2), because this is all that this subsection of department II has for sale and 100 in money is all that it requires for its hoard. Thus I is left, on the one hand, with 100 in money which it cannot dispose of, and, on the other, a shortage of 100 in commodities (means of consumption). By the same token, II-section (1) also has a surplus of 100 in money and--what is perhaps even more serious than the plight of department I--a shortage of a like amount of means of production. The division of labor within department I would have to radically alter to account for this new distribution between

retirements and hoards. Yet if this were only a one-time disproportion within department II (not unlike what occurred in the Soviet Union after the Civil War), the system would be seized by a severe crisis, as it would suffer a shortage of fixed capital. The scale of production within department II would have to be reduced.

Alternatively, the division between the two sections of department II might have been the reverse:

- I. 200s in commodities
- II. (1) 100c in money, plus (2) 300c in commodities

Here I would have unsold means of production, as II-section (1) would need only 100 from department I. But this would give department I only 100 in money with which to try to purchase 200 in commodities from II-section (2). The latter suffers on two accounts. First, because department I's demand for its means of consumption is less than what it must sell in any case, regardless of the amount of money I has for the purchase of commodities. And second, because I now has only 100 (not 200) in money, as a result of the incomplete conversion of its commodity-product--200 Is--into money via exchange with II-section (1). So, I has unsold means of production and a shortage of means of consumption; II-section (2) has unsold commodities and a shortage of money for its hoard. Even more striking, I's shortage of means consumption coexists with an unsold stock of means of consumption within II-section (2)! Why? Because exchange must be mediated by money; what I has for exchange, namely, means of production, is of no use to II-section (2), which needs hard cash. And this is precisely what department I does not have, due to the sudden imbalance in its exchange with II-section (1). Once again a crisis would ensue. Both I and II-section (2) would cut back their production, in order to eliminate the "over-production" they each suffer (an over-production that coexists with an actually unfilled demand on the part of department I).

In the first case, where $I_{Ic}-(1)$ was greater than $I_{Ic}-(2)$, I had a surplus of money on its hands, while II-section (1) had a shortage of means of production. They could have evened things out by importing commodities (means of production), through foreign trade. In the opposite case, where $I_{Ic}-(1)$ was less than $I_{Ic}-(2)$, it was not money that I was left with, but unsold means of production alongside unsold means of consumption within II-section (2)--that is, a crisis of over-production "in spite of reproduction on an unchanging scale."⁵ This is Marx's first important general conclusion from this example. Even under the uncomplicated, asbtract assumptions of simple reproduction, we see that a crisis can result from *an imbalance in the material composition of reproduction and the duration of the circulation period of these individual parts.*

In the passage we quoted we emphasized part of the last sentence, where Marx stated how an imbalance *within department II* in terms of the rate of replacement of its fixed capital affected *the division of labor within department I*. A few pages later Marx makes this point again.

In short, if under simple reproduction and other unchanged conditions--particularly under unchanged productive power, total volume and intensity of labor--no constant proportion is assumed between expiring fixed capital (to be renewed) and fixed capital still continuing to function in its old bodily form (merely adding to the products value in compensation of its depreciation), then, in the one case the mass of circulating component parts to be reproduced would remain the same while the mass of fixed component parts to be reproduced would be increased. Therefore the total production I would have to grow or, even aside from money-relations, there would be a deficit in reproduction.

In the other case, if the size of fixed capital II to be reproduced in kind should proportionately decrease and hence the component part of fixed capital II, which must now be replaced only in money, should increase in the same ratio, then the quantity of the circulating component parts of constant capital II reproduced by I would remain unchanged, while that of the fixed component parts to be reproduced would decrease. Hence either decrease in aggregate production of I, or surplus (as previously deficit) and surplus that is not to be converted into money.⁶

If the total volume of production of I were to remain the same we would

have still another result. If under these circumstances the replaced part of IIc were to exceed the portion to be reproduced only in money form, then the volume of I's production of means of production for department II remaining the same, the proportions between fixed and circulating means of production would have to change. The fixed part of IIc would go up, and the circulating portion would go down. "If one of these parts increases the other decreases, and vice versa. On the other hand the total production of class II also retains the same volume. But how is this possible if its raw materials, semi-finished products, and auxiliary materials (i.e., the circulating elements of constant capital II) decrease?"⁷

We have now established two principle conclusions in our discussion of Marx's analysis of the replacement of fixed capital. The first is that, *if the division of social labor within department I remains the same*, a crisis can and will result if the technical structure of production in department II--specifically, the division of IIc between fixed and circulating constant capital--alters, or if the rate of replacement of the fixed part of IIc changes. In either case department I will find itself alternatively with unsold means of production on its hands, or with a chronic deficit in its ability to supply means of production of the needed type. The second result is that the division of labor within I is itself affected by the proportion of fixed to circulating capital in II; and, once again, the implication of Marx's analysis is that if department I fails to adjust the material composition of its output between those means of production that make up fixed, and those that make up circulating constant capital, so as to keep pace with whatever changes may take place in II's demand for the two types of constant capital, then a crisis will arise here as well.

Marx's argument on fixed capital essentially stops here; and although his conclusions are indispensable to the discussion in the rest

of our thesis we cannot leave things as they stand. We must first go somewhat beyond what Marx has done in order to show just how much of Preobrazhensky's own analysis Marx had in fact anticipated. In doing so, the relevance of Marx's conclusions and their further ramifications will, we hope, emerge more clearly and will make the train of Preobrazhensky's rather compact argument (especially in VKA 22) easier to follow.

From what we have said so far it is clear that even under simple reproduction the problem of the material composition of production and the different circulation paths of the individual components will complicate any but the most basic analysis. We must remove the initial assumption that the product of department I is totally homogeneous. Marx had already done the same with department II, when he showed how exchange would take place once we divided that department's product between necessary articles of consumption and articles of luxury.⁸ We now must do the same with department I, and separate its production according to that part which produces fixed capital, and that which produces elements of circulating constant capital. Since we assume capitalist production of a mature technical development, let us take the division between fixed and circulating capital as three to one. Then, with the same organic composition of capital throughout our now subdivided department I, we get a new scheme for simple reproduction. [We have designated the two subdivisions of department I by the letters F (fixed capital) and C (circulating constant capital), respectively.]

$$\begin{array}{l} \text{I-F. } 3000c + 750v + 750s = 4500 \text{ means of production for fixed} \\ \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \text{capital} \\ \text{I-C. } 1000c + 250v + 250s = 1500 \text{ means of production for circu-} \\ \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \text{ulating capital} \end{array}$$

$$\text{II. } 2000c + 500v + 500s = 3000 \text{ means of consumption}$$

Total social production is the same as in Marx's scheme for simple

reproduction. We have merely divided production in department I according to the assumptions we stated, leaving both the organic composition of capital and the rate of exploitation the same throughout department I and in department II. Nothing else has changed.

Now, suppose we add a qualifying condition, bringing our scheme somewhat closer into line with historical reality, and recognize that fixed capital will tend to be produced in urban areas, where there are large factories, and that the circulating portion of constant capital, e.g., raw materials, fuel, etc., will in large part come from rural, agricultural regions. We can still assume that capitalist production is universal, and that the organic composition of capital is the same in both subdivisions of department I. So far our difference is strictly geographical. If this is the case, we will have to break up department II as well. Most means of consumption will originate in the countryside, even though they are capitalistically produced. The workers and capitalists of department I-C (means of production functioning as circulating constant capital) will obtain most of their means of consumption close by, from rural enterprises and farms. The latter, however, will produce far more means of consumption than a rural market could absorb, and will have to trade with the cities. The urban areas, on the other hand, cannot produce very many means of consumption and will have to depend upon exchange with the countryside to feed their workers and capitalists whom, we have assumed, in order to simplify matters, are engaged exclusively in the production of fixed capital (department I-F). We then find that we have two great sectors of production: The one urban-industrial; the other rural-agricultural. Each contains enterprises which produce means of production and means of consumption--that is, both will have their own department I and department II. The breakdown might look something like this:

$$\begin{aligned} \text{I-F. } & 3000c + 750v + 750s = 4500 \\ \text{II-F. } & 800c + 200v + 200s = 1200 \end{aligned}$$

$$\begin{aligned} \text{I-C. } & 1000c + 250v + 250s = 1500 \\ \text{II-C. } & 1200c + 300v + 300s = 1800 \end{aligned}$$

For convenience we have kept the same designations of F and C for departments II as well as I. More properly we might have renamed them I- and II-U (urban) and I- and II-R (rural), recognizing that some fixed capital will be produced rurally, and some circulating constant capital will come from the cities. This is not the important point. What is particularly interesting here is that if we take sector F by itself we see that it cannot satisfy conditions of simple reproduction. I-F has exchangeable means of production worth $1500(v+s)$, while II-F has only 800c in means of consumption, and requires only that much in means of production. I-F thus has a surplus of 700 in means of production and a deficit of 700 in means of consumption.

Likewise with sector C. I-C has only $500(v+s)$ to offer in means of production, and needs only 500 in means of consumption; while II-C needs 1200 in means of production, and must dispose of the same amount of means of consumption in order to acquire them. II-C has a deficit of 700 in means of production, and a surplus of means of consumption of the same magnitude.

It is fairly obvious that conditions of simple reproduction can be satisfied only if the rural and urban sectors engage in mutual exchange. I-F can sell its surplus of means of production, worth 700, to II-C in exchange for 700 means of consumption. Then all departments in all sectors will have the material elements they require for production to begin again next year. This result should not really surprise us, since we took our figures for the respective sectors and departments by disaggregating Marx's scheme, which had been in balance before we broke everything up. The relationship we have established, however, is an important one, since it in no way depends on the figures we

started with. We could have employed different figures and even changed the proportions of the total social product shared by the individual departments, the organic composition of capital, etc. No matter what illustration we chose, the same rules of proportionality would hold: Any imbalance, any surplus or deficit in the exchangeable commodity-product of one sector could only be redressed by calling the other sector into circulation--and then only if that other sector required the surplus commodities, and could supply the deficit commodities in the proper amount. In short, the conditions for simple reproduction no longer apply for any single sector alone, but *only to the system as a whole*.

This is no abstract exercise in how much we can manipulate the schemes of simple reproduction. Historically production has seen this same "disaggregation" between urban and rural production. Not only that, they have, at particular, given historical moments been represented by two *different modes of production*. Rural production at the dawn of capitalist development was predominantly of petty-commodity type. Urban production has been characterized by capitalist industry. Thus our two sectors are an abstraction of an historically real situation, and the interconnection we have just discerned between them has been an essential element of capitalist development. Any imbalance in the conditions of reproduction within the capitalist sector could in large part be rectified to the extent that the petty-commodity sector could be brought within the sphere of capitalist circulation.

Within its process of circulation, in which industrial capital functions either as money or as commodities, the circuit of industrial capital, whether as money capital or as commodity capital, crosses the commodity circulation of the most diverse modes of production, so far as they produce commodities...The character of the process of production from which they originate is immaterial. They function as commodities in the market, and as commodities they enter into the circuit of industrial capital as well as into the circulation of the surplus value incorporated in it. It is therefore the universal character of the origin of the commodities, the existence of the market as world market, which distinguishes the process of circulation of industrial capital...

...As soon as act M-MP is completed, the commodities (MP) cease to be such and become one of the modes of existence of industrial capital in its functional form of P, productive capital. Thereby however their origin is obliterated. They exist henceforth only as forms of existence of industrial capital, are embodied in it. However it still remains true that *to replace them they must be reproduced*, and to this extent *the capitalist mode of production is conditional on modes of production lying outside of its own stage of development*. But is the tendency of the capitalist mode of production to transform all production as much as possible into commodity production. *The mainspring by which this is accomplished is precisely the involvement of all production into the capitalist circulation process.*⁹

Marx, then, did in fact provide us with the framework for studying how capitalist and petty-commodity production will develop in mutual inter-relation. This is the first consequence of extending Marx's own breakdown of production according to its material, qualitative characteristics. We have derived, as a conclusion, what Preobrazhensky was to take as his starting point in his analysis of reproduction under concrete capitalism and in the Soviet economy. We will, however, leave this point for the moment, as we will take it up in detail in Part II. This is not the only, or even the most important conclusion to be reached, however. Although the two-sector scheme was no doubt a crucial analytical discovery for Preobrazhensky, its derivation in the way we have done here necessarily leads us to another problem, namely the material conditions of reproduction with regard to the different types of commodities produced and their separate functions within the process of production and circulation.

At any given moment in a society's development its production will be characterized by a determinate technical structure. Reproduction, as we showed above, was not just a question of the material balance between means of production and means of consumption in general, but also of the relation between *the types* of means of production (broadly speaking, those which function as the fixed part of constant capital versus those which function as its circulating portion) that society utilizes in the creation of its social wealth. Marx chose to demonstrate this

by looking at Ic in its exchange with $I(v+s)$. But the argument necessarily extends to department I as well--it, too, has a given technical structure between its fixed and circulating components, and these must be reproduced in the proper proportions if reproduction is to continue. We can illustrate this by taking our two sector scheme and rearranging the figures according to the fixed and circulating portions of their constant capital. Again, we designate fixed capital by the letters F or f, and circulating capital by C or c.

$$I-F. \quad [2250_f + 750_c]c + 750v_{(f)} + 750s_{(f)}$$

$$II-F. \quad [600_f + 200_c]c + 200v + 200s$$

$$I-C. \quad [750_f + 250_c]c + 250v_{(c)} + 250s_{(c)}$$

$$II-C. \quad [900_f + 300_c]c + 300v + 300s$$

In such a system as this the conditions of simple reproduction have become extraordinarily complex. Not only must means of production exchange against means of consumption at their appropriate values--they must do so in the correct material form as well. It is no longer sufficient that the combined departments $I(v+s)$ exchange against the combined Ic . The commodities of $I-F(v+s)$ have the material form of means of production-qua-fixed capital, and must exchange in that form. The same with $I-C(v+s)$, which has a value of 500, but a material shape of means of production that can only function within the circulating capital.

As the scheme is set up the conditions of simple reproduction are satisfied. We have assumed the same technical proportions between fixed and circulating constant capital in all departments, three to one, in addition to Marx's initial assumptions of a rate of exploitation of 100% and an organic composition of capital of four to one. We must note that in the two departments I the subscripts f and c for Ic refer to the material form of the means of production these departments require in their constant capital; the subscripts for Iv and Is represent

the material form of their own commodity-product. As the two departments II produce no means of production, the subscripts there are only listed in their constant capital, and obviously refer to the material shape of the means of production they need to replace.

In this scheme exchange would take place as follows: I-F has means of production of fixed capital to the value of $1500(v+s)$. Departments II-F and II-C combined require means of production of fixed capital to exactly this amount, and can provide I-F with means of consumption of the same value. Besides this exchange, I-C has an exchange fund of $500(v+s)$ which consists of means of production that will serve as circulating constant capital. It requires 500 in means of consumption in return. The combined departments II can satisfy this condition also. They need to replace their constant circulating capital with a combined total of 500; they have 500 in means of consumption to give in exchange to I-C. Simple reproduction is assured from this point of view.

We see, however, that there is another condition to satisfy. There now has to take place an *internal* exchange between I-F and I-C. I-F has a constant capital of 3000, of which it can provide itself with 2250 in fixed capital. It needs, however, 750 in *circulating constant capital*, because of the technical composition of its production process. It must obtain these 750 from I-C. Let us now look at I-C. It has a constant capital value of 1000, of which only 250 exists in a naturally-useful form, i.e., as circulating capital. It must have 750 fixed capital for production to continue. It can acquire these only because it has 750 in means of production capable of functioning as circulating capital and which it can exchange with I-F; the latter in turn needs these 750 in means of production-qua-circulating capital that originate in I-C. So we see that this new, internal condition of simple reproduction has been fulfilled as well as the others. Yet this in turn means

that there is a new possible point of dislocation in the entire process, a new point of disturbance. Even if the exchange between the combined $I(v+s)$ were to take place in full with the combined IIc ; and even if the necessary physical proportions between fixed and circulating capital were satisfied; even then simple reproduction might still be impossible if the internal exchange between $I-F$ and $I-C$ were to break down or the technical structure of each department's constant capital were to alter. Such a disproportion might look like this:

$$I-F. \quad [2500_f + 500_c]c + 750v_{(f)} + 750s_{(f)}$$

$$II-F. \quad [600_f + 200_c]c + 200v + 200s$$

$$I-C. \quad [750_f + 250_c]c + 250v_{(c)} + 250s_{(c)}$$

$$II-C. \quad [900_f + 300_c]c + 300v + 300s$$

Everything has remained the same in terms of how $I-F$ and $I-C$ exchange their v plus s for needed means of consumption of both departments II . Conversely, departments II are each still able to acquire what they need in both fixed and circulating capital. What is more, the value of the total commodity-product of each individual department and of the economy as a whole is the same. The only thing that is different is that $I-F$ now has a higher ratio of fixed to circulating capital than before, while production within $I-C$ has stayed exactly as it was. And this alone is enough to ensure that simple reproduction cannot go on. $I-F$ requires only 500 in constant circulating capital. $I-C$ on the other hand has 750 in circulating capital to exchange. It can exchange 500 of this with $I-F$ easily enough. But then $I-C$ will have a deficit of 250 in fixed constant capital, and a surplus of 250 in unsold means of production which--since they can only serve as part of the circulating portion of some department's constant capital--have no purchaser. We have in effect a goods famine of means of production of industrial origin.¹⁰ The result will be that $I-C$ will have to cut back production all the way around. But this would mean that its variable

capital, and hence its surplus value would be reduced as soon as it adjusted its *total* constant capital to the supply of fixed capital that it can obtain through exchange. Then either II-F or II-C, or possibly both would not be able to obtain the necessary amounts of circulating constant capital, in the shape of raw materials or semi-finished goods of agricultural origin. They, too, will have to cut production. The result is a general crisis, unemployment, destruction of values, etc., and all because of a change in the *internal* material requirements of department I-F. By simply changing the proportion of fixed to circulating capital within its own constant capital it precipitated a drastic alteration in the entire division of labor of the economy as a whole. Every department was affected; a shortage of fixed capital for I-C meant the contraction of production in both departments II, even though the latter could still purchase whatever fixed capital they needed.

Under the assumption of simple reproduction the only way out would be foreign trade, as Marx concluded in his discussion of the imbalance between the replaced and hoarded equivalents of fixed capital. Here the solution would be the same. Our economy could export its surplus of 250 in raw materials, intermediary goods, etc., and import needed machinery and other forms of means of production that could make up I-C's shortfall of fixed capital.¹¹ We could also consider one other alternative that Marx cites in his example, and which might prove suitable for ours: The intensification of the productivity of labor within I-F. This, however, engenders other serious problems.

But such a change would not take place without a shifting of capital and labor from one line of production of I to another, and every such shift would call forth momentary disturbances. Furthermore (in so far as extension and intensification of labor would mount), I [I-F in our example] would have for exchange more of its own value for less of II's [I-C's] value. Hence there would be a depreciation of the product of I [I-F].¹²

Even foreign trade has its difficulties. Once we presume a world capitalist economy, with its world market and mutual inter-relations

between all its parts, a disturbance in one will necessarily have repercussions in others. Any attempt to solve the disproportion via foreign trade would, as Marx argues, merely extend the disproportion, to the extent that it would require some change in the division of labor somewhere else in the world. The world market is not some idle warehouse, stocked with goods to fill up the holes in the economy of some closed national economy. The world market presumes world production, where every national productive unit has its own trauma, its own demands for proportionality, and its ensuing disturbances. Thus foreign trade, as Marx notes, "only transfers the contradictions to a wider sphere and gives them greater latitude."¹³

There is, Marx concludes, only one *durable* solution to these disproportions and disturbances: The abolition of capitalist production.

Once the capitalist form of reproduction is abolished, it is only a matter of the volume of the expiring portion--expiring and therefore to be reproduced in kind--of fixed capital (the capital which in our illustration functions in the production of articles of consumption) varying in various successive years. If it is very large in a certain year (in excess of the average mortality, as is the case with human beings), then it is certainly so much smaller in the next year. The quantity of raw materials, semi-finished products, and auxiliary materials required for the annual production of the articles of consumption--provided other things remain equal --does not decrease in consequence.

Hence the aggregate production of means of production would have to increase in the one case and decrease in the other. This can be remedied only by a continuous relative over-production. There must be on the one hand a certain quantity of fixed capital produced in excess of that which is directly required; on the other hand, and particularly, there must be a supply of raw materials, etc., in excess of the direct annual requirements (this applies especially to means of subsistence). This sort of over-production is tantamount to control by society over the material means of its reproduction. But within capitalist society it is an element of anarchy.¹⁴

These extrapolations, made from Marx's analysis of the reproduction of fixed capital, will prove immensely important to all of our subsequent discussion. In the first place, they have allowed us to derive from Marx conclusions that anticipate a) the theoretical framework Preobrazhensky was to use to analyze both the Soviet system and contemporary

capitalism, in particular the need to construct the reproduction schemes on the basis of two sectors in the economy; and b) the problems that arise when reproduction must take place within an economy where the necessary material elements of its existence are produced by sectors with *different technical needs and differing productivities of labor*,¹⁵ and where reproduction must be mediated by market exchange.

Secondly, Marx's own conclusion highlights the impasse in which the Soviet economy found itself in the 1920's, and which so preoccupied Preobrazhensky. Only a society with sufficient material wealth, and which had abolished the fetters that capitalist circulation (and ultimately, capitalist production) places upon reproduction could attain the flexibility needed to cope with these disproportions, which will occur more naturally the more developed and advanced a capitalist economy is, but which can be increasingly foreseen and coped with under socialism.

We should also note that these disproportions arose in our examples strictly from an analysis of simple reproduction. Expanded reproduction would increase the complexity of the process and provide even more *loci* of breakdown. Later, in Part III, we will show how such disproportion is inherent in the process of expanded reproduction itself. Even at the level of simple reproduction, however, we have managed to highlight the situation which confronted the Soviet Union in the twenties: The goods famine in a mixed commodity-socialist system of economy, which had to achieve expanded socialist reproduction via the medium of market exchange, and in the midst of a private economy even more technically backward than the state sector. It is no accident that Preobrazhensky, in his analysis of this dilemma, concluded that only a revolution in the advanced capitalist world could offer the Soviet Union a way out. Only then could it overcome the political obstacle to her participation in an international division of labor which possessed

NOTES TO CHAPTER 2

1. It is important here to clarify Marx's use of the categories "fixed" and "circulating capital (*Capital*, II, Chs. VIII, X, and XI). Capital for Marx is not a thing, but a social relation; and so fixed and circulating capital have nothing to do with the material characteristics of commodities but with *the way in which their value is transferred to the annual product*. Thus fixed capital is that part of the productive capital whose value remains in a greater or lesser part fixed in the means of production, i.e., outside the value of the annual product--its value is transferred to that of the product only gradually, over several production periods. Circulating capital is capital whose value is transferred entirely to that of the product in the course of a single productive period. Several things follow from this distinction: First, the differentiation between fixed and circulating capital has nothing to do with that between machines and raw materials, or between means of production and means of subsistence, except insofar as certain types of means of production transfer their value more or less slowly as a function of their physical properties. But, notes Marx, fertilizer is fixed capital if its value is not wholly imparted to the crops it helps produce in one season; conversely, coal and other fuels, although not physically contained in any product are circulating capital, as they are wholly consumed and hence their value is completely transferred to that of the product within a single production period. Second, the distinction is not made strictly between different kinds of means of production. Variable capital, since it is a capital-value advanced in the course of production is also part of circulating capital. Here we must make a further distinction. Just as the circulating part of constant capital is not the same as the physical means of production involved, but only a question of how their value is transferred, so the variable portion of circulating capital is not the same as the labor power of the worker or the means of subsistence that sustain the laborer. It is only the value of the variable capital as a capital-value advanced in the course of production. Third, the distinction between fixed and circulating capital is one entirely *within* the productive capital. This is important, as Marx attacks Smith for confusing *circulation* capital, i.e., money capital and commodity capital (which are the functional forms that industrial capital assumes in its path of circulation) with *circulating* capital (i.e., capital which is distinguished by the manner in which it transfers its value to the product, something that can only be done in production, i.e., while the capital has the functional form of productive capital).
is,
2. This/ of course, an abstraction. The capitalists would not let this money lie idle, but would make it available, via the modern credit system, to the capitalist class as a whole. This, however, does not alter the nature of the problem in any way. Both the individual and collective capitalist can only earn back the money needed to replace their machinery a little at a time, in increments; and the machinery itself will only wear out over time, but will require immediate replacement *in toto* at the end of its life span. For the possibilities and limits of employing this accumulating hoard --represented by the depreciation fund--for the purposes of accumulation, see Part III, Ch. 8, below.
3. This relates to the somewhat difficult discussion in Volume II of

Capital (pp. 433-37), where Marx poses the problem of how to compare the *value components* of the social product with its material form. In any given production year the new value created is obviously resolved into what is created by the application of living labor, i.e., what appears in the value of commodities as v and s . Taken together for both departments these represent the aggregate consumption fund of the society, and so are materially represented as means of consumption. If we look at the reproduction schemes we see that, indeed, the sum of $I(v+s)$ and $II(v+s)$ --i.e., everything that is personally consumed--equals the total product of department II, which produces these means of consumption. Yet the commodities that make up each department's product obviously contain a constant capital value component which is transferred to it; what is more, quite clearly new means of production are produced in each production year, and these contain new value created by the application of labor power. And here is the source of the confusion. All of the newly-created value in a year's social product is resolved into $v + s$. Yet all newly-created use values contain both a new value component and an old value component, i.e., a value that is simply transferred in the course of production. This duality is embodied directly in the exchange between $I(v+s)$ and IIc . $I(v+s)$ is new labor, whose value exchanges against a value represented by the constant capital of II, i.e., by a value created (assuming that all of c turns over in one year) in the previous year. $I(v+s)$ is a sum of values that represents the entire newly-added value of I's total product, even though each discrete product of I contains both c and $(v+s)$. This is why we can refer to $I(v+s)$ as new values. Conversely, IIc , although existing as means of consumption, and hence in a social sense part of the newly-created values of society (which, as we noted, is equal to the total product of II), is really the old value component of II's product. What we have is newly-created value exchanging against old value, which exists in the annual product only because it has been transferred from values created in a previous year. And this is not surprising if we consider that *in the year before* II's constant capital wore out and was replaced by $I(v+s)$ *of that year*, i.e., by new means of production that, in that year were new values. Thus $I(v+s)$ *in the present year* is going to replace (and hence exchange against) $I(v+s)$ *of the preceding year*. *This year's newly-added labor exchanges against last year's*. Although this may seem a rather scholastic distinction, it will prove exceptionally important once we take up the question of the accumulation of fixed capital under conditions where we no longer assume that the latter turns over solely in one year (see Part III, below).

4. *Capital*, II, p. 469. Emphasis added.
5. *Ibid*, p. 472.
6. *Ibid*, p. 472.
7. *Ibid*, p. 471.
8. See Appendix to Part I, below.
9. *Capital*, II, p. 113. Our emphasis.
10. The Russian term *tovarniy golod* literally means "commodity famine," Theoretically, this would be a more correct translation, because

it reflects the dual nature of the Soviet economy, which Preobrazhensky characterized as commodity-socialist, since the category of commodity had not been transcended, not even in the state sector. In these terms we could speak of a "goods" famine when the commodity no longer existed in the Soviet economy and we had only state products (see Preobrazhensky's discussion of this topic in the chapter, "The Law of Value in Soviet Economy," in *The New Economics*, as well as our Introduction). Convention, however, has been to use the phrase "goods famine," and we have retained the term only for this reason.

11. We could solve the disproportion in another way. If the combined demand of departments II for means of production from I-F fell from 1500 to 1250, and their demand for means of production from I-C rose from 500 to 750; and if I-F and I-C held their respective demands for means of consumption from both departments II constant; then the latter would have an exchange surplus of 250 in money from I-F, which they could then use to purchase their now greater amount of means of production from I-C. I-C would then have a money hoard of 250 with which it could purchase the means of production it needs from I-F. Then the system would be in equilibrium and the money I-F would have to advance would return to it. The figures might appear as follows:

I-F. [2500f + 500c]c + 750v(f) + 750s(f)
 II-F. [500f + 300c]c + 200v + 200s

I-C. [750f + 250c]c + 250v(c) + 250s(c)
 II-C. [750f + 450c]c + 300v + 300s

Here departments II together purchase only 1250 in fixed capital from I-F. On the other hand they purchase 750 in means of production from I-C. Let I-F advance 1500 in money for its combined purchase of means of consumption. Departments II buy back only 1250; so I-F has lost some of the advanced money (250) and has unsold means of production (also 250). But departments II now exchange 500 means of consumption directly with I-C for 500 means of production. I-C needs only 500 in means of consumption, but departments II have an extra 250 in money which they obtained from their unequal purchase and sale with I-F; and I-C has 250 unsold means of production available, since it has produced 750 for exchange with I-F, but the latter bought only 500. So departments II obtain a full 750 in means of production from I-C, while the latter has sold everything it has to sell and has, in addition, 250 in money that it did not have before. Finally, it takes this money and buys 250 in fixed capital from I-F, which in turn had these 250 lying idle due to the fact that it had produced 1500 for exchange with departments II, but was able to sell only 1250.

We can see that just on the basis of simple reproduction, equilibrium can be attained only via a very complicated circuit of exchange. We will meet this problem again in this exact form in our discussion of the Soviet Union's goods famine (see Part IV, below).

12. *Capital*, II, p. 472. The process Marx is describing here is that of non-equivalent exchange between the two departments. More of I's labor would exchange for less of II's. The only other alternative would be a transfer of social capital from II to I, so that the two departments could then exchange equivalent values in the

necessary quantitative proportions. In the Soviet economy under NEP we also find non-equivalent exchange, but in the reverse direction--values are transferred from the petty production sector into the state sector, primarily into the state sector's department I. This is a vehicle for transferring values into the latter and thereby redistributing the social capital towards an increased output of means of production. Without this the shortage of means of production of state heavy industry could only have been "liquidated" (abstracting from foreign trade) by abolishing non-equivalence (and this, as we shall see below, only in the very short run). This would have made state-produced means of production relatively cheaper for the private sector and more accessible. Thus the state could have further accommodated to the pressures of the market and relieved some of the disproportions between its relations with the countryside, *but only at the expense of its continued ability to accumulate and supply all of state industry with means of production*. Under these conditions, which already presupposed that equilibrium was based on non-equivalent exchange, the Soviet economy would be tantamount to adopting the solution Marx described--i.e., a *de facto* transfer of values out of the state sector, or a relative subsidization of the petty-commodity sector. We should only note that when we refer to a transfer of values from one sector or department to another we are not talking about the moving of actual physical entities, but about values as a command over labor power and hence as a channel for reorganizing social labor and the total social capital.

13. *Ibid*, pp. 472-73.
14. *Ibid*, p. 473.
15. See the passage from *Capital*, II, p. 113, quoted on pp. 129-30, above.
16. It is this inability to recognize the political implications of the Soviet Union's relations with the world economy that characterizes the traditional economic interpretations of the debates of the twenties, in particular the argument of Richard Day (see pp. 16-17 and Introduction, Note 5, pp. 75-76, above). Day treats foreign trade as a technological category, devoid of particular social and historical content. Thus he fails to see that the limits to the Soviet Union's relations with world capitalism were only partly determined by the levels of foreign trade the government was or was not willing to adopt or which the economy could support with its total output; the state in addition had to carefully assess the fact that adaptations of the economy to production for the world market raised the serious question of what kinds of relations these were to be: Capitalist or tightly-controlled by the monopoly of foreign trade. Economic relations always have a political character to them, as they form part of the process of reproduction of the specific economic systems that engage in them--hence they immediately become a question of the ability of a given social system to reproduce particular types of social relations. The capitalist market could have been nothing more than a stop-gap measure for the Soviet economy; eventually assistance from other socialist countries would have been necessary, for only this could have safeguarded the socialist character of the Soviet economy.

APPENDIX TO PART I

THE REPRODUCTION OF $II(v+s)$: NECESSITIES AND LUXURIES

Preobrazhensky did not work out his two-sector scheme from Marx's analysis of the reproduction of fixed capital. If the original inspiration came from Marx at all, it was certainly from the section of Volume II of *Capital* where Marx divides the consumption fund of department II into two categories, consumer necessities (which form the exclusive source of individual consumption of the working class, and comprise a substantial portion of that of the capitalists) and luxuries (which, understandably, are consumed only by the bourgeoisie). It is to this discussion that Preobrazhensky refers in VKA 17 when he emphasizes the need to go beyond a simple value analysis and take account of the material elements of reproduction and their exchange.¹ Marx's section on fixed capital, however, goes unmentioned throughout the VKA articles; it was only in 1931, when he was specifically taking up the question of capitalist crises and the accumulation of fixed capital, that Preobrazhensky noted this part of Marx's analysis--and even then it was only a passing reference.²

We deferred discussion of Marx's analysis of the reproduction of $II(v+s)$ for two reasons. First, the question of the reproduction of fixed capital is thematically central to our entire argument, in particular to any elaboration of the tendencies behind the goods famine in the USSR; by contrast, the analysis of $II(v+s)$ is valuable for our purposes only to the extent that in it Marx came closer to actually deriving the need for a two sector scheme than he did in his discussion of fixed capital, where the argument has to be drawn out by implication. Second, although the analysis of department II's consumption fund leads directly to the construction of a scheme for simple reproduction that combines both a material and a value analysis, the problems of circula-

tion are extremely complex--far more so than in the scheme we employed in our analysis of fixed capital. As a result the essence of the problem would have been obscured if we had started out with an analysis of the reproduction of necessities and luxuries, whose explication in fact presupposes the prior elaboration of the circulation and reproduction of fixed capital.

The actual problem that Marx began with is not especially abstruse or difficult to follow. The product of department II is necessarily going to contain the two classes of commodities we referred to: Articles of necessity and luxury goods; and we can thus sub-divide department II into two groups. Group IIa produces necessities; group IIb produces luxuries. Marx divides their respective capitals as follows:

IIa. 1600c + 400v + 400s
IIb. 400c + 100v + 100s

It is quite evident that the workers in IIa will obtain their means of consumption directly within that group--in the same way as the workers of department II as a whole receive their means of subsistence within II and do not have to exchange their wages outside that department. Similarly, the workers of IIb cannot obtain any of their needed means of subsistence within IIb itself. They must exchange their wages with IIa (the mechanics of which we will go into in a moment). So, the output of IIa must at least cover these 500 means of consumption-qua-necessities. The capitalists, of course, are a different story; they will consume both necessities and luxuries. Marx assumes that they each devote three-fifths of their surplus value to necessities and two-fifths to luxuries. Thus the capitalists of group IIa will consume 240 in necessities and 160 in luxuries; those in IIb will consume 60 in necessities and 40 in luxuries. Therefore if we add up the total output of means of consumption produced in IIa that does not have to be exchanged with department I to replace constant capital, it amounts to 800, or

the sum of $IIa(v+s)$. What is the demand for these necessary consumer items? It is 500 from the workers in both groups, plus 240 from capitalists IIa and 60 from capitalists IIb , or 800 in all. As for luxury goods, group IIb will have 200 of these left over from its total output after it has restored its constant capital; and the demand for luxuries equals 160 from capitalists IIa plus 40 from those in IIb , or 200 all told.

This is no artifact of our figures. We could, as Marx notes, have assumed a different proportion between necessities and luxuries consumed by the capitalists in IIa and IIb ; or we could have assumed that the individual capitalists in each group have such varied tastes that the percentages do not average out and the overall consumption of necessities in IIa is, say, less than that in IIb , or vice versa. None of this would change the proportionalities involved. Once we assume a given division between the gross consumption of necessities and luxuries by the capitalists in department II, the division of II's output between IIa and IIb is fixed. This is for a simple reason. Given a particular size of IIv , which in our case equals 500, we know that the production of necessities must at least cover that amount. Therefore the division of capitalists' consumption between necessities and luxuries will determine the relative weights of the two sub-departments. Any change, observes Marx, in the relative magnitude of a and b would alter the conditions of simple reproduction accordingly.³

The actual circuit of exchange is fairly straightforward. Breaking down our initial scheme to reflect the consumption of the capitalists in the two groups we have:

$$\begin{array}{l} IIa. \quad 1600c + 400v + [240a + 160b]s \\ IIb. \quad 400c + 100v + [60a + 40b]s \end{array}$$

The most important feature of this scheme is this: The workers of IIb can only spend their wages in IIa . Hence the capitalists of IIb can

only realize their variable capital against the surplus value of the capitalists in IIa. This is identical to the problem that confronts departments I and II taken as a whole: I can only realize its variable capital and surplus value against II's constant capital, and vice versa. In the present case the exchange presents little difficulty. The workers in IIb take their wages and purchase 100 articles of necessity from IIa. With the cash so-earned the capitalists in IIa purchase 100 luxury items from IIb, which represent IIb's variable capital. This pair of transactions allows the capitalists in IIa to satisfy 100 of their total demand for 160 in luxuries. The last part of the circuit is completed when the capitalists in IIb purchase 60 in necessities from IIa, and the latter's capitalists in turn purchase 60 in luxuries from IIb. Thus the condition for simple reproduction here is that the portion of IIa's surplus value that is to be spent on luxuries must equal the variable capital in IIb plus the portion of IIb's surplus value that is to be spent on necessities.

Marx then draws attention to an additional complication. The capitalists in department I likewise will consume both necessities and luxuries, and so we must divide their surplus value accordingly. We know from our initial example that $I_v = 1000$, as does I_s . So we then also know that the constant capital of IIa must equal that fraction of I's overall consumption fund that will go for necessities, while the constant capital of IIb must equal the part of I's consumption fund that will be exchanged for luxuries. In other words, $IIa(c)$ must equal at least 1000, to cover I_v . But that in turn means that the division within I_s between necessities and luxuries is also fixed--for production in IIa and IIb is already given by their organic compositions of capital and the consumption patterns of II's own capitalists. By necessity, then, the capitalists in I must consume 600 in necessities and 400 in luxuries. Any other division would violate all the conditions

of simple reproduction and actually make it impossible for at least one group of capitalists in department II to realize their constant capital.

This, however, is by no means the end of the matter. In reality we've different branches in department I: Those which produce means of production suitable for the production of articles of necessity and those which produce means of production for use in the production of luxuries. We know that the former group, which we may also designate as Ia, must provide 1600 in means of production for IIa; and the latter group, Ib, must provide 400 means of production for IIb. Yet the capitalists in Ia and Ib will themselves consume both necessities and luxuries, and so we must break their consumption down into the relevant subdivisions. If Ia must produce 1600 means of production for exchange against IIa(c), then Ia(v) will equal 800, and so will Ia(s). If three-fifths of the 800 Ia(s) (which equals 480) are for necessities, Ia will purchase this many means of consumption from IIa. In addition we also know that the workers in Ia will already have purchased 800 means of consumption from IIa, so the latter now has realized a total of $800 + 480 = 1280$ of its 1600 IIa(c). Where does it obtain the other 320 in constant capital replacement? Well, they must clearly come from Ib. Ib must necessarily have an exchange fund equal to 400, since that is what IIb requires to restore its used up constant capital. Thus Ib(v) will equal 200, and Ib(s) will equal 200 as well. The workers in Ib will immediately purchase 200 in means of consumption from IIa, as only that department can satisfy their demand for necessities. That leaves IIa still short 120 in means of production. These it obtains from the capitalists in Ib, who will, as do the other capitalists in this economy, devote 60% of their surplus value to necessities and 40% to luxuries. The capitalists in Ib will therefore buy 120 means of consumption from IIa and sell IIa a like quantity of means of production in return. IIa will then have recovered all of its constant capital;

conversely, the workers in Ia and Ib will together have purchased 1000 in necessities from IIa, and the capitalists in Ia and Ib will have bought 480 and 120 respectively in necessities from IIa as well.

This only leaves IIb. The capitalists in Ia will purchase 40% of their 800s = 320 from IIb in luxuries. Those in Ib will purchase 40% of 200 = 80. The capitalists in I together purchase 400 in luxuries from IIb; IIb can therefore restore its constant capital.

Thus far Karl Marx. There is one crucial problem, however, that Marx did not tackle, at least not in his notes that Engels patched together to make Volume II of *Capital*. This whole succession of exchanges assumes that IIa exchanges means of consumption *directly* with Ib for means of production. This it cannot do. Ib does not produce means of production that IIa can use. Ditto with IIb. We assumed that IIb could effect direct exchange of luxury items with Ia for means of production. This, too, is impossible. Ia does not produce means of production suitable for use in IIb. How, then, do we solve this dilemma? Let us go back to the beginning and reconstruct what a reproduction scheme would look like on our assumptions.

Ia.	3200c + 800v + [480a + 320b]s
IIa.	1600c + 400v + 400s
Ib.	800c + 200v + [120a + 80b]s
IIb.	400c + 100v + 100s

The subscripts a and b listed in Ia(s) and Ib(s) refer to the quantity of necessities (a) and luxuries (b) that the capitalists in these groups will purchase with their surplus value. We have ignored the internal exchange between IIa and IIb, as this has already been solved, and does not affect the particular problem we are dealing with. How can exchange proceed?

Ib advances money, in the form of wages to its workers. The latter can purchase their means of subsistence only in IIa. This they do, and they buy 200 of IIa's 1600c. This leaves IIa with 200 in money and

1400 unsold IIa(c). Next the workers in Ia purchase (with the money the capitalists in Ia advanced to them as wages) 800 in means of consumption from IIa. IIa now has 1000 in money and 600 in unsold commodities. It has not yet made any purchases to acquire replacement means of production for its constant capital.

IIa now takes the 1000 in money and buys 1000 in means of production from Ia. With this transaction Ia gets back the 800 in money that it had originally advanced as Ia(v). But in addition to this Ia has also received 200 in money *which it did not advance*, but which originated in Ib. The latter, we will remember, started off the entire circuit by advancing 200 in money to its workers as wages. This money wound up in IIa, where the workers bought means of consumption. Ia got hold of it when it sold to IIa 200 of the means of production which were to realize its surplus value. As a result Ia has managed to sell an equivalent of 200 of its surplus value--but its capitalists have not yet made any purchases of either necessities or luxuries. This they proceed to do. Ia takes the 200 in money that have fallen into its hands by way of IIa, adds a further 280 of its own money, and purchases 480 in articles of necessity from IIa.

This means that IIa has sold 1480 out of the 1600 means of consumption that it must dispose of if it is to replace its constant capital. It sells the remaining 120 when Ib advances a further 120 in money to buy necessities from IIa. IIa now has disposed of the entire commodity equivalent of its 1600 IIa(c) by selling 1000 to the workers of I and 600 to its capitalists. Of the money it received by selling these commodities it has already spent 1000 and purchased that much in means of production from Ia. By selling these further 600 in necessities to the capitalists of I it now has the money it needs to buy the rest of the means of production required to replace IIa(c). Thus IIa has realized its entire constant capital component and converted it into means of pro-

Ia likewise has now disposed of all of its 800s *in natura* and has 320 in money, which it did not advance. This money is the excess of what it received from IIa through sales over what it actually advanced to make its own purchases. This last point is of some note. Ignoring the 800v that Ia advanced to its workers, and which came back to it straight away, Ia has advanced only 280 in money. Yet/made 480 in purchases and, on top of that, has 320 in hand to do with as it pleases. 200 of these 320 have circulated twice: Once from Ib(v) to IIa and then back to Ia, and again from Ia to IIa (when it bought its 480 in necessities) and then back to Ia (when IIa bought the rest of its means of production). In addition another 120 in money advanced by Ib have come Ia's way via IIa. So, while Ia has purchased 800v + 480 necessities = 1280 from IIa, it has sold 1600 means of production (its total v + s). It has, as we noted, 320 in money which it did not have before.

Ia takes this 320 and buys 320 in luxuries from IIb. This makes the entire circuit complete from Ia's point of view. It has sold all of its commodity-product; it has received back the money it advanced as variable capital; and it has acquired all the means of consumption its capitalists need to consume, and in the correct proportion between luxuries and necessities. In the process of acquiring these means of consumption it had to advance 280 in money, which returned to it without any complications.

This leaves IIb with 320 in money which it did not advance either. At the same time IIb has sold 320 of the means of consumption that it has to get rid of to replace its IIb(c). It still has to buy these means of production, however, and it does this now, at least in part, by taking the 320 in money it just received from Ia and buying means of production from Ib. Ib in turn had these means of production on hand when it made 320 in purchases (200 through its workers and 120 through its capitalists) from IIa without any compensating sales. And

by selling these means of production, Ib at long last gets back all of the money it had advanced.

This leaves IIb with 80 luxury items still unsold and a shortage of 80 in means of production which it needs from Ib; and Ib with 80 means of production still unsold and a need for 80 luxuries which it can only buy from IIb. This^{is}/done through direct exchange, with one of these two sub-departments advancing the money needed for the purchase. The circuit is now complete, all the money has returned to those who advanced it, etc. The conditions of simple reproduction have been satisfied, both in terms of exchanges of values and of the restoration of all the individual elements of the separate commodity-products in their proper material form.

We see from this that, once we assume the material interdependence of each department upon the products of all the others, the conditions for simple reproduction are much narrower than it first appeared. By merely assuming a given organic composition of capital in each department and a given division of the surplus value of the capitalists in department II between necessities and luxuries, *the division of labor for the system as a whole was determined*. The breakdown between IIa and IIb--seemingly the least important feature of the entire economy--necessitated a particular division in the material production of department I, which had to meet the needs of IIa and IIb for specific types of means of production, and in the correct quantitative proportions.

At the same time, once this social division of labor was fixed, exchange between the departments and the realization of each sub-department's commodity-product could only take place via an extraordinarily complex circuit, where the purchases-without-sales had to exactly match the sales-without-purchases. And all this under simple reproduction!

NOTES TO APPENDIX TO PART I

1. VKA 17, pp. 44-45.
2. *Zakat Kapitalizma*, p. 81; p. 83, fn 1.
3. *Capital*, II, pp. 413-14.

PART II

SIMPLE AND EXPANDED REPRODUCTION UNDER CONCRETE CAPITALISM

CHAPTER 3

SIMPLE REPRODUCTION

In Part I we showed how, starting from Marx, we could construct a scheme for simple reproduction in an economy of more than one sector. From this we derived that a basic condition of simple reproduction was that $I(v+s) = IIc$ *for the economy as a whole*; any balance between $I(v+s)$ and IIc within each particular sector would be strictly accidental--and any imbalance could be overcome only by drawing the other sector into exchange. Beyond this we also showed how a goods famine of industrially-produced means of production could take place even under simple reproduction, and what it would mean for the entire system. We saw this as soon as we removed the simplifying assumption that reproduction involved merely an analysis of the exchange of values, and introduced the problem of the reproduction of the material components of constant capital within *both* departments of both sectors, as well as within the industrial (or capitalist) sector alone.

Needless to say, Preobrazhensky arrived at the need to modify Marx's schemes from a different angle. For him the essential question was how to analyze an historically-given society, where modern industry coexisted with peasant agriculture as an historical and economic-political fact. So it should not surprise us that, when he came to analyze the conditions of expanded reproduction of such an economy, he would introduce a new sector to represent petty-commodity production. This followed from the premises of his theory of two regulators, which said that the concrete Soviet economy was the result of a conflict between two different and antagonistic systems of production: The law of value and the law of primitive socialist accumulation.

Already in 1923, in *Ekonomicheskie Krizisi Pri NEP'e* (*Economic Crises Under NEP*) he stated that in order to properly analyze the Soviet economy and to understand the sources of its crises and disproportions it would be necessary to add a third department to the two Marx had used in his study of simple and expanded reproduction.

In general, for us to carry out the necessary analysis of all the conditions of the exchange of goods in our commodity-socialist system of economy, we will need not two schemes, with which Marx operated, but three. It is necessary to introduce a third scheme, which will characterize the exchange of goods and the numerical regularities and proportions of this exchange between state industry and the peasant economy.¹

Only then would it be possible to understand and regulate the entire economy in the NEP period. Preobrazhensky, as always, was concerned with the practical significance of even the most seemingly abstract theoretical endeavors.

Preobrazhensky must have soon realized that just an additional "third scheme," or third department would not do. The problem was a whole other system of economy, as he had already pointed out. Thus an analysis of expanded reproduction would necessitate the introduction of a new sector, which itself produced both means of production and means of consumption. This is what Preobrazhensky did, and this is where we will pick up his analysis.

Preobrazhensky treated all economic categories as historically specific, and we have previously argued that this was an essential part of his method. We see this as soon as we compare his scheme of simple reproduction in a mixed capitalist-petty production system with the one we drew out on page 128. The departments of the capitalist sector are labelled K, those of the pre-capitalist sector are labelled P. The small letter p represents the values which K obtains from P via exchange; and k represents those which P obtains from K.²

$$\begin{array}{lcl} \text{KI.} & 4000c[3750_k + 250_p] + 1000v + 1000s = 6000 & [\text{KI}(v+s) = 1000p \\ & & +1000s] \\ \text{KII.} & 1500c[1000_k + 500_p] + 375v + 375s = 2250 & \end{array}$$

Total production in K = 8250

$$\begin{aligned} \text{PI.} \quad & 750c[500_p + 250_k] + 1500 \text{ consumption fund } [1000_p + 500_k] = 2250 \\ \text{PII.} \quad & 2000c[1000_p + 1000_k] + 4000 \text{ consumption fund} = 6000 \end{aligned}$$

Total production in P = 8250

The sector of petty-commodity production does not divide up the articles of consumption it produces into v and s . The structure of petty production is such that the category of variable capital is simply inapplicable; there is only the income the petty producers consume directly from their annual product. As a result, the related categories of Marxian political economy, such as surplus value, s , and the organic composition of capital, c/v , either have no counterpart in the peasant economy, or can be used only in a conditional sense. This circumstance, according to Preobrazhensky, makes our analysis of the mechanics of simple reproduction much easier. We have only the two divisions of constant capital (used up means of production) and the fund of consumption to take into account. Conversely, it makes the question of expanded reproduction that much more complicated, as "one cannot in this case assume any constant value of labor power, because the surplus product of petty production can go not only to expand production but also to expand consumption by the independent producers themselves on a scale that is only indirectly regulated by the law of value of labor power..."³

What sort of regularities emerge from an economy of this type? Preobrazhensky's first conclusion is identical to what we saw for our scheme on page 128. Although we will not have equilibrium between $I(v+s)$ and IIc within a single sector (except under the most accidental of circumstances), equilibrium is possible if we exchange the total constant capital equivalent of the combined departments II against the total consumption fund of the combined departments I. This much we have

already shown. A corollary relationship Preobrazhensky derives from this first one is that the value of the commodities that pass from K into P must equal the value of those that go from P into K. This is not surprising, since Preobrazhensky assumes that all goods exchange at their values, and that, in spite of the obviously more primitive technical structure of the peasant economy (compare the ratios of c to the consumption fund in both departments of P against c/v of both departments in K), no non-equivalent exchange takes place--one hour of petty-production labor is worth one hour of capitalist labor.⁵ With this assumption there must be an equal exchange of values between the two sectors. (If this condition is not satisfied we will have a disproportion similar to the one that arose in our example on page 133--but more on this below). Socially, what is really taking place is that the capitalist sector has found itself with a critical imbalance and cannot achieve simple reproduction. It rectifies this *by drawing petty production into exchange* and bringing it into the capitalist orbit. In the scheme we have taken from Preobrazhensky, the surplus means of production of KI, worth 500, are sold to PII, which has a deficit of means of production of this amount; conversely, PII, which has a 500 surplus of means of consumption, sells these to KI, whose consumption fund is short by these same 500.

A closer look, however, shows us that this is not what really happens. Preobrazhensky has given us a far more complex scheme than our own. It is, in fact, very close to the one we later composed to show the proportionality in the exchange of the fixed and circulating components of constant capital. First of all, KI does not exchange with PI merely that part of its $(v+s)$ which KII does not purchase. It actually buys *more* from PII (1000) than its deficit with KII (which is only 500). It buys the rest of its needed means of consumption from KII (= 1000), well enough. But this comes to only 1000, and KII has

to replace constant capital to the amount of 1500. Now it is KII which has the unsold commodities, while at first glance it looked like the surplus belonged to KI. Clearly something more is needed. KII must sell this 500 in means of consumption somewhere. It sells them to PI, which has an overall need of 1500 to replenish its consumption fund. So far so good. KI has sold all of its exchangeable means of production (half to KII and half to PII). It has obtained all of the means of consumption it requires. KII has disposed of all its exchangeable means of consumption--1000 to KI and 500 to PI. In return it has acquired all the means of production it needs, two thirds of which are of capitalist origin, one third from peasant agriculture. What remains of the total social product to be exchanged is 1000 in peasant means of production in PI for 1000 in peasant means of consumption in PII. This is a simple transaction within the peasant sector. Thus we see that for the combined KI(v+s) plus PI's fund of consumption to exchange for the combined KIIc plus PIIc, a fairly complicated circuit is called for. This complexity is dictated by the technical structure of production in each of the two departments that produce means of consumption: They need means of production from both the industrial-capitalist and the agricultural-peasant sectors, which are of a qualitatively different type.

But this means that we haven't finished accounting for all of the exchanges of commodities needed for simple reproduction. The departments in both sectors that produce means of production each have to replace their constant capital, part of which will consist of machines (produced in KI) and part of which will consist of raw materials and other articles of agricultural production. We thus have internal exchange between KI and PI. This works out all right in Preobrazhensky's scheme because KI has to replace 250 of its constant capital in raw materials, etc., and PI has to restore 250 of its constant capital which

had previously existed as machines. We have an exchange of 250 Klc for 250 Plc. The cycle of reproduction is now complete.

It would be a very simple thing for us to juggle Preobrazhensky's figures around so that there was a goods famine of means of production produced in KI. We did this above (p. 133) and saw what type of crisis would ensue. What is all the more amazing is that Preobrazhensky says absolutely nothing about this. He presents this first scheme of simple reproduction in a mixed economy, traces out the general movement of the exchange between the combined consumption fund of departments I and the combined constant capital of departments II, and leaves the matter at that. He never refers to the figures in brackets, which show the actual route through which circulation travels, even though this would have been central to his later argument about the goods famine in the article "Economic Equilibrium in the System of the USSR" (VKA 22). At no time in any of the articles on economic equilibrium does he ever refer back to this first scheme. We will leave this question at this point. We should keep in mind what this reproduction scheme shows, because it will be important later on.⁶

Preobrazhensky was obviously concerned with showing the regularities inherent in a strictly value analysis of reproduction, and even cautions that the question of the material composition of exchange would alter his results, and must be taken up at a later stage of concrete study of a given economy.⁷ Even so, Preobrazhensky has presented this scheme only to lay the groundwork for the more sophisticated analysis he wants to construct. He first laid out conditions of proportionality for a mixed system of economy, and these conditions are valid for any economy based on market exchange, be it capitalist or commodity-socialist. What he now does is reveal the conditions of interdependence between the two sectors and show how if a disproportion arises in the system it can be overcome by adjusting production within the sector that had been

unaffected. This is somewhat different from our first conclusion. There we saw that disproportion within the capitalist sector could be alleviated by drawing the peasant sector into exchange. Now Preobrazhensky takes this fact as his starting point, in order to show how both sectors will adjust to any new disproportion within the system as a whole. To this end he presents a new scheme, in which the production of means of production within the capitalist sector has fallen, and the production of means of consumption has grown. What will be the response of the petty-commodity sector to such a rearrangement of the capitalist sector's social capital?

New Scheme

$$\begin{array}{ll} \text{KI.} & 3500c + 875v + 875s = 5250 \\ \text{KII.} & 2000c + 500v + 500s = 3000 \end{array} \quad \text{Total production} = 8250$$

$$\begin{array}{ll} \text{PI.} & 1000c + 2000 \text{ consumption fund} = 3000 \\ \text{PII.} & 1750c + 3500 \text{ consumption fund} = 5250 \end{array} \quad \text{Total production} = 8250$$

Old Scheme

$$\begin{array}{ll} \text{KI.} & 4000c + 1000v + 1000s = 6000 \\ \text{KII.} & 1500c + 375v + 375s = 2250 \end{array} \quad \text{Total production} = 8250$$

$$\begin{array}{ll} \text{PI.} & 750c + 1500 \text{ consumption fund} = 2250 \\ \text{PII.} & 2000c + 4000 \text{ consumption fund} = 6000 \end{array} \quad \text{Total production} = 8250$$

When we compare the two schemes we see that total social production has not changed; nor has total production within each sector. What has altered is that the division of social labor within the capitalist sector is now such that the formerly self-sufficient capitalist production of means of production is now in deficit and the previously inadequate production of means of consumption now shows a surplus. Everything is the reverse of what it was before. The only way that equilibrium could be maintained in this situation would be if the petty-commodity sector also rearranges its social division of labor. It will have to produce more means of production and fewer means of consumption than it used to. In the present example there is now a shortfall of means of production within K of 250; production in PI, however, has risen, while PIIC has

has fallen, making 250 in PI available for exchange against KIIc. In this way the peasant economy provides capitalist production with necessary means of production, and serves as an adequate market for capitalist-produced means of consumption. If any other arrangement within the petty production sector prevailed, simple reproduction would be impossible.⁸

From this Preobrazhensky has established an important relationship. If production within one department of the capitalist sector falls, equilibrium within the system as a whole can only be maintained if the corresponding department of the petty bourgeois sector raises its level of production by the same amount. There is, therefore, a clear, inverse relation between the movement of KI-PI, on the one hand, and KII-PII, on the other.⁹ This, of course, applies only to simple reproduction and takes only the exchange of values into account. It goes without saying that the technical composition of production in each department of each sector is such that the physical means of production from the peasant sector are not interchangeable with those of capitalist production, except to a very limited extent. Preobrazhensky takes this up further in VKA 22, and we will deal with it more properly then. Right now he has provided us with two constituents of our analysis that are indispensable to our study of concrete capitalism and commodity-socialist economy. First, capitalism exists in constant inter-relation with petty production, and depends upon its exchange with this sector to maintain equilibrium. Second, certain disproportions that crop up in the capitalist sector can be overcome by a redistribution of the social labor in the petty-commodity sector. We have seen as well, although Preobrazhensky did not draw the appropriate conclusions from his own analysis, that because of the material composition of exchange, this new, more complex process of commodity circulation between two different types of economy brings additional sources of disproportion-

ality and crises along with it.

NOTES TO CHAPTER 3

1. *Ekonomicheskie Krizisi Pri NEP'e* (*Economic Crises Under NEP*, Moscow, 1923), p. 16.
2. VKA 17, p. 40. There is an error in the text: KIc reads 4000c [3725k + 250p] instead of 4000c[3750k + 250p]. We have changed Preobrazhensky's designation for the petty-commodity sector from D (for the Russian *dokapitalistichesky*) to P (for its English translation, pre-capitalist).
3. This as we know, became translated into an historical fact during the goods famine, when the peasantry, rather than market its crops on terms it considered unfavorable, simply went over to increased *in natura* consumption of its own product, along with handicraft production of goods which could substitute for those products of urban industry which were in short supply.
4. It might seem that this is an artifact of Preobrazhensky's figures, since he has set KI(v+s) equal to PIIc and PI consumption fund equal to KIIc, and obviously the system as a whole will then balance. This latter set of equalities, however, is itself an artifact of the symmetry he has established between production in the two sectors. Total output in K equals that in P; output in KI equals that in PII and that in PI equals that in KII. We could easily set up a different scheme where the volume of production differs between K and P and where the above accidental relations do not occur:

$$\begin{array}{lcl} \text{KI.} & 6000c + 1500v + 1500s = 9000 & \\ \text{KII.} & 1500c + 375v + 375s = 2250 & \text{Total production} = 11,250 \end{array}$$

$$\begin{array}{lcl} \text{PI.} & 2000c + 4000 \text{ consumption fund} = 6000 & \\ \text{PII.} & 5500c + 11,000 \text{ consumption fund} = 16,500 & \\ & & \text{Total production} = 22,500 \end{array}$$

Here we have simple reproduction for the system as a whole, while equilibrium does not exist in any one sector on its own.

5. When we speak of non-equivalent exchange we are dealing with the problem of what constitutes socially-necessary labor. Obviously one hour spent on production is the same in either sector. But this one hour will yield more products in the capitalist sector, it will see more use values produced. As such, exchange relations will be dominated by those of the more efficient capitalist economy. This also raises the more complicated theoretical question of how we evaluate exchange between two sectors which are not governed by the same economic laws. Petty production conforms to the law of value only to a limited degree. Yet its exchange with the capitalist economy will be subject to the law of value, and evaluated on those terms. It is precisely here that non-equivalence becomes an historical fact which reflects the differing productivities of labor of the two economies.
6. See Part IV, below, where we take up Preobrazhensky's analysis of the circulation process in the Soviet economy. Even here Preobra-

zhensky confined himself to a merely verbal argument and failed to work out all of the implications of his analysis, which the application of the reproduction schemes--even one as basic as that on page 153--would have shown.

7. VKA 17, p. 45. Throughout the VKA 17 article Preobrazhensky refers to the complications that would arise if we introduced the question of internal exchange, i.e., exchange between the same departments of different sectors, but cautions that this can really only be taken up at a more advanced stage of analysis.
8. VKA 17, p. 46. Preobrazhensky notes that historically capitalism did not develop in this way. Both KI and KII advanced simultaneously, though in different proportions (due to their differing organic compositions of capital, as we deal with in the next chapter). As he shows in the final section of this article, petty production plays an instrumental role in assisting capitalism to overcome this disproportion between KI and KII.
9. The text actually states that there is a direct, proportional relationship between KI-PI, on the one hand, and KII-PII, on the other. Both the argument on the preceding pages and the reproduction schemes make it perfectly clear, however, that the relationship is one of inverse proportionality.

We should also note that when we speak of a fall in the production of one of the capitalist departments and the role of petty production in overcoming this imbalance, this drop can be either absolute (as in a crisis) or relative (as when one department accumulates at a faster pace than the other). In either case, the petty-commodity sector plays a vital part in affording capitalism much-needed flexibility in its ability to adjust to such momentary disturbances.

CHAPTER 4

EXPANDED REPRODUCTION UNDER PURE CAPITALISM

Before Preobrazhensky could extend the analysis of concrete capitalism and study the capitalist-commodity production system under conditions of expanded reproduction he first had to further amend and concretize Marx's analysis of pure capitalism. If the only drawback of Marx's investigation was that it did not work out the tendencies and inter-relations of a two sector economy, we could move straight on from simple reproduction to study such an economy when there is accumulation. But Volume II of *Capital*, as we have already stressed, was terribly incomplete. Marx had laid out the regularities of pure capitalism under simple reproduction in great detail; there our extrapolations consisted of moving from pure capitalism to concrete capitalism, both in terms of studying what occurs when circulation must take account of the material composition of each department's production, and the mutual interconnections in a capitalist economy that coexists with pre-capitalist formations.

When it came to expanded reproduction under even pure capitalism, however, Marx had done little more than undertake the barest beginnings of an analysis, and had examined it under the most simplifying assumptions. Some of these now had to be stripped away if Preobrazhensky was to be able to go further and establish an analysis that could actually apply to the concrete economy of the USSR. What Preobrazhensky then did, in the second part of VKA 17, was question Marx's basic premise about the organic composition of capital. In his original scheme Marx had assumed that the ratio, c/v , would remain constant in both departments; he was therefore abstracting from even his own detailed discussion in Part III of Volume III of *Capital*, where he showed what tendencies would emerge as society augments and improves its technological

base and machines take over increasingly larger portions of the labor process previously performed by living labor.

In addition, when he studied expanded reproduction, Marx made the realistic assumption that the organic composition of capital was lower in department II than in department I. The production of means of production will, in fact, have a higher organic composition of capital than the production of means of consumption. He did not, however, demonstrate all the possibilities of crisis and development that this assumption presents. Marx made accumulation within department I the axis of expanded reproduction, and adjusted accumulation in department II to satisfy the necessary exchange of I's consumption fund $I(v+s/x)$ with IIc. Consequently, he did not bring out the fact that departments I and II, if left to grow independently and to accumulate on the basis of equal rates of exploitation and equal divisions of their surplus value between accumulation and consumption (as is the only valid assumption in a concrete analysis) would grow at different rates.

Preobrazhensky's analysis of expanded reproduction under pure capitalism centers around these two points. He discovers that if we assume an increase in the organic composition of capital; or, given a lower organic composition of capital in department II than in department I, if we allow department I and department II to accumulate the same percentage of their annual surplus value, then either or both of these conditions will produce a relative over-production of means of consumption and a deficiency of means of production destined to replace IIc. The disproportion is systematic, and can only be overcome by rearranging the total social capital each year so as to transfer capital from department II to department I. This will assure the *absolute* growth of $I(v+s/x)$ and allow it to keep pace with the natural rise in IIc that department II's accumulation brings about.

I. The Tentative Nature of Marx's Analysis of Expanded Reproduction

Just what were the inadequacies of Marx's schemes for expanded reproduction that led Preobrazhensky to modify them? Well, let us begin with Marx's initial scheme for expanded reproduction:

$$\begin{array}{l} \text{I. } 4000c + 1000v + 1000s = 6000 \\ \text{II. } 1500c + 750v + 750s = 3000 \end{array} \quad \text{Total production} = 9000$$

Compare this with the scheme for simple reproduction at the beginning of Chapter 1. Production in department I is exactly the same. So is the total social product, which still equals 9000. The difference is in department II. We now assume that one half of s in department I is accumulated, whereas before, with simple reproduction, it was totally consumed. This in turn means that 500 out of 2000 $I(v+s)$ goes to expand the functioning constant and variable capital in that department. The consumption fund of I is, therefore, only equal to 1500 (1000v plus 500s/x--the consumed part of I's surplus value). Since we also assume that the system starts off in equilibrium, Marx sets IIc equal to 1500 as well. Finally, because total production in II is presumed still equal to 3000, its v , and therefore its s , have risen from 500v and 500's to 750v and 750s. This is already an important difference from the earlier scheme. The technical structure of the economy which the present scheme describes shows differing organic compositions of capital within the two departments. Department I has a c/v of four to one, as before. Department II, however, has a much lower organic composition of capital, only two to one, whereas under simple reproduction it had been four to one, the same as in department I.

This fact has little immediate significance if we only look at the way Marx described expanded reproduction. Department I accumulates one half its surplus value, or 500. This must be distributed between expanding the constant capital and employing new labor power to work with the new means of production. The organic composition of capital

in I is four to one: So 400 of the 500 must go to augment c and 100 to increase v. At the beginning of the new production year department I's capital will look like this:

$$\text{I. } 4400c + 1100v + 500 \text{ consumption fund} = 6000$$

The total exchangeable product of department I is equal to $1600 I(v+s/x)$.

In order for department II to satisfy I's demand for means of consumption it must increase its own IIc by 100. But an increase of 100 IIc also means that we must add 50 to IIv, which makes the total which II accumulates equal to 150. II's consumption fund then equals $800v$ plus $600s/x$, or 1400. So, at the end of the first year, production in both departments stands as follows (remembering that Marx retains his assumption that the rate of exploitation equals 100% in both departments):

$$\begin{array}{l} \text{I. } 4400c + 1100v + 1100s = 6600 \\ \text{II. } 1600c + 800v + 800s = 3200 \end{array} \quad \text{Total production} = 9800$$

What is interesting about this scheme is that, while department I accumulated one half of its surplus value, department II could only accumulate $150/750$, or one fifth. If it had accumulated more, IIc would have outstripped I's capacity to provide it with means of production. There would have been a relative over-production in department II. We need only look at what would happen in the next year to see that this is not an arithmetical artifact. After accumulation, dividing it up between c and v in the proper proportions, department I's capital will be:

$$\text{I. } 4840c + 1210v + 550 \text{ consumption fund}$$

Department II will have to add 160 to its constant capital and 80 to its variable capital, making accumulation there equal to 240. After the year's production, both departments together will appear as follows:

$$\begin{array}{l} \text{I. } 4840c + 1210v + 1210s = 7260 \\ \text{II. } 1760c + 880v + 880s = 3520 \end{array} \quad \text{Total production} = 10,780$$

Here department I accumulates 50% and department II 30% of their respective surplus values. If we work out the process of accumulation

over a number of years, we find this always to be the case--accumulation in department II is 30% of its surplus value as compared to department I's 50%. This must be so as long as department I is our axis, and department II grows only enough to maintain the relation $I(v+s/x) = IIc$. But this leaves us with the highly unrealistic result that the capitalists of department II consume considerably more--and accumulate much less--of their surplus value than their counterparts in department I. Nevertheless, as Preobrazhensky notes, it was essential for Marx to begin his analysis of expanded reproduction in this way, in order to demonstrate the basic regularities of the process. Marx's discussion of the problem breaks off abruptly and the last chapter of Volume II of *Capital* remains incomplete. We are left with Marx's invaluable introduction to the problem, plus a whole range of questions that he left unexplored.

This discussion of Marx, which is drawn from observations and examples scattered throughout the first parts of VKA 17, takes us up to the point where Preobrazhensky's main argument properly begins. As we stated at the start of this chapter, he raises two questions: 1)What happens if the organic composition of capital rises in one or both departments?; and 2)what happens if we assume equal rates of accumulation in both departments I and II when their organic compositions of capital differ?

Here we come up against certain difficulties. Preobrazhensky is clearly talking about two *distinct* tendencies within capitalist development, each of which seem to lead to the same result. Yet as distinct tendencies it is crucial that we abstract them out from each other and examine them each in their turn. That way, when we look at the final result we can discern what is the product of the *rise* in the organic composition of capital and what results from the fact that the organic compositions in the two departments are *unequal*. Preobrazhensky, un-

fortunately, while being absolutely clear in his own mind what he was driving at, did not sharply distinguish between these two quite separate aspects of capitalist development. Nor is it unambiguous how he arrived at and used his arithmetic examples--although we will show that they are, in fact, well, and quite systematically chosen to demonstrate the particular theoretical points in question. What we propose to do, then, in the remainder of this chapter is to deal with each of these tendencies individually, illustrating them with our own examples. Then, when we take up the question of the transfer of capital from department II to department I, we will look at both of them together so as to show their combined effect. We will do this with Preobrazhensky's own illustration, while showing the algebraic regularity behind the arithmetic.

II. Unequal Organic Compositions of Capital

Let us begin with the question of unequal organic compositions of capital. When we presented Marx's scheme in the last section we pointed out that the organic composition of capital was lower in department II than in department I, and said that this fact had no immediate significance so long as we continued to adjust accumulation within department II to satisfy the demands of equilibrium, which were themselves dictated by accumulation within department I. As soon as we alter this condition, this is no longer true. The deviation in the two organic compositions of capital becomes a critical source of instability. And certainly we must now drop this assumption that only department I accumulates according to the internal logic of its own production of surplus value. In reality there is nothing to make capitalists II behave any differently than those in I and to consume more and accumulate less.

If we work out expanded reproduction over the course of a couple of production years we see this disproportionality quite plainly. We

already know the figures for department I's accumulation in the first year from our example in the preceding section. If department II also accumulates fifty per cent of its surplus value, the arrangement of the social capital will be:

$$\text{I. } 4400c + 1100v + 500 \text{ consumption fund} = 6000$$

$$\text{II. } 1750c + 875v + 375 \text{ consumption fund} = 3000$$

After this first year's production we will have (also assuming a rate of exploitation = 100%):

$$\begin{array}{l} \text{I. } 4400c + 1100v + 1100s = 6600 \\ \text{II. } 1750c + 875v + 875s = 3500 \end{array} \quad \text{Total production} = 10,100$$

Whereas before department II accumulated only 150 (100c plus 50v), it now accumulates 375, or more than twice as much. This 375 goes to expand IIc by 250, and IIv by 125. Already in this first year we have a massive deficit of means of production. After accumulation, but before the year's production is carried out, it equals 150; that is, II cannot convert 150 in accumulated money capital into means of production representing part of its new productive capital. Even at the end of the year, when all production has been carried out and no further accumulation has yet taken place, the deficit is still equal to 100. And in the second year it will become even worse. If both departments accumulate 50% of their surplus value we have:

$$\text{I. } 4840c + 1210v + 550 \text{ consumption fund} = 6600$$

$$\text{II. } 2041.7c + 1020.8v + 437.5 \text{ consumption fund} = 3500$$

IIc is now greater than the consumption fund by 281.7. The disproportion has grown. In terms of the circuits of industrial capital that we examined in Part I, department II has some 281 in commodity capital that it cannot convert into money capital; or, somehow assuming that II, perhaps via foreign trade (from which we are actually abstracting), could carry out this first metamorphosis, and convert this portion of C' into M, there is simply no way that the circuit can carry on to the next stage and see M converted into means of production, which are el-

ements of additional productive capital, P. Even at the end of the year, when I's productive capital has given rise to a greater surplus value, as a result of the accumulation of new variable capital, the situation is little better:

$$\begin{array}{lcl} \text{I.} & 4840c + 1210v + 1210s = 7260 & \\ \text{II.} & 2041.7c + 1020.8v + 1020.8s = 4083.3 & \end{array} \quad \text{Total production} = 11,343.3$$

The deficit still equals 226.7, or considerably more than the 100 deficit of the year before.

If we were to carry out accumulation for a number of years, we would find that the disparity would increase each time. Why is this happening? Well, to find an answer we should first ask, what is the nature of accumulation? Any society can accumulate only off of its surplus product. Under capitalism, surplus product only takes the form of surplus value, which the capitalist class appropriates. Surplus value is a function of the living labor employed in the production process, for this is the only element that can add new value to the social product--the value of the worn out constant capital being merely transferred and saved up towards future replacement. Thus the larger the v component of capital, the greater s will be (productivity of labor and intensity of exploitation remaining constant). Now, what is the situation where one department has a lower organic composition of capital than the other? For every quantum of surplus value out of which it accumulates it devotes more of it to increase v, and less to increase c than the department with a higher ratio of c/v. Thus *the new surplus value* in the next year will be greater. If we look at our present scheme, the new surplus value added in department I from our starting point to the end of the second production year equals $1210 - 1000 = 210$. In department II it equals $1020.8 - 750 = 270.8$.

As a result department II adds in each new year an increment to IIc that is far greater than what department I adds to $I(v+s/x)$. This

is because the new surplus value, out of which this accumulation comes, is so much larger in II than in I. Accumulation as a whole proceeds far faster in department II than in I. In fact, it would not take too many years before I_{lc} was greater than the total v plus s in department I, not just its fund of consumption. If we reversed the relationship, and set I_{lc}/v higher than I_c/v , we would obtain the opposite result. At first the disparity between I_{lc} and $I(v+s/x)$ would actually increase, because a larger part of II's accumulation was now going to augment I_{lc} . Soon, however, accumulation within II would slow down radically, so that the mass of new surplus value out of which it could take this (relatively) larger share of I_{lc} would decrease in comparison with what department I had available to raise $I(v+s/x)$. In this case, after a while we would have a sharp deficit of means of consumption. Economically, this would mean that II's production could not keep pace with what society needed to sustain itself. Either production in department I would have to be cut back, meaning declining reproduction and perpetual crisis and stagnation, or, as we shall see later on, capital would have to move from department I to department II. And in our present example, where the over-accumulation is in department II, just the reverse conclusion holds. Either department II must cut back production, also leading to crisis and loss of values, or capital must be transferred from department II to department I.

We can demonstrate this very simply algebraically. At the end of a new production year, the new level of $(v+s/x)$, that is, $(v+s/x)'$, will equal the previous level $[(v+s/x)]$, plus the addition to the consumption fund, $d(v+s/x)$. How is this addition to the consumption fund formed? First, the new v is a function of the rate of accumulation--the greater the share of s going to accumulation, the greater the addition to v . Secondly, with a given rate of accumulation out of s , it is a function of the share going to v , as opposed to that which goes to increase c --

in other words, it is directly proportional to the fraction $v/(c+v)$.

Now, let us adopt the following notation:

x = rate of accumulation out of s

$y = v/(c+v)$

z = the proportion of s going to individual consumption = $1 - x$

Then $dv = xy(s/v)v$

= xyv , where s/v (the rate of exploitation) = 1

So, $(v+s/x)' = (v + zv) + (dv + zdv)$

= $(v + zv) + (xyv + xyzv)$

= $(v + zv) + xy(v + zv)$

= $(1 + xy)(v + zv)$

= $(1 + xy)(v + s/x)$, where $s/v = 1$

In other words, the growth of $(v+s/x)$ is directly related to the size of the rate of accumulation and to the share of v in the total productive capital. It is therefore *inversely* related to the organic composition of capital, c/v . This, however, tells only about the growth of $(v+s/x)$. What about the growth of c , with which it must be compared?

Logically we know that c must grow at the same rate as v and as $(v+s/x)$, since the equation for accumulation is a linear one. We can show this easily as well. If the new level of constant capital is designated by c' , then

$$c' = c + dc$$

If q = the share of c in the total capital = $c/(c+v) = 1 - y$, then

$$dc = xqs$$

and assuming that $s/v = 1$,

$$dc = xqv.$$

But v is a constant fraction of c , i.e., $(v/c) \cdot c$

Therefore, $c' = c + dc$

$$= c + xqv$$

$$= c + xq(v/c \cdot c)$$

$$= c + (xq \cdot v/c)c$$

$$= (1 + xq \cdot v/c)c$$

Now, if c/v is constant throughout a production year,

$$xq \cdot v/c = x[c/(c+v)] \cdot v/c$$

$$= x[v/(c+v)]$$

$$= xy$$

Thus, $c' = (1 + xq \cdot v/c)c$

$$= (1 + xy)c$$

That is, c , v , and $(v+s/x)$ all grow--as expected and as they must--at the same rate. We do not consider this result especially troublesome to interpret. Both $(v+s/x)$ and c grow in direct proportion to the rate of accumulation and in inverse proportion to the organic composition of capital, c/v . Therefore, if, starting out from a position of equality between Ic and $I(v+s/x)$, Ic/v is less than Ic/v , then Ic will quite clearly grow faster than $I(v+s/x)$, and so the absolute divergence between the two will obviously grow with each passing year. This is precisely the result we obtain by working out the pattern of accumulation year by year. The reason is equally clear from the algebraic exposition: The dynamic factor in those equations is v , the value of the variable capital. It is v that gives rise to s ; and so the coefficients of v will determine the entire pattern of accumulation.

III. A Rise in the Organic Composition of Capital

The question of a rise in the organic composition of capital is quite a different matter from the fact that departments I and II have unequal organic compositions. To avoid any possible confusion, we will select a numerical example where--unlike in Preobrazhensky's scheme in VKA 17-- c/v is the same in the two departments.

$$\begin{array}{ll} \text{I. } 4000c + 1000v + 1000s = 6000 & \text{Total production} = 8250 \\ \text{II. } 1500c + 375v + 375s = 2250 & \end{array}$$

In this scheme total production is lower, since we have had to scale down department II in order to bring its technical structure into line

with that of department I. The organic composition of capital is four to one in both departments.

Preobrazhensky's argument on the effects of a rise in the organic composition of capital is fairly straightforward. If c/v in department I were to alter, so that, say, $I_c = 4050$ and I_v (and hence I_s) = 950, then--department II staying the same--department I's consumption fund would only equal 1425 and there would be a deficit of means of production in II_c of 75. By the same token, if II_c/v were also to rise, giving, for example, $II_c = 1550$ and II_v and $II_s = 325$, then, if $I(v+s/x)$ remained at 1500 (i.e., before any change in I_c/v), there would still be a deficit of means of production for II_c equal to 50. And if we took our two illustrations together the shortage would come from both ends at the same time: The deficit would equal $1550 - 1425 = 125$.

Nor is it difficult to see why this is so. A rise in the organic composition of capital in department I means that its exchange fund, relative to what it was in conditions of equilibrium, has fallen. I needs to replace a smaller quantity of advanced variable capital and to realize a smaller capitalists' consumption fund. II, on the other hand, sees its demand for means of production stay the same, so that while we started out from a position of equality of exchangeable commodity-products, we now see II_c greater than $I(v+s/x)$. In the case of a rise in II_c/v , the worn out constant capital component in II's product grows, thus heightening II's demand for means of production. Department I, on the other hand, has not changed at all; its exchange fund is now inadequate to meet II's increased need for means of production. When c/v changes in both departments at once we have the worst of both worlds. Department I has a smaller exchange fund--it offers fewer commodities for exchange and needs fewer in return--while department II has a larger one--it must realize a larger quantity of commodities and receive more means of production back.

It might be asked, however, if this isn't an artifact of the static way in which we've approached the problem. After all, if the organic compositions were to rise uniformly (in percentage terms) in both departments, they would still be equal. So, providing we also have equal rates of accumulation, shouldn't equilibrium be maintained under conditions of accumulation? To answer this question, we need only to work out accumulation for a couple of years, but now introducing the condition that the organic composition of capital rises in each department by one per cent (the example Preobrazhensky chose in his later illustration of the transfer of capital from department II to department I, which we will deal with below). A growth in the organic composition by one per cent means that in each department it will move from 4:1 to 4.04:1.

This means that the newly accumulated surplus value is divided between new c and new v in such a way that the total capital in each department has the relation of 4.04 c to lv . So that there is no mystery about this, we can solve this with simple simultaneous equations. If x equals the share of the newly accumulated s that goes to augment c , and if y equals the portion that goes to raise v , and if the final arrangement must give $c/v = 4.04:1$, then we will have these equations:

For department I:

$$\begin{aligned} 4000 + x &= 4.04(1000 + y) \\ x + y &= 500 \end{aligned}$$

Solving for x and y , we obtain $x = 408.7$ and $y = 91.3$. That is, the new division between c and v is actually $408.4/91.3 = 4.48:1$.

For department II:

$$\begin{aligned} 1500 + x &= 4.04(375 + y) \\ x + y &= 187.5 \end{aligned}$$

$x = 153.3$ and $y = 34.2$, which is also a division between newly added c and newly added v of 4.48:1. Translating these figures into a new arrangement of the social capital for the year's production we get:

$$\begin{array}{l} \text{I. } 4408.7c + 1091.3v + 1091.3s = 6591.3 \\ \text{II. } 1653.3c + 409.2v + 409.2s = 2471.7 \end{array} \quad \text{Total production} = 9063$$

$I(v+s/x) = 1636.95$; $IIc = 1653.3$. There is a deficit of means of production = 16.35.

If we allow c/v to rise in both departments by another 1% in the following year, i.e., to 4.08:1, the disproportion worsens.

For department I:

$$\begin{array}{l} 4408.7 + x = 4.08(1091.3 + y) \\ x + y = 545.6 \end{array}$$

$$x = 446.9; y = 98.8 \text{ [new } c/\text{new } v = 4.52]$$

For department II:

$$\begin{array}{l} 1653.3 + x = 4.08(409.2 + y) \\ x + y = 204.6 \end{array}$$

$x = 167.5$; $y = 37.1$ [new $c/\text{new } v = 4.51$]. This gives for the year's production:

$$\begin{array}{l} \text{I. } 4855.6c + 1190.1v + 1190.1s \\ \text{II. } 1820.8c + 446.3v + 446.3s \end{array}$$

$I(v+s/x) = 1785.15$; $IIc = 1820.8$. The deficit has increased to 35.65.

The way we have worked out the problem here, that is, by adjusting only the division between the new accumulated surplus value, so as to affect the total productive capital, comes fairly near to what we would observe in a real economy. For example, suppose new labor-saving machines are introduced and these require an amount of labor power to operate them such that the value of the constant capital used up in relation to the value of this new labor power equals 4.48:1 (which is what we have in our first year). The old machinery, whose replacement component stands to the value of the labor power needed to work it in the ratio of 4:1, isn't scrapped. It continues to operate alongside the new machinery, so that the average c/v of the entire productive capital turns out to have risen by 1%, i.e., to 4.04:1. Similarly in year two, the new machinery requires new labor power to set it into motion such that dc/dv equals about 4.51:1. Again, the new machinery functions

along with the machinery that was added in the year before (which, although technically more advanced than the initial stock in year one, is not as efficient as the machinery that has been most recently added), as well as the machinery still functioning from the very beginning. This newest addition of means of production causes the average c/v to rise by another 1%, to around 4.08:1.

To show why there is no contradiction between this argument and our algebraic formulation in the previous section, let us suppose, for purely theoretical purposes, that the change in c/v all took place prior to accumulation. In other words, out of the productive capital of 5000 in department I, we rearranged it so that $c/v = 4.04$. Then c would come to around 4008 and v to 992. In department II, where we would have to make the same sort of adjustment, the original 1875 in productive capital would see c equal to 1503 and v equal to 372. The total social product would look like this:

$$\begin{array}{l} \text{I. } 4008c + 992v + 992s \\ \text{II. } 1503c + 372v + 372s \end{array}$$

Accumulation would then take place by apportioning the accumulation fund of each department according to the already-established organic composition of capital of 4.04:1.

$$\begin{array}{l} \text{I. } 4405.6c + 1090.4v + 496s/x \\ \text{II. } 1652.1c + 408.9v + 186s/x \end{array}$$

which gives for the final product

$$\begin{array}{l} \text{I. } 4405.6c + 1090.4v + 1090.4s \\ \text{II. } 1652.1c + 408.9v + 408.9s \end{array}$$

$\text{II}c - \text{I}(v+s/x) = 16.5$, which is very close to the first year deficit we obtained by calculating accumulation with our first method.

If we look more closely at the arrangement of the productive capital, we see that by altering the organic composition of capital, by letting it rise by one per cent, we disrupted the entire equilibrium before any accumulation even took place. Thus, even though accumulation subsequently was carried out on the basis of equal organic composi-

tions of capital and equal rates of accumulation and exploitation, there was still a sizable disproportion. This arose from the initial inequality between the exchange funds of the two departments.

In fact, we could only have overcome this disproportion if, once a new c/v had been established, the *absolute* size of the productive capital in I grew by an amount necessary to allow $I(v+s/x)$ to equal IIc . Such an arrangement would be:

$$\begin{array}{ll} \text{I.} & 4048.1c + 1002v + 1002s \\ \text{II.} & 1503c + 372v + 372s \end{array}$$

Here the organic composition of capital is still 4.04:1, but the total capital in I has grown to allow $I(v+s/x)$ to equal IIc , or 1503. Then, obviously, accumulation would retain proportionality, so long as the organic composition of capital did not change in either department.

The problem is that additional capital does not fall from the sky. We cannot simply presume that department I will grow out of nowhere and thereby re-establish proportionality.

More to the point, since with a constantly rising c/v the disproportion would re-arise every year, in spite of any initial equilibrium, we would have to presume that department I had perpetual access to this magical warehouse of instant capital, so that it could grow every year by an amount necessary to sustain proportional exchange between itself and department II.

So, once again we are confronted with the conclusion that only a rearrangement of the social capital as a whole can allow this disproportion to be erased. The mechanism for this rearrangement under capitalism must be the transfer of capital from department II to department I, a transfer that would have to take place each and every year.

IV. *The Transfer of Capital Between Departments*

As we have already indicated, Preobrazhensky concluded that there was only one way out of this impasse: The systematic redistribution of

the total social product in each period, which would ensure that $I(v+s/x)$ would grow absolutely so as to keep up with the absolute growth of IIc . The historical tendency for the organic composition of capital to rise creates a tendency for IIc to outgrow $I(v+s/x)$; such a tendency can only be mitigated by a constant redistribution of the social capital. Historically this would mean that the relative weight of society's production devoted to the production of means of production will increase. This argument is quite in line with that of Marx in Volume III of *Capital* (Part III), where he dealt with the tendency for the rate of profit to fall. A rise in the organic composition of capital, Marx noted, will logically lead, along with a fall in the rate of profit, to a fall in the mass of profit as well. Historically, however, the latter is not observed. It is offset because the mass of surplus value produced increases as a result of an *absolute* increase in the amount of variable capital employed in production--in spite of the fact that the *relative* share of v in the productive capital drops. This in turn happens because the total capital grows absolutely, and faster than the growth in the organic composition of capital.¹

We have shown that the same process is expressed in the reproduction schemes once we add the condition of a rising c/v . If department I accumulates off of its own resources this will be insufficient to cover the demand for means of production in department II. In addition to the internal accumulation within department I a portion of the surplus product of department II must go to augment production in I as well. There will be a transfer of capital from II to I, so that the *relative* growth in I proceeds faster than that of social production as a whole. This relative growth of I is a condition for the absolute growth of $I(v+s/x)$ increasing in line with the absolute growth of IIc .

Consequently, we are obliged to try to solve the problem by establishing, for each new year, new proportions that will ensure equilibrium. For if we take one department as a base and adjust the

distribution of capital within the other department to it, as the pivotal point, that could not give us any sort of long-term solution to the problem. Therefore, at the end of each year we have first of all to set aside from the surplus value of both departments an amount necessary to maintain the level of production of the preceding year, and then to distribute the remaining surplus value of both departments, taken together, on the basis of the conditions of proportionality of the new year. Under the actual conditions of capitalist development (excluding, of course, periods of crisis) things proceed something like this. Allowing for "normal" bankruptcies in both departments, the general outlines of the preceding period's distribution of capital are retained; new capital accumulated in the preceding year through new stock and bond issues is then distributed hit or miss, spontaneously, between the various branches by taking into account the interplay of market forces in each given case between departments I and II; and finally this new distribution of capital readjusts itself through the market mechanism that regulates the whole system.²

To illustrate this process, Preobrazhensky takes the following example:

I. 4000c + 1000v + 1000s
II. 1500c + 750v + 750s

We already know how accumulation would proceed in department I. We would get:

I. 4400c + 1100v + 500 consumption fund

First, says Preobrazhensky, department II must take, out of its accumulation fund of 375, 100 to add to IIc, in order to match the increased demand of department I for means of consumption. To do this, however, it must also increase its own variable capital by 50. This leaves 225 not yet distributed. We cannot return to Marx's solution and assume that this whole 225 is consumed by the capitalists in department II. It must, therefore, be redistributed between both departments together, so the equilibrium as a whole is maintained. Preobrazhensky does this and winds up with this result:

I. 4558.4c + 1129.6v + 500 consumption fund = 6188
II. 1629.6c + 807.3v + 375 consumption fund = 2811.9³

Preobrazhensky resolved this in the following way: First of all, he retained his condition of a growth in the organic composition of capital, which he set at 1%. This meant that first off, Ic would grow by

40, to 4440, and IIc by 15, to 1615. To cover this increase in IIc by 15, however, Iv would also have to grow by that amount, so that the means of production for IIc would actually be available, and there would be a market for II's additional commodity-product. Yet for Iv to grow by 15 means that Ic must then increase by a further 60, to 4500.⁴ Thus the mere rise in the organic composition of capital by 1% is enough to set in motion a chain of events that accounts for 130 of the 225 of II's undistributed accumulation fund. The rest Preobrazhensky distributes in this fashion: 7.3 to augment IIv. In line with this, IIc must then rise by 14.6, as must Iv. And the latter then causes Ic to swell by 58.4. This puts everything in order. The actual sum that passed from II to I was 188.⁵ The value of Preobrazhensky's exposition here is that it carefully shows how this process of redistribution obeys very tight rules of proportionality between the individual elements of the productive capital of both departments. Mathematically, however, the problem lends itself very neatly to solution by simultaneous equations.

We know that there is 225 total capital to be distributed. We also know that the organic composition of capital in department I is to rise from 4:1 to 4.04:1, and that the organic composition of capital in department II is to go from 2:1 to 2.02:1. The appropriate equations would be:

$$\begin{aligned} 4400 + x &= 4.04(1100 + y) \\ 1600 + y &= 2.02(800 + z) \\ x + 2y + z &= 225 \end{aligned}$$

x is the addition to Ic; y is what is added to Iv. But the essential condition to be satisfied here is that whatever is added to Iv is also added to IIc, and vice versa, since this is the condition of exchange we must satisfy. Therefore y is also what is added to IIc, and hence the appearance of the term 2y, instead of just y, in the last equation. Finally, z is the addition to IIv. Solving these equations for the

three variables, we have $x = 160.6$; $y = 28.86$; $z = 6.4$. So the final arrangement looks like:

$$\begin{aligned} \text{I. } & 4560.6c + 1128.9v + 500s/x \\ \text{II. } & 1628.9c + 806.4v + 375s/x \end{aligned}$$

giving production at the end of the year as

$$\begin{aligned} \text{I. } & 4560.6c + 1128.9v + 1128.9s = 6818.4 \\ \text{II. } & 1628.9c + 806.4v + 806.4s = 3241.7 \end{aligned} \quad \text{Total production} = 10,060.1$$

The conditions of equilibrium, where $I(v+s/x) = IIc$, are satisfied. The slight discrepancies between this scheme and that of Preobrazhensky are due to the fact that, after making an initial boost in the organic composition of capital by 1%, he did not maintain that ratio when adding subsequent increments to Iv , IIc , and Ic . As a result his figure for Ic is somewhat understated, while his figures for Iv and IIc are slightly too high.

An arithmetical example is not a proof. The fact that we can demonstrate the algebraic feasibility of the transfer of capital from department II to department I says nothing about how the process would take place in practice. Preobrazhensky takes up this point and notes the obvious objection that the physical elements of production cannot be so easily transferred from one department to another. Not all machines are suitable for production of both means of production and means of consumption, nor will these different kinds of commodities utilize the same raw materials. Yet, Preobrazhensky notes, the same is true of the separate branches of production within each department; yet this does not stop capital from readily shifting from one line of production to another in real life. In a very detailed and interesting argument, he points out that under capitalism *the mechanism* for this mobility is the modern credit system. Money capital can easily flow from one branch of production to another, calling forth a different division of social labor. In understanding this process, we must at all times keep in mind that capital is a social relation, and that when we

speak of transfers of capital we are really talking about shifts in the command over labor power and changes in the social division of labor. This is perhaps easier to understand if we again recall the circuits of industrial capital and the process by which money capital, M, is converted to means of production and labor power. The historical importance of the modern credit system is that it places the total social surplus value at the effective disposal of the entire capitalist class, and not just an individual capitalist. It is for this reason that Preobrazhensky can speak of it as the historical condition for the mobility of capital.

What makes this entire process *possible*, however, is the prior existence of substantial reserves of both fixed and circulating capital (both its constant and variable components). If society suddenly increases its output of means of production, the prior "over-production" of means of consumption will act as reserves which can now be tapped to sustain the new workers now to be employed in department I. What allows department I to expand is that it already possesses reserves of raw materials and unused, idle plant and equipment. We should not be surprised by this conclusion--Marx had arrived at it in his own analysis of fixed capital, and it was to play an increasingly important role in Preobrazhensky's own theory of capitalist crisis.⁶

The only difficulty is that if values are transferred from II to I, these have the physical form of means of consumption which are far more perishable than stored up means of production, and hence more difficult to hold in reserve for protracted periods. Therefore, from the point of view of the material composition of production, it is far easier to transfer capital the other way around, i.e., from department I to II. This, however, would imply that society had undertaken the relative "over-production" of means of production--just the opposite of the tendency Preobrazhensky arrived at. Preobrazhensky concludes that

this indeed is the outward form that capitalist crises take, but that this is itself a product of the need to transfer capital to department I, in order to compensate for the deficit in that department's production that would otherwise result.⁷

It would appear that Preobrazhensky's argument is seriously flawed. As he himself admits, this is not the only mechanism by which the capitalist economy maintains an equilibrium of proportions. He also, for instance, mentions the deviation of prices from values that takes place in normal economic activity. We can even go beyond that and point out that as soon as we apply prices of production, whereby the rate of profit is determined on the basis of the total capital employed in production and this, rather than the rate of surplus value, s/v , determines the distribution of social capital via the mechanism of the average rate of profit, we have just such a deviation. Yet this would completely reverse Preobrazhensky's conclusion. Only if goods exchanged at their value and accumulation took place strictly in terms of the rate of exploitation (that is, off of the surplus value produced by v), would the natural tendency of the economy be towards over-production in department II and a consequent need to increase the relative weight of department I through the transfer of capital. Prices of production, on the other hand, would mean that department I would accumulate faster than department II, due to the sheer fact of its larger total capital. We will see in Part III that this appearance is itself deceptive. As soon as we account for the extended depreciation of fixed capital and the fact that its turnover period is longer than that of circulating capital, even the application of prices of production cannot erase the inherent tendency towards over-production in department II. It is important to mention the effect of prices of production upon Preobrazhensky's schemes, however, because they would seem to raise a rather obvious objection to his conclusions. We have included the mathematical presentation of the

problem as an appendix to this chapter.

At another level, even if the application of prices of production did reverse the tendency Preobrazhensky had uncovered, this would not make it any less significant. It shows what the natural tendency of capitalist development is, without which it would be impossible to explain how and why observable phenomena may deviate from it. Its status in this regard is similar to Marx's analysis of prices of production and the deviation of prices from values. That analysis did not negate Marx's theory, but in fact presupposed it. Prices of production and the deviation of prices from values are a further concretization of Marx's theory of capitalist production; yet they can only be understood if we first accept the validity of the theory of value, which forms the starting point from which prices of production are derived.⁸

The application of prices of production to the reproduction schemes would, if they genuinely did demonstrate a reversal of the tendencies we have shown, reveal themselves as one of the key ways by which the necessary transfer of capital from department II to department I takes place. Our value analysis had shown that such a transfer and rearrangement of the social capital was essential to the equilibrium of the system; prices of production would be one particular vehicle through which the process occurred.

In either case we will find that expanded reproduction constantly demands the rearrangement of each year's surplus product and the transfer of productive forces from one department to another. As Preobrazhensky observed it is only the relative wealth of capitalist production that allows this to happen, through the creation of ample reserves of both means of production and means of consumption. Otherwise society would not have the necessary elasticity to constantly adjust. This, of course, was Marx's conclusion. The technical complexity of production in a society with an advanced division of labor is so great that dis-

equilibrium rather than equilibrium will be the rule, unless such reserves exist. They represent society's allowance in the present for what it will require in the future, its conscious control, to recall Marx's phrase, "over the material means of its own reproduction." Preobrazhensky detailed how capitalism acquires some of this essential flexibility, but can never avoid periodically resolving the disproportions it engenders in another, more "natural" way: Crisis, destruction of values, and the resumption of expanded reproduction on a new economic footing.

In conclusion, Preobrazhensky has established one more fundamental constituent of his analysis. Under pure capitalism, where the organic composition of capital grows, and where, as a result of the development of the social division of labor, it is higher in department I than in department II, the resulting disproportion can only be overcome by the systematic transfer of capital to the production of means of production. This means that the volume of capital and of society's production employed in department I must grow not only absolutely but relatively.⁹ Historically, this is tantamount to saying that a society's potential wealth is dependent upon its ability to free an ever-larger portion of its population from the need to produce basic necessities. Whether this increased production of material goods by machines leads to an increase in the creative leisure of its population and their greater material wealth, or whether it results in crisis is, however, a question of social organization. Though capitalism can create the possibility and the pre-conditions for the former, only socialism can make it a reality.

NOTES TO CHAPTER 4

1. *Capital*, III, p. 223. This argument will become increasingly important when we deal with the accumulation of fixed capital.
2. VKA 17, p. 55.

3. *Ibid*, p. 61.
4. It should, in reality, grow by 60.6, in line with the 1% increase in the organic composition of capital.
5. VKA 17, p. 61.
6. See above, pp. 134-35, and Part III, below.
7. VKA 17, pp. 55-58. In *Zakat Kapitalizma* Preobrazhensky did not specifically identify this tendency towards over-production in department II as a cause of crises. Instead he dwelt upon the discontinuity between the time when the demand for new means of production first arises and that when the production of these new means of production is actually completed. This led him to treat the existence of ample reserves, especially of fixed capital, and the prolonged turnover period of fixed capital as essential parts of his analysis. We will deal with all of these points in much greater detail in Part III.
8. For a concise and stimulating discussion of this topic see the chapter "Value and Production Price," in I. I. Rubin, *op cit*.
9. VKA 17, p. 63.

APPENDIX TO CHAPTER 4

THE APPLICATION OF PRICES OF PRODUCTION

In Part II of Volume III of *Capital*, Marx addresses the need to resolve a seemingly basic contradiction in his theory of value. Different capitals will have different rates of profit, depending on their organic compositions. Suppose the aggregate capital in one branch of production, say, light industry, breaks down as $1000c + 500v + 500s$, while that in another branch, say, heavy industry, is composed of $4000c + 1000v + 1000s$. The two capitals will have identical rates of exploitation, 100%. Their rates of profit, however, will differ radically. Our first capital will have a rate of profit, $p' = [500s/(1000c + 500v)] = 33\frac{1}{3}\%$. Our second capital will have a rate of profit $= [1000s/(4000c + 1000v)] = 20\%$.

In the same way, we see that equal capitals will also earn different rates of profit. If one capital is made up of $1500c + 500v + 500s$, and another is comprised of $1000c + 1000v + 1000s$, then again their rates of profit will differ quite a bit. The first will have $p' = 500/2000 = 25\%$; the second, $p' = 1000/2000 = 50\%$. In fact, the only way these individual capitals, both in our first illustration and in our second, would have equal rates of profit (given equal rates of exploitation) would be if their organic compositions were the same. The result, said Marx, was so fundamental that it seemed to threaten to overthrow his entire theory of capitalist production.

We have thus demonstrated that different lines of industry have different rates of profit, which correspond to differences in the organic composition of their capitals and, within indicated limits, also to their different periods of turnover; given the same time of turnover, the law (as a general tendency) that profits are related to one another as the magnitudes of their capitals, and that, consequently, capitals of equal magnitude yield equal profits in equal periods, applies only to capitals of the same organic composition, even with the same rate of surplus value. These statements hold good on the assumption which has been the basis of all our analyses so far, namely that the commodities are sold at their values. There is no doubt, on the other hand, that aside from

unessential, incidental and mutually compensating distinctions, differences in the average rate of profit in the various branches of industry do not exist in reality, and could not exist without abolishing the entire system of capitalist production. It would seem, therefore, that here the theory of value is incompatible with the actual process, incompatible with the real phenomena of production, and that for this reason any attempt to understand these phenomena should be given up.¹

Marx was not really prepared to abandon the theory of value. He was pointing out that a purely value analysis has its limitations. It is adequate to trace out the most basic tendencies and regularities of the capitalist system, but it is still an analysis at a very high level of abstraction. A critical modification was needed in his assumptions if Marx was to extend his analysis and be able to explain the fact that an average rate of profit exists throughout capitalist industry and that equal capitals earn equal profits, regardless of their organic compositions.

Marx resolved the contradiction in his theory of prices of production. The theory of prices of production does not abrogate or supersede the theory of value. It uses the theory of value to explain how prices deviate from values. The theory of value is its necessary starting point; thus the theory of value and the theory of production price are part of the same theory of capitalist production, but they operate at different levels of abstraction.²

We will not go into the detailed explication of the formation of prices of production that Marx does, but will use a very simple example, since this will be most in line with our application of prices of production to the reproduction schemes. Take two capitals that are of equal size, but have unequal organic compositions of capital.

- A. $700c + 300v + 300s$ --total capital = 1000, total s = 300; $p' = 30\%$
- B. $800c + 200v + 200s$ --total capital = 1000, total s = 200; $p' = 20\%$

Yet we know that equal capitals must earn equal profits; and what is more, different capitals, *regardless of their size*, must have equal rates of profit. How, then, is the average rate of profit formed? The

total surplus value produced is 500. The total capital is 2000. The general rate of profit, i.e., the average for the two capitals, is, therefore, 25%. We must then apply this average rate of profit to each of these capitals in turn to see how much of the *total surplus value of society* they will appropriate as their profit.

If we do this, we see that they will each earn 250 in profit. Capital A will be $700c + 300v + 250p$, and its total product will be 1250, rather than 1300, as it was in purely value terms. Capital B will be $800c + 200v + 250p$, and its total product will come to 1250 as well, instead of the 1200 we had when we calculated it on the basis of values. As a result of this redistribution Capital A sells its product at 50 under its value, and Capital B sells its product at 50 over its value. The two compensate each other; the *total* product of the two capitals must be the same in price terms as it is in terms of values. This is quite logical, since prices are formed by redistributing the *already created* surplus value between the two capitals on the basis of their total size.

Clearly this same process will be at work with capitals of unequal size. If Capital A had equalled $1500c + 300v + 300s = 2100$, while Capital B remained the same, the total surplus value would then equal 500, as before. But the total capital will have risen from 2000 to 2800. The rate of profit is now 17.86% and so the final products will be:

- A. $1500c + 300v + 321.4p = 2121.4$
- B. $800c + 200v + 178.6p = 1178.6$

Now, in fact, it is Capital A that sells above its value (21.4 above) and Capital B that sells below (also 21.4). The total product in price terms equals 3300, just what it equalled in values. Thus we see that the average rate of profit causes values to be transferred from capitals with a *low organic composition of capital* to those with a *high organic composition*. Capitals with high organic compositions will have a rate of profit lower than the average; those with low organic composi-

tions will have a rate of profit higher than the average. Hence any process of equalization of rates of profits must by necessity shift values from those whose surplus is too high in relation to the total capital to those whose surplus value is too low.

What effect will this have on the reproduction schemes we were analyzing before? To demonstrate what happens we will use the following figures:

$$\begin{array}{ll} \text{I.} & 10,000c + 2000v + 2000s \\ \text{II.} & 3000c + 2500v + 2500s \end{array}$$

The figures we used in this chapter would have served just as well, and would have had the additional advantage of being fairly neat and simple to work with. They have the peculiarity, however, that the organic composition of capital in department I is exactly double that in department II, and we want to show that the tendency we are describing has nothing whatsoever to do with the figures we select. So we have chosen a scheme where Ic/v is considerably greater than IIc/v , but where there is no chance of our results being attributed to any artificial symmetry.

To start off, the total surplus value comes to 4500; the total capital equals 17,500. The rate of profit equals 25.71%. The first thing then, is to redistribute the surplus value accordingly.

$$\begin{array}{ll} \text{I.} & 10,000c + 2000v + 3085.7p \\ \text{II.} & 3000c + 2500v + 1414.3p \end{array}$$

Assuming that each department accumulates one half its profit, and distributes it in line with the organic composition of capital, we have:

$$\begin{array}{ll} \text{I.} & 11,285c + 2257.1v + 1542.8p/x \\ \text{II.} & 3385.8c + 2821.5v + 707.2p/x \end{array}$$

$I(v+p/x)$ equals just about 3800, while $IIc = 3385.8$. There is a deficit of *means of consumption* and a stock of unsold means of production equal to approximately 414. If we proceed over two more years we will see the disproportion actually worsen.³

Year Two:

$$\begin{array}{ll} \text{I.} & 11,285c + 2257.1v + 2257.1s \\ \text{II.} & 3385c + 2821.5v + 2121.5s \end{array} \quad \begin{array}{l} \text{Total } s = 5078.6 \\ \text{Total capital} = 19.748.6 \\ p' = 25.72\% \end{array}$$

After redistributing the surplus value

$$\begin{array}{ll} \text{I.} & 11,285c + 2257.1v + 3483p \\ \text{II.} & 3385c + 2821.5v + 1596.3p \end{array}$$

which, after accumulation, gives:

$$\begin{array}{ll} \text{I.} & 12,736.3c + 2547.3v + 1741.5p/x \\ \text{II.} & 3820.4c + 3184.3v + 798.2p/x \end{array}$$

$I(v+p/x) = 4288.8$, giving a deficit of means of consumption = 468.4.

Year Three:

$$\begin{array}{ll} \text{I.} & 12,736.3c + 2547.3v + 2547.3s \\ \text{II.} & 3820.4c + 3184.3v + 3184.3s \end{array} \quad \begin{array}{l} \text{Total } s = 5731.6 \\ \text{Total capital} = 22,288.3 \\ p' = 25.72\% \end{array}$$

After redistributing the surplus value we have:

$$\begin{array}{ll} \text{I.} & 12,736.3c + 2547.3v + 3930.9p \\ \text{II.} & 3820.4c + 3184.3v + 1801.6p \end{array}$$

so that, after accumulation we get:

$$\begin{array}{ll} \text{I.} & 14,374.2c + 2874.9v + 1965.5p/x \\ \text{II.} & 4311.8c + 3593.3v + 900.8p/x \end{array}$$

$I(v+p/x) = 4840.4$, yielding a deficit in means of consumption and a surplus of means of production = 528.6.

What is interesting about this result is that after redistributing the surplus value in line with the average rate of profit, accumulation produces a large and growing over-production in department I. But once production is carried out on the basis of this accumulation, and surplus value is created by the labor power employed in production, then $IIc = I(v+s/x)$. In other words, distributing the profit out of which accumulation takes place according to the average rate of profit equalizes the amounts of labor power employed in production such that in value terms the exchange funds of the two departments would be in balance if exchange took place immediately following production. Once we then distribute this new surplus value, however, in accord with the

average rate of profit, this equality evaporates, and we have an over-production in department I in price terms (and it is in price terms that exchange must take place). Yet this over-production when commodities are evaluated in terms of their prices hides an initial equality in terms of their values. It would seem, then, that the existence of an average rate of profit is a vehicle for transferring capital from department II to department I such that the values of their exchangeable products are equalized. But this equality is only ephemeral. In reality there is no time sequence according to which production is carried out first in value terms and then converted into prices. All production bears the nominal appearance of being transacted in prices. The value relationships are the link which holds these mutual connections between the various capitalists in separate departments together. What the reproduction schemes show, however, is that equilibrium in value terms is only a moment in the reproduction process, whose external form is unmistakably that of an over-production in department I, a phenomenon that would indicate a constant source of crises. Preobrazhensky's original conclusion would seem to hold. A transfer of capital must then take place in the reverse direction, from department I to department II.

As we stated in the main text of this chapter, this result is a product of the still-over-simplified assumptions we are making. We have continued to assume that fixed capital turns over in one year, along with the circulating capital. Once we remove that assumption, as we will demonstrate in Part III, the over-production in department I vanishes, and the previous tendency towards over-production in department II re-emerges, even with the application of prices of production.

NOTES TO APPENDIX TO CHAPTER 4

1. *Capital*, III, p. 153.
2. See I. I. Rubin, "Value and Production Price," *op cit.*
3. We assume, as did Marx, that the product of the previous year, to the extent that it consists of commodities that re-enter into the productive capital, is treated as a value element by the capitalists in the ensuing year. The debate over how these commodities should be re-evaluated, to reflect their own deviation of prices from values, is a complex one, and does not affect the argument we are putting forward here.

CHAPTER 5

EXPANDED REPRODUCTION UNDER CONCRETE CAPITALISM

So far we have followed Preobrazhensky's attempt to show two and things. First, that the existence of production/exchange relations with the pre-capitalist sector provides capitalism with an essential outlet for achieving and maintaining proportionality in the course of its development. Second, that the tendency of pure capitalism is towards chronic disequilibrium in the growth of its two component departments of production. What then, is the role of petty production in capitalism's attempt to sustain expanded reproduction? In the final part of VKA 17 Preobrazhensky set out to answer this question, and thereby to complete the groundwork for his main analysis of expanded reproduction in the mixed commodity-socialist economy of the USSR.

Here we have two tasks. One is to show, how, given disproportionality within the capitalist sector under conditions of *expanded reproduction*, the system as a whole attains equilibrium not only via exchange with the petty bourgeois sector, but by necessitating a rearrangement of the productive forces within that sector as well. The transfer of capital that we saw as an essential condition of equilibrium in pure capitalism, and which brought with it the danger of crisis and stagnation, is now shifted onto petty production, which is more elastic. The second task is to show how even when the entire system of social economy is in equilibrium and when there is an initial over-production of means of production, the original disproportion, i.e., the deficit of means of production, will re-emerge as a result of expanded reproduction. This is perhaps the most difficult part of Preobrazhensky's argument in VKA 17 and, as with the previous two chapters, we will by necessity have to telescope and reshape it.

We begin with a scheme similar in structure to that for our mixed economy under simple reproduction:

$$\begin{array}{l} \text{KI. } 2000c + 500v + 500s = 3000 \\ \text{KII. } 1200c + 400v + 400s = 2000 \end{array} \quad \text{Total production} = 5000$$

$$\begin{array}{l} \text{PI. } 1500c + 1500 \text{ consumption fund} = 3000 \\ \text{PII. } 1050c + 2100 \text{ consumption fund} = 3150 \end{array} \quad \text{Total production} = 6150$$

Right off we see some interesting characteristics of this scheme. Production in the petty-commodity sector is greater than in K.¹ Within the two sectors, we see that the organic composition of capital in KI is greater than in KII. The same is true of P--the ratio of means of production to the consumption fund in PI (the "organic composition of capital" in the conditional sense of the term) is far higher than in PII. Finally, the volume of production in PI is almost, but not yet equal to production in PII.

What we want to do, says Preobrazhensky, is see what happens when the scheme is in motion. We have three possible cases. Production in K expands, while that in P falls. This case will most dramatically show the inter-relation between K and P under expanded reproduction. Case two would be when K expands and P remains constant--this is not particularly interesting at this point of our analysis, as all of the disproportions in the system would originate within K and we would be largely covering old ground. This case would have an interest later on, if and when we took up the question of the rearrangement of productive forces within P while its total production stayed stable; for this would necessarily compel changes in the structure of *material exchange* between P and K, a problem which Preobrazhensky by and large ignored but which will become central to our argument when dealing with the Soviet goods famine (although we do this within the context of changes in the overall volume of P's production). The last case is when both K and P expand simultaneously; and we shall see that though this case may be historically more realistic, especially as regards the Soviet economy, its mechanics are but a variation of those revealed by case one.

Before proceeding we must make one cautionary remark. Preobra-

zhensky makes it quite clear that we are still operating within the bounds of a value analysis. Thus when examining exchange between the departments of both sectors we merely need account for the balances, what is left over after all internal exchange between KI and KII, and between PI and PII, has taken place. In reality this is obviously too much of a simplification. Above, in Chapters 2 and 3, we saw that department I of the capitalist sector and department I of the agricultural or petty production sector enter into exchange with each other, and that any imbalance between them will disrupt the process of reproduction. Preobrazhensky points out that the same is true of exchange between KII and PII (a case we will take up in Chapter 11). For the moment, we cannot overstep the limits we have set for our analysis, because our immediate concern is to lay out the more abstract tendencies in a mixed economy, upon which we can build when we come to analyze the concrete situation in the USSR in the 1920's.²

Let us go back to our scheme. We want to make a few assumptions: 1)K accumulates half its surplus value in both departments; 2)c/v grows by 1% in both KI and KII; 3)P as a whole experiences declining reproduction at a rate of 2% each year. With this in mind, our capital at the start of the production year will be:

KI. 2204c + 546v + 250 consumption fund
 KII. 1353c + 447v + 200 consumption fund

 PI. 1470c + 1470 consumption fund
 PII. 1029c + 2058 consumption fund³

If we compare this scheme with the one on page 194 we see that, first of all, the deficit of means of production within the capitalist sector has grown. Initially it equalled $1200 \text{ IIc} - 750 \text{ I}(v+s/x) = 450$. This was exactly balanced by the surplus of means of production of peasant origin we had in P. There PI required means of consumption of 1500, for which it had to exchange the same quantity of peasant-produced means of production. PII, on the other hand, could provide only 1050 for PI's

consumption and could purchase only 1050 of its exchangeable commodities. In this instance the solution is easy. PI exchanges its surplus of 450 means of production to KII for its surplus of 450 in means of consumption. Socially, this means that KII requires 450 in raw materials, auxiliary goods, etc., which come from the countryside, and that PI needs an identical quantity of industrially-produced means of consumption, such as textiles or processed foods.

Now, however, we have problems. The deficit within K has jumped from 450 to 557. The surplus of means of production within P has shrunk to 441. The disproportion can no longer be made up by mutual exchange between the two sectors. We have a deficit for the economy as a whole of 116 in means of production. Before, for pure capitalism, such a deficit would require a rearrangement of capital between KI and KII, shifting it from the latter to the former. Certainly this is a possible solution here. It is not, however, desirable, since capitalism would then run the risk of massive loss of values, if not an actual crisis. It would be much better if the rearrangement of productive forces took place entirely within P. This is possible because P is much more flexible from the technical standpoint, with each peasant farm producing some means of production and some means of consumption, and with consumption itself having great elasticity--the peasantry can simply consume more or less of its physical product as expansion or contraction of various spheres of production demands. It is also a realistic supposition, since history shows us that capitalism ousts and subordinates petty-commodity production as a more or less constant process.

Suppose we tried to do this by simply making PII absorb the entire drop in P's production. Then P as a whole would fall by 2%, or 123, but this would all take place in PII, while PI stayed the same. P would then look like this:

PI.	1500c + 1500 consumption fund = 3000	Total production = 6027
PII.	1009c + 2018 consumption fund = 3027	

Even this would not do. PI would still only have 491 in means of production to exchange with KII. The overall shortfall of means of production in K, and its surplus of means of consumption would be less severe, but it would still be large, equal to $557 - 491 = 66$. The only way out will be to rearrange the capital within P. To show how this works, Preobrazhensky first supposes that the first year's disproportion is overcome by foreign trade--the surplus of KII's means of consumption is exported and means of production imported for the same amount. In the second year, with K accumulating half its surplus value, and its organic composition of capital growing by 1% in both departments, its product would look like this:

$$\begin{array}{lcl} \text{KI.} & 2204c + 546v + 546s = 3296 & \\ \text{KII.} & 1353c + 447v + 447s = 2247 & \end{array} \quad \text{Total production} = 5533$$

Its capital for the next year would be (rounding off fractions for simplification):

$$\begin{array}{lcl} \text{KI.} & 2426c + 596v + 273 \text{ consumption fund} & \\ \text{KII.} & 1524c + 499.5v + 223.5 \text{ consumption fund} & \end{array}$$

This time, however, when we cut P's production by 2% we let the entire decline in that sector fall on PII; PI continues to produce at the old level. We then have:

$$\begin{array}{lcl} \text{PI.} & 1470c + 1470 \text{ consumption fund} = 2940 & \\ \text{PII.} & 989c + 1978 \text{ consumption fund} = 2967 & \end{array} \quad \text{Total} = 5907$$

As before, when we tried making PII absorb all of the first year's fall, the disproportion is not as bad as it would have been had we distributed the decline in P evenly over the two departments. Yet on the whole matters are still getting worse. K's internal deficit has climbed from 557 to 655. PI's ability to make it up has grown to only 481 (from a previous 441--it has actually declined compared to the case in the first year when we let the entire fall in P rest on PII). The overall deficit for society is $655 - 481 = 174$.⁴ Even if we modified these conditions and made PII shoulder the decline for both years, keeping PI

stable throughout, PI would still have a disposable commodity-product of only 581.⁵ The social deficit of means of production would be 74, worse than the case in the first year where PII shouldered the entire fall in P (though not as bad as when the first year decline in P was shared evenly by both PI and PII).

No matter how we approach the problem we cannot escape from the need to actually rearrange production within P. Preobrazhensky does this by increasing total production within PI by 210 and cutting PII by the same magnitude. If we distribute this new arrangement according to the ratios of constant capital to the consumption fund in the two departments we get:⁶

PI.	1575c + 1575 consumption fund = 3150	Total production = 5907
PII.	919c + 1838 consumption fund = 2757	

Total production in P has fallen by 2% for this production year, as before. Only now production has been restructured so that PI has a marketable commodity-product of 656 in means of production. KII's deficit of means of production has, of course, remained at 655. Now, however, the social economy as a whole can attain equilibrium. PI can sell 655 in means of production for the 655 of capitalist-produced means of consumption it requires from KII; the latter can dispose of its marketable surplus and obtain what it needs in means of production of peasant origin. In real terms, this helps reveal the historical process whereby peasant production of means of consumption was ousted by capitalist agriculture. At the same time the whole of the capitalist sector, but primarily KII, had to secure its base of raw materials and other intermediate goods produced in the countryside. Thus the actual rearrangement of production within P, towards an increase of just such kinds of means of production, allows us to see both the absolute encroachment of capitalism upon petty production, and a shift in the relative weight of petty production in favor of its production of those goods capitalism

required for its expansion.⁷ Not only does this reflect the actual historical movement of capitalist development, but--as we shall see in Part IV--*mirrors the necessary future course of the Soviet economy of the twenties*. We should add, however, that this description of the process of equilibrium has assumed throughout that what exchanged in value terms also satisfied the material needs of production in the various departments of the two sectors. Had this not been the case, then at least some rearrangement of capital would have been necessary in the capitalist sector.⁸ We have already examined this problem in its basic outlines and will deal with it extensively in Part IV as well.

We will not spend much time with the variant of this example, where both K and P expand their production simultaneously. In that case the deficit of KII for means of production is somewhat less. PI has a slightly larger amount of exchangeable means of production than before, which ameliorates the disproportion in the economy as a whole. As Preobrazhensky notes, equilibrium is still achieved in the same manner--through the rearrangement of capital within P (thereby increasing production in PI), either alone, or in combination with the more difficult process of transferring capital from KII to KI.⁹

This takes us to the second problem Preobrazhensky examines. If instead of "over-production" of means of consumption we have "over-production" of means of production in the capitalist sector, will expanded reproduction automatically lead us back to the initial disproportion, a deficit in means of production?

For this we would either have to construct a scheme of expanded reproduction where, keeping total production in the capitalist sector the same, we reversed the relative weights of departments I and II (that is, reduced the volume of capital employed in II, and increased production in I by the same amount); or we could keep the volume of capital employed in the capitalist sector the same as before for both depart-

ments, but would sharply raise the organic composition of capital in department II. We can dispense with this last possibility quite easily. We have already mentioned it above (page 169). What would happen is that IIc would outdistance $I(v+s/x)$ by an even greater amount in the beginning, because it was adding to an absolutely larger IIc; but because it would be devoting a smaller share of its surplus value to increase v , the rate of growth of this surplus value would slow down markedly. In the future IIc would in fact fail to keep pace with $I(v+s/x)$, and there would be an over-production of means of production in KI. Capital would then have to move in the reverse direction, from KI to KII, or, as we saw from our preceding example, the shift could take place within P, calling forth a reduction of production in PI and an increase in PII. Preobrazhensky does not pursue this example any further, for even though it is theoretically conceivable, it is of little practical importance. The higher organic composition of capital in department I as opposed to department II is one of the historical features of capitalist development.¹⁰

We are left with the first alternative, reversing the relative weights of the social capital invested in departments I and II. Preobrazhensky illustrates this with the following scheme:

$$\begin{array}{lcl} \text{KI.} & 2400c + 600v + 600s = 3600 & \\ \text{KII.} & 840c + 280v + 280s = 1400 & \end{array} \quad \text{Total production} = 5000$$

Total production in the capitalist sector is the same as in the first example on page 194, as are the organic compositions of capital in both departments (i.e., Ic/v is still greater than IIc/v). All that has changed is that the volume of capital employed in KI has increased at the expense of KII, adding 600 to KI and taking that much from KII. This in turn calls for a redistribution within P, with PI falling and PII rising--here, too, the total production in P is kept at around the previous level, 6100. P will now look like the following:

PI. $1184c + 1184$ consumption fund = 2368
 PII. $1244c + 2488$ consumption fund = 3732 Total production = 6100

Here we have over-production of means of production in K of 60, since $KI(v+s/x)$ exceeds $KIIc$ by this amount ($900 - 840 = 60$). This made up by the petty bourgeois sector, where $PIIc$ is greater than PI 's consumption fund by just this amount, and therefore can provide a necessary market for KI 's surplus commodities and a source for its shortage of means of consumption. The equilibrium of this scheme is disturbed as soon as we introduce accumulation in both sectors. In K we accumulate half the surplus value of both departments and increase the organic composition of capital by 1% in each. Distributing the accumulated s accordingly, we get:

KI. $2644.8c + 655.2v + 300$ consumption fund
 KII. $947.1c + 312.9v + 140$ consumption fund

The first thing we notice is that the surplus of means of production, $KI(v+s/x)$ over $KIIc$ is now equal to only $655.2 + 300 - 947 = 8.2$. If we increase production in P by 2% (PI rises by 47, PII by 74) and distribute the new product according to the ratio of constant capital to consumption fund in each department, P will be as follows:

PI. $1207c + 1207$ consumption fund
 PII. $1269c + 2538$ consumption fund

The deficit of means of production in P has now risen from 60 to 62, because $PIIc$ is slightly larger than the consumption fund of PI , and so a uniform rise in both will yield a somewhat higher absolute increase in $PIIc$. What is significant is that KI can no longer make up the deficit of means of production in PII . It has only 8.2 to offer. Nor can it serve as a market for PII 's excess means of consumption.

Thus we end up with the case where the expansion of department II of the capitalist sector has replaced department II of the petty bourgeois sector both as a market for the sale of II 's production and as a supplier of consumer goods to KI . As a result of this situation, PII cannot restore $62 - 8.2$, or 53.8, of its constant capital. On the one hand, it lacks a market for that amount of its own goods, and, on the other hand, it suffers a corresponding shortage of means of production in their material form.

Equilibrium can be achieved either by cutting back production throughout PII, or by transferring productive forces from PII to PI in the next year.¹¹

This condition emerges even more starkly if we assume that the disproportion is somehow overcome in the present year and reproduction goes on. This year's product in K will be:

KI. 2644.8c + 655.2v + 655.2s
KII. 947.1c + 312.9v + 312.9s

And arranging the capital in K for the next year, plus allowing P to grow by 2%, we have the following picture for the economy as a whole:

KI. 2912.2c + 715v + 327.6 consumption fund
KII. 1066.7c + 349.5v + 154.4 consumption fund

PI. 1231c + 1231 consumption fund
PII. 1294c + 2588 consumption fund

In the petty-commodity sector, the disproportion between PIIc and the consumption fund of PI has grown once more, to 63. What is more striking is that not only can KI not make up any of this deficit in means of production for PII, but it can't even cover the internal needs of department II of the capitalist sector. KII now exceeds $KI(v+s/x)$ by 24.1--there is a deficit of means of production in the capitalist sector as well. Whereas before the disproportion existed for the system as a whole, it was attenuated by the fact that K could make up some of P's deficit for means of production. But now this deficit exists all the way around, and emanates from both K and P. "We thus have throughout the whole social production a goods famine in means of production to the amount of $63 + 24.1 = 87.1$."¹² The cause, Preobrazhensky concludes, is:

...firstly...the rise in the organic composition of capital in both departments of the capitalist sector, and second...the more rapid rate of accumulation in KII, which was due to the lower organic composition of capital in this department as compared to KI. Thus, here, as the process of expanded reproduction develops mechanically, the tendency of a capitalist economy that we pointed out above forces its way to the fore--the tendency towards systematic over-accumulation in branches with a low organic composition of capital, that is, in the present case in the branch of capitalist production of means of consumption. And that in turn compels society--whether

more or less elastically or through a crisis--to redistribute its productive forces by increasing the capital invested in branches of the production of means of production.

This last example, which is characteristic of capitalist economy during its period of development, is of special interest to us for the additional reason that it also reproduces in part (*although in an overly general and abstract form*) the processes that we, *mutatis mutandis*, can currently observe in the economy of the USSR, insofar as we study that economy from the standpoint of economic equilibrium in the system as a whole.¹³

We have now finished our reconstruction of Preobrazhensky's analysis of concrete capitalism, of a capitalism constantly interacting with the petty-commodity economy. In the end we arrive at a picture that seems fairly unspectacular--although we can see with what meticulousness Preobrazhensky constructed it. The natural course of capitalist development is towards the over-production of means of consumption. This signifies the ousting of petty-commodity agriculture by capitalist farming; and this in turn necessitates the expansion of petty production of means of production--both to provide a market for the growth of department II of the capitalist sector, and to ensure the latter an adequate base of raw materials. In addition, this fundamental tendency will be modified to the extent that the material composition of production does not permit the peasant sector to absorb all of the disproportionalities that arise within capitalist production. We have, after all, been dealing so far strictly with a value analysis, as we have emphasized many times.

Conclusion

Before we move on to Preobrazhensky's analysis of expanded reproduction in the economy of the Soviet Union under NEP--which is the main focus of our study--a few comments are in order on what we have established so far.

Preobrazhensky conducted his analysis in VKA 17 solely on the premise that equilibrium conditions can be satisfied on the basis of exchange of values between departments and between sectors in the correct pro-

portions. He goes to great pains to caution us that this is a necessary simplifying assumption, and will have to be modified as soon as we begin to analyze a concrete economy. This/a question we should say more about. Although Preobrazhensky worked out certain patterns inherent in capitalist development in general, the contradictions they involve have all more or less been resolved historically, at least to the extent that capitalism has systematically undermined petty production. Thus any analysis of the concrete economy of modern capitalism *must begin* from the tendencies Preobrazhensky detailed, and study how the concrete, particular structures of capitalist production and exchange modify them or allow the system to partially ameliorate its immanent conflicts. In doing this we can introduce complicating factors: How, for example, the modern credit system helps affect transfers of capital that are essential to the system; the effect of analyzing the material composition of production and exchange; and disproportions that arise strictly from breakdowns in the process of circulation.

We said at the outset of this part of our discussion that, although Preobrazhensky's argument in both VKA 17 and VKA 18 are important contributions to the Marxist theory of contemporary capitalism, our main interest, at least as far as VKA 17 was concerned, was to establish an analytical framework for studying the Soviet economy. In this regard we should note that the capitalism Preobrazhensky describes is not only capitalism in general, but the specifically *Russian capitalism* of before the Revolution. It is important that we know what the developmental tendencies of *this particular* capitalism are, so that we can better understand the economic legacy the Bolsheviks inherited. We can only fully appreciate the pathbreaking quality of Preobrazhensky's analysis of the Soviet economy if we can first define the pure tendencies from which that economy, with all of its contradictions, was deviating. Only then can we ask the most important question, why these deviations take

place and how they can be overcome.

Furthermore, such deviations show the particular ways in which the analysis will have to be further concretized and developed. The schemes of expanded reproduction will be much more complex than even those for concrete capitalism. They will have to allow for the material composition of production in each department in each sector, the complex nature of exchange (whose basic outlines we drew out above in Chapter 3) and the disproportions brought about by the destruction of the industrial infrastructure during the civil war.

This brings us, finally, to the question of non-equivalent exchange, which Preobrazhensky only touched on briefly at the close of VKA 17. There he points out that he had not considered the transfer of elements of production *from one sector to another* as a means of rearranging capital *within* the capitalist sector. In *The New Economics* Preobrazhensky detailed a whole series of mechanisms for the alienation of values from the private sector by the state sector. In the light of the ensuing argument built up around the reproduction schemes, we should return to this subject briefly. In VKA 17 Preobrazhensky notes that a key source of capitalist expansion has been monetary accumulation in the pre-capitalist sector. In many cases, when there has been an over-production in one department of petty production capitalism would purchase these commodities out of monetary reserves, or out of the resources of its advanced credit system, without making any subsequent sales. P would thus accumulate money holdings, which it would then deposit in the bourgeois banking system. That is, the capitalist class would both obtain the commodities it might desire or require from P and utilize the money it pays out--and which returns to it, via its domination over the credit system--for further expansion. By definition, this would become a vehicle for the redistribution of society's capital according to the needs of proportionality of the system--at least as best as the spontaneous

and anarchic production of capitalism would allow.

For the Soviet economy this means of alienating values from the petty-commodity sector is especially important. First of all, Preobrazhensky had always argued that such monetary accumulation within the peasant economy would be a vehicle for primitive socialist accumulation.¹⁴ This in turn accentuated the critical importance of Gosbank and its need to have total control over the country's financial affairs. Second, non-equivalent exchange between the state and non-socialist sectors is itself the primary means of carrying out the "purchases without sales" through which the state could transfer values from petty production to state industry. To the extent that the state economy of the USSR displays the regularities--and the subsequent disproportions--detailed in VKA 17, non-equivalent exchange is the basic precondition for overcoming them by drawing petty production into exchange with the state sector.

Throughout his analysis Preobrazhensky made the historically justifiable assumption that the petty-commodity sector was subordinate to that of capitalist production. As a result, in the reproduction schemes it was P which adapted to the imbalances within K, and not vice versa. This process of subordination was the period of primitive accumulation which both Marx and Preobrazhensky describe so well, and continued well into the age of imperialism. Non-equivalent exchange is but a specific instance of the general fact that in the USSR this subordination of the peasant economy to the state sector is not given, is not already historically achieved, as under capitalism, but is only contingent. If it is true, and the entire body of Preobrazhensky's work points to this conclusion, that the state economy cannot develop except on the basis of the progressive subordination of petty production to the needs of Soviet industry, this becomes not just an economic but a *political question*, whose outcome depends on the conscious intervention of the Soviet

state. What is more, although this is a necessary condition for the continued survival of the USSR and the construction of a socialist society, it is not sufficient. Preobrazhensky's analysis of the Soviet economy, with its regularities and, above all, its contradictions, points to the inexorable conclusion that an end to the Soviet Union's socialist isolation, through revolution in the advanced countries of the capitalist West, must take place. Otherwise these contradictions may be modified, but never resolved.

The argument Preobrazhensky put forward in VKA 17 leads directly to that in "Economic Equilibrium in the System of the USSR" (VKA 22), where, a year later, he applied it to the concrete study of the Soviet economy under the conditions of the mid-twenties. There are a number of questions implicit in his analysis both of concrete capitalism and the Soviet Union that he did not touch upon but which must be answered if the economic impasse of the Soviet Union during this period is to be properly understood. Paramount among them is that of the reproduction of fixed capital; for by analyzing the proportions in which fixed and circulating must be reproduced during expanded reproduction, given the fact that they have different turnover periods and represent qualitatively different kinds of means of production, we will determine both the quantitative and material dictates of equilibrium in far greater detail than Preobrazhensky was able to do. Our most important conclusion will be that there existed an unresolvable contradiction between the conditions of accumulation and circulation of the material elements of reproduction under expanded reproduction in a mixed commodity-socialist economy, on the one hand, and the expansion and degree of proportionality the Soviet Union could achieve given its weak industrial base and a chronic goods famine, on the other. So, before passing on to Preobrazhensky's theory of expanded reproduction in the Soviet economy we will first deal extensively with the question of the accumulation of

fixed capital under pure capitalism; for it is upon the latter that the study of expanded reproduction of fixed capital under concrete capitalism and in the Soviet Union must build--a study without which Preobrazhensky's own theory of the goods famine is provocative but incomplete.

NOTES TO CHAPTER 5

1. This would certainly be a realistic assumption for Russian capitalism prior to the Revolution, which, as we will note later in this chapter, is the particular capitalism Preobrazhensky is describing --a fact that helps strengthen the continuity between the arguments in VKA 17 and VKA 22.
2. VKA 17, pp. 65-66, 70.
3. *Ibid*, p. 67. For the method of calculating accumulation allowing for a growth in the organic composition of capital, see Ch. 4, pp. 173-76, above. We should also note that in his examples throughout VKA 17 Preobrazhensky takes the exchange fund of department I as equal to the variable capital after accumulation plus the consumed part of surplus value. This is clearly a lower sum than if we took $I(v+s/x)$ after the year's production has already taken place. Although it is true that the capitalists in II must find their additional means of production already available in the market at the start of the year, we will show in Part III that a part of these means of production are only produced by department I during the production year that is carried out on the basis of accumulation at the year's beginning--that is, they are embodied in the new surplus value that is produced by the accumulated variable capital. As a result, the deficits Preobrazhensky measures in his examples are somewhat lower than those he would have obtained had he carried production through to the end of the year and then calculated the exchange fund of department I. This does not change the argument, as he is describing tendencies at work over time, and not absolute figures. If the sums involved are large enough that deficits would be transformed into surpluses of means of production, these surpluses would disappear in the course of one or two year's further production under the same prevailing conditions.
4. There is an error in the figures in the text (VKA 17, p. 68), which reads $655 - 483 = 173$, instead of $655 - 481 = 174$, which is correct.
5. If we did this P would be:

$$\begin{array}{ll} \text{PI. } 1500c + 1500 \text{ consumption fund} = 3000 & \text{Total} = 5907 \\ \text{PII. } 969c + 1938 \text{ consumption fund} = 2907 & \end{array}$$

6. We can calculate this rearrangement by using simultaneous equations. If x = total production in PI, and y = total production in PII, then:

$$\begin{array}{l} x + y = 5907 \\ 1/2x + 1/3y = 655 \end{array}$$

This gives production in P as:

PI. 1574.4c + 1574.4 consumption fund = 3148.8
 PII. 919.4c + 1838.8 consumption fund = 2858.2 Total = 5907

Here production within P has remained the same, while PI now has 655 available for exchange with K.

7. VKA 17, p. 69. Preobrazhensky makes the somewhat obscure comment that, because this result demonstrates that total social production can grow while petty production declines, it disproves Rosa Luxemburg's theory of the role of petty production in capitalist development. It seems to us that this is simply wrong, and does much to obscure the real differences between the two thinkers.

In the first place, Luxemburg was well aware of the inadequacy of Marx's schemes and of the fact that if, given the lower organic composition of capital in department II, you allowed for equal rates of accumulation of surplus value, over-production in department II would result. Likewise with the rise in the organic composition of capital: Luxemburg notes that to be consistent with Marx's analysis we must allow it to rise, and then over-production in II would again manifest itself. And, like Preobrazhensky, she concluded that this could only be resolved--and was resolved in real life--by the transfer of capital from department II to department I. It was here that she emphasized that the limits of Marx's schemes--which stressed that commodities must exchange in rather precise material form--would seem to contradict the dictates of capitalist development as it really took place. The transfer of capital would seem to be impossible, yet it constantly takes place.

Nevertheless, this for Luxemburg was not the main contradiction within the schemes; for her the latter resided in the apparent inability for the accumulation of money to keep pace with, and act as the motive force for the accumulation of commodities. This, along with the other contradictions we have just mentioned led her to conclude that capitalism could not develop as a closed system, but must do so in perpetual inter-relation with the petty production sectors of the world economy. Here, too, it would appear that in the case we are dealing with here she and Preobrazhensky were saying much the same thing: Even while capitalism will increasingly encroach upon the pre-capitalist economy, it requires the latter to increase the share of its production *that enters into exchange with capitalism*. This is true in Preobrazhensky's current example, where P must make up the deficit in K (which is growing) by rearranging its production so as to increase the share available for exchange with the capitalist sector.

Preobrazhensky's real difference with Luxemburg is more profound, for it calls into question her entire method of exposition. Preobrazhensky analyzed the inter-relation between the capitalist and pre-capitalist modes of production by starting from the historical genesis of the problem, where the two systems of economy constantly interact, and where one subordinates the other precisely through this process of interconnection. Preobrazhensky can in this way show how capitalism's exchange with, and eventual subordination of the pre-capitalist economy ameliorates some of its disproportions and heightens others. Luxemburg, on the other hand, posits, it seems to us, an abstract model of "pure" capitalism which, despite her protests about the formal, and hence conditional nature of the schemes, fails to transcend them and in the end treats them in the

rigid, almost naturalistic manner we have argued against throughout this study. As a result, Luxemburg's analysis is too static to actually infer conclusions of the dynamic character she wants. Because she deals only with a closed capitalist system and an equally closed system of petty production she sees little more than a reciprocal relationship between them--something that inevitably leads towards a breakdown theory: Capitalism will eventually use up its petty bourgeois buffer, and then cataclysm must result. In *Zakat Kapitalizma* (pp. 14-15, 77) Preobrazhensky again criticized Luxemburg's theory of the role of petty production in capitalist development, but this time, it seems to us, in a manner that was much more to the point. The significance of the petty producer sector as a market for capitalist production does not lie in its absolute size (which is relatively small), but in the fact that this sector gives capitalism a crucial margin of elasticity, both in terms of supplying it with commodities it requires for expanded reproduction and as a market for capitalist products. This elasticity permits capitalism to smooth out and overcome a number of disproportions that would acquire critical dimensions if it were indeed a closed system.

We will also show, in Part IV, that Luxemburg was wrong to assume that the reproduction schemes cannot reflect--and cannot lead to a solution of--the problem of the material composition of the social product when dealing with the transfer of capital between departments and between sectors. For her discussion of the inherent contradictions within Marx's schemes see *The Accumulation of Capital*, Ch. XXV, especially pp. 336-46.

8. VKA 17, p. 70.

9. *Ibid*, p. 71. Preobrazhensky takes expanded reproduction in the capitalist sector to be the same as before, but now he expands production in P by 2%. We then have the following:

KI. 2204c + 546v + 250 consumption fund
KII. 1353c + 447v + 200 consumption fund

PI. 1530c + 1530 consumption fund
PII. 1071c + 2142 consumption fund

KII's overall shortage of means of production is 98, which is a bit less than when production in P fell (then it was 116). A rearrangement of society's productive forces is necessary, whether it takes place exclusively within P, or within both sectors together. We get the same result even if we allow all of the rise in P to accrue to PI. Then total production in P still goes up to 6273, but PII remains constant, at 3150.

PI. 1561.5c + 1561.5 consumption fund
PII. 1050c + 2100 consumption fund

PI then has 511.5 available for exchange with K, which still leaves a deficit of 45.5.

We should also note that when we expand P by 2% this is not accumulation in the strict sense that we speak of it under capitalism. The value of labor power is not regulated by the law of value, and hence the category of surplus value has no meaning for petty pro-

duction. We cannot, then, say that P accumulates a certain portion of its surplus value, or even its surplus product. It has a surplus product over and above the necessary consumption fund, but this can go to augment either future production or present consumption in any number of percentage divisions. This no doubt explains why Preobrazhensky sets growth in P in percentage terms, not just for total production, but for each of the categories, e.g., the constant capital and the consumption fund. As a result PIIc grows by 2%, since at the present level of analysis this growth is independent of the mass of "variable capital" in PII, and depends only on the total product of the department. This also explains why when P expands and when the "organic composition of capital" is lower in PII than in PI, we do not get over-production in PII.

10. Even in the Soviet economy of the period of primitive socialist accumulation, where the organic composition of capital was higher in the department of state production of means of consumption (department II), this was a legacy of Russia's backwardness and the destruction of her industrial base. The whole tendency of development was towards reversing this relationship. See below, Ch. 10.
11. VKA 17, pp. 73-74.
12. *Ibid*, p. 74.
13. *Ibid*, pp. 74-5. Emphasis added. In "Ekonomicheskie Zametki III" Preobrazhensky detailed a series of conditions of equilibrium in the Soviet system which closely parallel those he discussed in great detail in VKA 22. He noted that the growth of constant capital can only keep pace with that of means of consumption if department I of the state sector grows relatively faster than department II, and that this is the result of its higher organic composition of capital. He then poses the rhetorical question to the effect that this should be obvious to every serious student of the Soviet economy. Quite frankly we find this a little peculiar, given the rather original and sophisticated analysis with which Preobrazhensky derived this relationship in VKA 17. See "Ekonomicheskie Zametki III," *op cit*, pp. 78-9.
14. See *From NEP To Socialism*, pp. 56-7 for this specific reference, and Lectures Six and Nine (chapters two and five) for Preobrazhensky's quite interesting discussion of how the state could use the credit and banking system to influence the development of agriculture in particular, desired directions.

PART III

THE EXPANDED REPRODUCTION OF FIXED CAPITAL

CHAPTER 6

RESERVES UNDER EXPANDED REPRODUCTION

We have reached a point in our analysis where we must break some new ground. We have, on the one hand, examined the constraints that the material composition of production places upon the laws of simple reproduction. Further, we have studied the means by which expanded reproduction takes place in an economy of capitalist and petty bourgeois producers, confining ourselves in the latter instance to a purely value analysis. We now must drop this condition. We must try and discover how, in addition to the values of the various components of society's productive capital, their *material* proportions are reproduced under expanded reproduction. For this we will have to modify both tracks of our analysis up to now. First, we must apply our analysis of the material bases of reproduction to the capitalist economy as it really exists, i.e., as an economy that accumulates surplus value for the purpose of creating more surplus value. Second, we will have to complicate our analysis of concrete capitalism by abandoning the assumption that equilibrium can be satisfied simply by the exchange of commodities on the basis of their values. Exchange must also satisfy the particular material needs of each department, both in terms of the means of production they require and the various types of means of consumption consumed by capitalists and workers.

So far as we know, neither Preobrazhensky nor anyone else undertook or has undertaken this further concretization of the reproduction schemes. Fortunately, however, Preobrazhensky, in his book *Zakat Kapitalizma*, made a first step in this direction, when he modified the reproduction schemes to allow for the fact that fixed capital is not replaced in a

single year, but is amortized over a series of years. We have already dealt with this phenomenon under simple reproduction in Chapter 2. Preobrazhensky took up this question of fixed capital in a different context from what we will do. Although he was well aware that he was following the immanent logic of his previous studies of the reproduction schemes in VKA 17, 18, and 22,¹ in *Zakat Kapitalizma* he was trying to explain the world capitalist crisis of that period, and so did not extend his analysis either to the Soviet economy or to the *regularities* of expanded reproduction once we take its material composition into account.

In this and the next three chapters we will start from Preobrazhensky's basic schemes in *Zakat Kapitalizma* and will show that, as soon as we make the further concretization that fixed capital is not replaced in one year, capitalism has a systematic under-accumulation of both the fixed and circulating portions of its constant capital. From there we will discuss how Marx treated this same problem, primarily in Volume II of *Capital* and in *Theories of Surplus Value*, and what solutions he suggested.² We will see that Marx's solution is not adequate to solve an under-accumulation of constant capital that is chronic and recurring. Preobrazhensky had worked out the *method* for solving this problem in VKA 17, namely the systematic transfer of capital from department II to department I, from the branches of social production that produce means of consumption to those which produce means of production. We will conclude Part III by showing how such a transfer takes place under so-called "pure capitalism." Later, in Part IV, when we analyze the goods famine in the Soviet Union, we will have cause to return to this analysis of fixed capital in order to see how it applies to the concrete capitalism of capitalist and petty producers and the commodity-socialist economy of the Soviet Union during NEP.

In the present chapter we will begin by taking another look at ex-

panded reproduction from the point of view of a simple value analysis; and we will see that even here, once we move from simple reproduction, the process of accumulation presupposes the existence of commodity reserves, while accumulation itself has quite specific material prerequisites. We will conclude by taking up Preobrazhensky's treatment of the function of reserves under capitalism and their indispensable role in allowing the ongoing accumulation of fixed capital.

I. The Material Bases of Expanded Reproduction

Let us start with a scheme for expanded reproduction similar to that used by Marx and Preobrazhensky.

$$\begin{array}{ll} \text{I. } 4000c + 1000v + 500s/x + 500s(a) = 6000 & \text{Total} = 8250 \\ \text{II. } 1500c + 375v + 187.5s/x + 187.5s(a) = 2250 & \end{array}$$

Here s/x equals the portion of surplus value that goes for capitalist consumption, and $s(a)$ equals that part that goes towards accumulation. We note that the organic composition of capital is the same (four to one) in both departments, so that proportionality between IIc and $I(v+s/x)$ will be maintained with expanded reproduction.

With this scheme accumulation should proceed as follows: Department I will take 400 of its 500 accumulation fund for additional constant capital. These 400 already exist in their correct material form within the department. Department I will take the other 100 of its 500s(a) for additional variable capital, either to hire more workers to set this new constant capital into motion or to raise the wages of those already employed to support an increase in the intensity of their labor.³ As we know, these 100 exist as part of I's commodity-capital and, as means of production, are physically unsuitable for the personal consumption of the workers. I must therefore exchange them with department II for means of consumption. Likewise, department II will take 150 of its 187.5s(a) for new constant capital; and it must exchange these with department I, since they exist in the wrong natural form. This leaves

37.5 to increase II's variable capital, which it obtains *in natura* from its own product. The arrangement of the social capital for the beginning of the next production year is thus:

$$\begin{array}{l} \text{I. } 4400c + 1100v + 500s/x \\ \text{II. } 1650c + 412.5v + 187.5s/x \end{array}$$

Now, we notice immediately that department I has only 100 additional means of production to exchange with department II, while the latter requires new constant capital equal to 150. There is a deficit of 50 in means of production throughout the economy. In order to make up this deficit we would have to wait until the end of the production year, when the new labor power department I had purchased would have created a surplus product, half of which the capitalists in department I would put towards their personal consumption. Then the social product would be:

$$\begin{array}{l} \text{I. } 4400c + 1100v + 550s/x + 550s(a) = 6600 \\ \text{II. } 1650c + 412.5v + 206.25s/x + 206.25s(a) = 2475 \end{array} \quad \text{Total} = 9075$$

Thus it is only at the end of the year's production, and after all exchanges are made, that $I(v+s/x) = IIc$. This, however, creates a real problem. Department I has 100 in means of production which it can offer immediately to department II at the start of the production year. The other 50 are available only gradually, as they are produced. The new laborers in department I are constantly turning out products during the course of the year, of which an aliquot part, equal in value to 100, represents a surplus product which the capitalists in part consume and in part devote to extending their production. Even if we assume that the production time of these means of production is relatively short, and that they appear on the market in a more or less steady flow, say, every month, department II will not have them when it needs them, i.e., at the start of the production year. It will not have all of them until right at the end of the year, when the last means of production produced by department I are finished and ready for sale.

This difficulty arises from the different material needs of depart-

ments I and II and the fact that the production of the commodities the separate departments require does not temporally correspond. Department I requires an equivalent of its worn out or additional constant capital, i.e., a replacement for that part of its product that represents past, embodied labor. These values, as use-values *must already exist* as the products of labor *already expended*. Department I, on the other hand, exchanges an equivalent of its revenue, of the part of its product that represents labor which *is newly added* in the course of the production year, and, therefore, at the beginning of the year *has not yet been expended*. Department I can exchange 100 in new variable capital with department II because these come from already-produced surplus value, created during the year just ended. They are an advanced capital-value whose equivalent will return to the capitalist in its original money form at the year's end and whose equivalent, as value, never leaves the capitalist's hands. But department I cannot offer the remaining 50 to department II because the latter have still to be created. They represent surplus value, the *result* of the labor process, the product of the self-expansion of this additional labor power that department I has just set into motion. And this self-expansion is a function of the labor currently employed, and will not exist as a use-value or as a commodity ready for exchange until that labor process is completed at the end of the year. Like the variable capital-equivalent the surplus value shows up in the commodity as value that is newly added. But it is not newly added value that replaces an advanced capital. The surplus value is not an equivalent for anything. It is value over and above what society possessed before, and as such it must be produced in the course of the current production year.

It is clear that department II will need a reserve of at least 50 in means of production to tide production over until I has produced the commodities it requires. This result was to be expected, when we recall

that Marx, in Chapter XV of Volume II of *Capital*, observed that any capitalist must have an additional, reserve capital on hand to keep production going during the time his product is circulating. The circulation process includes not only the time it takes for the commodity-product of a particular capital to be realized on the market and converted into money, the stage C'-M', but it contains also the time it takes to convert this money back into the elements of productive capital, the stage M-C...P (means of production and labor power). If the commodities demanded are not available on the market circulation cannot be completed.⁴

This is precisely the case in our present scheme. Department II must expand its productive capital by 150, but can find only 100 of these on the market. On the one hand there must exist a reserve of constant capital in the economy, either as a supply that department II had already acquired to maintain production while a portion of its commodity capital finishes its more protracted period of circulation; or as a commodity supply available on the market due to "excess" past production in department I. In either case a reserve or supply of means of production must exist over and above what department I has immediately on hand for exchange at the start of the year.

On the other hand department II will have an unsold stock of means of consumption worth 50, which it must keep on hand until the capitalists of department I have produced a surplus product equal to $50s/x$ and converted it into money. Once again, the material form of these commodities of department II is important. As means of consumption, they must be capable of being stored without damage or loss until department I can purchase them (we ignore credit here). They need not sit in storage an entire year, but will enter the market gradually, as department I's additional product, ds/x , is produced and sold.

The specific size of this reserve of means of production will vary, depending upon how we assume wages are paid and how complex we presume

the circulation of $I(v+s/x)$ in its exchange with an equivalent portion of IIc . We must not forget that the schemes are abstractions and cannot reveal the myriad of complexities of capitalist production and exchange. The way we have currently constructed the scheme supposes that wages are paid in advance and that the initial value of the capitalists' consumption fund in department I is immediately spent for their personal consumption. In reality we must keep in mind what Marx said in his discussion of circulation in Volume II of *Capital*: Portions of an industrial capital will exist simultaneously in all spheres of the circuit --some as money capital (or as revenue), some as productive capital, some as commodity capital (products waiting on the market to be sold). Thus it is not wages that are advanced, but labor power; and it is not advanced for a year before it is paid, but for very short periods, one or two weeks. Taking our scheme as a whole, and not just the additional capital, the workers in I are paid their 1100 in wages gradually, over the course of the year. Similarly, the capitalists in department I will not consume all their revenue, their consumption fund at once, but will do so as they require this or that article of consumption. But this does not alter the problem in any way. At the start of the new production year department I will have means of production, already produced and available for exchange, worth 1600 and no more. We could assume that department II advances the money to purchase this 1600, which it will have on hand as a result of having sold all of last year's product to sustain the capitalists and workers of I in that year. Or we could even assume that department II purchases these 1600 on credit, although it is in no way necessary to complicate our analysis to that extent. In either case, the capitalists in I would have 1600 in money which they will pay out in wages (1100) or use for their personal consumption (500) during the year. Eventually they will have a capital-value of another 50, equal to part of the additional surplus value I's

new workers will create during this year (the part that will go for capitalist consumption). Conversely, department II will throughout the year have a capital-value of 1650 IIc. Part of it may exist as newly produced means of consumption that II's capitalists are holding as commodities to be exchanged gradually for new means of production, as they need them; another part (perhaps the larger part, depending on the technical structure of II's productive capital) will exist as means of production that II purchased at the beginning of the year, and whose value is perpetually being transferred to the commodities department II is currently producing. But a final part, equal to 50, must necessarily exist as an unsold stock of commodities, as commodity capital, whose realization is essential if department II is to accumulate its entire increment of 150 new constant capital. These last 50 department II will exchange against the newly produced s/x of department I, as it appears on the market.

We see that no matter how we assume exchange takes place, a reserve of constant capital equal to at least 50 must exist. The reserve stock may be larger, depending on how slowly or rapidly II's commodity capital circulates, or how large or small department I's purchases are and how often it makes them. But the initial problem remains. No matter how we construct these transactions, they cannot provide department II with the 50 means of production which department I *has not yet produced*. These must exist as a reserve, either in the possession of department II due to a previous purchase, or available on the market as a result of prior "over-production" in department I.

In Chapter 2 we saw how Marx concluded that reserves of both fixed and circulating constant capital and of means of subsistence for additional labor power were necessary even under simple reproduction, once we take the gradual depreciation and replacement of fixed capital into account. What we have shown is that even ignoring this condition,

and assuming that the entire constant capital turns over in one year, these reserves are a *necessary precondition* of accumulation and expanded reproduction. This arises from the distinct use forms of the products of departments I and II which must exchange against each other, and the fact that *they are reproduced differently in time*. This in turn comes from the different manner in which value is transferred or added to the particular commodities. The product in which IIc is embodied exists in a use form of means of consumption. In this form it can function as revenue, as the material form of the newly added labor expended in department I. But its *value* is that of II's constant capital, a replacement for labor performed sometime in the past. The product containing $I(v+s/x)$ has the use form of means of production that will go to replace constant capital used up in department II; but in value terms it exists as newly added labor, part of which (100) will go not to restore labor power already incorporated in the labor process, but to purchase new labor power which has not yet been expended and has not produced a surplus product. As Marx says, "it is an exchange of...this year's working day for...a working day spent before this year, an exchange of this year's labor-time for last year's."⁵ In our example we have values that must be replaced (a part of II's additional c) to be exchanged against those that must still be created (a portion of next year's Is/x). And by the very nature of accumulation and the self-expansion of capital-value the values of this year's labor and last year's are not equal. They cannot be equally exchanged. For one of them does not yet represent labor materialized as use values.

Thus the different material form of the social product and the fact that the reproduction of its various components does not correspond in time, create a potential barrier to expanded reproduction even under the simplest of assumptions. The very act of accumulation brings with it a shortage of means of production, which stifles the reproduc-

tion process unless adequate reserves of means of production already exist as the result of past production. As we will take up in the next section, when we discuss Preobrazhensky's theory of capitalist crisis and the reproduction of fixed capital, it is the existence of these reserves that gives capitalism, or any advanced system of social production, much of the flexibility it requires to avoid disproportionalities, crises, and economic stagnation.

II. *Preobrazhensky's Treatment of the Problem*

Zakat Kapitalizma was Preobrazhensky's attempt to set down a theory of the capitalist crisis of 1929. Written in 1931, it is very much a "Third Period" piece, especially in the sections dealing with the USSR and the class struggle in Europe. Nevertheless, it is still an important work--we might say even remarkable, given the time and circumstances under which it was written. For the most important thing about the book is the fact that it continues the theoretical lines of the VKA articles written at the high point of the intra-party struggles of the twenties. Preobrazhensky makes no bones about this. He cites these articles as background material for his argument and makes it otherwise clear that he considers VKA 17 and 18 and *Zakat Kapitalizma* as part of a unified work. It is a sign of the times that he does not refer to the article "Economic Equilibrium in the System of the USSR," published in VKA 22, or to any of his previous writings on the Soviet Union per se. Yet all of the VKA articles were written as part of *The New Economics*, and Preobrazhensky had expressly stated that VKA 17 and 18 were to serve as part of the theoretical foundation of VKA 22 and subsequent studies on the USSR. Preobrazhensky must have known what he was doing when he published the book. It should not surprise us that the Party hacks attacked it almost immediately.⁶

Preobrazhensky employed the reproduction schemes to illustrate how

the longer turnover period of fixed, as opposed to circulating capital, combined with the relatively long gestation period of investments in means of production that tend to serve as fixed capital, would affect the process of expanded reproduction and could serve as a *partial* explanation of crises. The main thrust of this argument lies outside the scope of our study, and so our interest in his use of the reproduction schemes is somewhat different. Our question is this: How will the material proportionality of simple reproduction *reproduce* itself under expanding reproduction? If the material components of expanding reproduction exist in the right proportions at any one time in the economy, will this proportionality be maintained during the process of accumulation? Or will each new production period bring with it an imbalance, either in the overall exchange between $I(v+s/x)$ and IIc , or in the material composition of the social product (e.g., between the necessary proportions of fixed and circulating capital)?

To answer this question we need first of all to find the appropriate way to express it in the reproduction schemes. If we were to plunge straight into the analysis of concrete capitalism, or the commodity-socialist economy of the Soviet Union we would have to begin with the fact that the various elements of material production are reproduced *in different ways*. Production in K and P (to take our schemes from Part II) is carried out by different modes of production, with their own characteristic technical structures and their own specific means of applying labor power to their social stock of implements of labor. Within the capitalist sector alone, fixed capital, the circulating portion of constant capital, means of subsistence, luxury articles, etc., all vary in the technique used to produce them, in their time of production, and in their time of circulation. Any reproduction schemes we might construct would have to embody all of these additional factors.

As we know Preobrazhensky was concerned with very much the same

problem. In all of the VKA articles he cautioned that his analysis up to that point was conditional, being based largely on a value analysis of reproduction, and could only form the basis of a more concrete analysis later on, when the material composition of the elements of reproduction would be taken into account. He began to carry out that study in VKA 22, but never completed it. He took it up again in *Zakat Kapitalizma*. There, as we have mentioned, his starting point was the fact that fixed capital is not reproduced and renewed only in one year, but a) takes several years to produce and b) when added to the stock of fixed capital, does not wear out in one year, but over a period of years. The schemes he constructed to demonstrate this characteristic of expanded reproduction contain within them the basis for solving our own problem. Preobrazhensky did not use them as we will, because he was conducting a different type of investigation. We want to develop a scheme that will eventually permit us to go beyond Preobrazhensky's analysis of the Soviet economy as he was compelled to leave it in 1928. By 1931 this subject was obviously taboo. It was enough that he should attempt to continue the work he had begun as a member of the Left Opposition and to apply it to such a seemingly non-controversial matter as the nature of the capitalist crisis, for the ruling bureaucracy to go on the attack once more. We have no way to know if Preobrazhensky was aware of the implications of what he did in *Zakat Kapitalizma*, and we see no value in speculating one way or the other. By way of anticipation we will only say here that our own analysis, which utilizes Preobrazhensky's schemes in a rather different way than he did himself, leads us to conclusions that validate both the method he employed in the 1926-27 articles and the specific arguments he put forward at that time.⁷

There are several passages in *Zakat Kapitalizma* where Preobrazhensky detailed the successive concretizations he wanted to make in Marx's original schemes of expanded reproduction. We could cite any one of

them, but perhaps the most concise is the following:

As a consequence of the incompleteness of his work, Marx's theory of crises and of reproduction must be developed and elaborated as regards approximating the analysis to the conditions of real capitalism. First of all, this approximation must denote the establishment of the characteristic features of the reproduction process in the epoch of classical capitalism and in the epoch of monopoly. A further concretization must consist of elucidating the problem of fixed capital, of reserves of fixed and circulating capital, changes in the organic composition of capital, in bringing the periphery of petty, pre-capitalist production into the investigation, of changes in the conditions under which labor power is sold, etc. The premise of the investigation must be world, and not national economy. The investigation must proceed from an account of the working of the law of uneven capitalist development and, consequently, of uneven capitalist decay. From there it is necessary to elaborate not only a theory of simple and expanded reproduction, but also a theory of declining reproduction, which must elucidate the conditions of reproduction in countries in economic decline. The investigation must proceed from the deformation of the law of value, of the intertwining of monopolist tendencies with those of free competition, and must trace out the influence of these important changes on the general conditions of expanded reproduction and of crises in the epoch of imperialism. The investigation cannot proceed from the silent premise of capitalism's internal tendencies towards expansion and its ability for that expansion, but must analyze the causes of the progressive slowing down of economic development, thus inevitably abandoning the region of pure economic analysis. Finally, the investigation must trace out the influence that the existence of the USSR exerts on the process of capitalist reproduction.⁸

Of this list, the only one that Preobrazhensky had not already written about and incorporated into his work in one fashion or another, is the problem of fixed and circulating capital. Virtually every other aspect of the concrete analysis of capitalism he proposes in this passage he had already anticipated or dealt with extensively in the 1920's. Furthermore, in our own analysis of the problem we will see that to solve it we must retain nearly all of these concretizations.

Preobrazhensky starts off with the following scheme:

Department I: 10,000 stock of fixed capital (2000 in reserve)
 $4000(1000_f + 3000_c)c + 1000v + 500s/x + 500s(a)$

Department II: 3750 stock of fixed capital (750 in reserve)
 $1500(375_f + 1125_c)c + 375v + 187.5s/x + 187.5s(a)$

Production in I = 6000; production in II = 2250; total = 8250

This scheme shows the following: Department I has a supply of fixed

capital equal to 10,000, of which 2000 is a reserve fund. Of this stock, the average depreciation of the total stock is 10% per year.⁹ The circulating portion of the constant capital is 3000, and this--by the nature of circulating capital--is reproduced in the annual product each year. We have designated the portion of the fixed capital whose value enters as wear and tear into that of the annual product by the subscript, f [or, alternatively, by $c(f)$], and the value of the circulating portion of constant capital by the subscript, c [or by $c(c)$].

In exactly the same way department II has a fixed capital supply of 3750, of which one fifth (20%) is held in reserve. The rate of depreciation on its fixed capital is the same as in department I, 10 per cent per year. II's circulating constant capital equals 1125.

So far there is nothing in this scheme that we have not already encountered. The overall proportions in and between the two departments are ones we have used before. Total production in department I is two and two-thirds that of department II. They have the same organic composition of capital (four to one), so that expanded reproduction would proceed smoothly and without revealing any disproportionalities. This much is identical to the scheme we presented in the first section of this chapter. Its mechanics involve nothing new. Nor is there anything exceptional about the breakdown of the constant capital in each department between its fixed and circulating components. This, too, we have seen before in Chapter 2. What is more, the technical structure of both departments is identical in this regard: They have the same rate of depreciation of their fixed capital, and the proportion between the total stock of fixed to circulating constant capital is 10:3 in both cases. In terms of the values of the fixed and circulating parts of the constant capital that show up in the annual product, these, too, are equal in the two departments, the ratio of used up fixed capital to circulating constant capital being three to one. Therefore, both in

terms of the basic exchange of values between the two departments and in terms of their technical proportions of production, there is nothing in this scheme to suggest any basic sources of disproportionality.

The one crucial difference is that the 4000c in department I and the 1500c in department II no longer represent the total value of means of production in the two departments. Ic and IIc each contain a fixed capital component whose value is equal to that of one year's wear and tear, 10 per cent, of their total stocks of fixed capital.

The problem Preobrazhensky is concerned with is this. Suppose society somehow increases its orders for fixed capital by 1500. How will department I, which is the only department that produces means of production, fill this new demand? The answer, Preobrazhensky wants to show, will be different depending upon whether we are looking at capitalism during the period of free competition or in the epoch of imperialism and monopoly capitalism. Dealing first with classical capitalism, where free competition dominates, Preobrazhensky notes that this new demand for 1500 in fixed capital is greater than the combined replacement fund for fixed capital in the two departments. The fixed part of Ic is 1000, that of IIc is 375, making a total of 1375. Suppose we devoted all of the accumulation fund in both departments to increasing constant capital. This would not even make a dent; it would be insignificant in comparison to what is needed. In department I, $s(a)$ equals 500. If all of this went to augment Ic, given the technical proportions between fixed and circulating capital, only 125 would represent fixed capital; the other 375 would have to go to increase the circulating portion of Ic. In department II, $s(a)$ equals 187.5, of which (presuming all of it is devoted to increasing IIc) only 25%, or about 46.9, could go towards new fixed capital. At this rate, it would take an inordinately long time, somewhere in the vicinity of eight or nine years, for society to increase its stock of fixed capital by the

required amount. But this type of "solution" goes against the very premise of the problem. These new orders for fixed capital arose because the state of the market and the material bases of past accumulation gave the capitalists who made these orders reason to believe they were necessary to their continued production. They will have geared all other production plans to the assumption that these orders could be filled. If not, we will have a period of stagnation, or even a deep crisis.

But there is another aspect to the problem that Preobrazhensky does not mention, and that is the use form of the products of departments I and II. If we look at our original scheme, which we took almost directly from Preobrazhensky, we see that we broke down the constant capital in each department according to its fixed and circulating portions. If we then examine the material form of department I's exchange fund, $I(v+s/x)$, it will consist of 375 means of production that will function as fixed capital and 1125 means of production that will function as circulating constant capital. The ratio of fixed to circulating capital *in the final product* is the same as that in *the value* of the original constant capital that was used to create it. This is not because of the value composition of I's constant capital. The use form of I's product in no way depends upon the value of the various instruments of labor, raw materials, intermediate products, etc., that went into its production. If a particular capitalist makes heavy machinery, the bulk of the value of his product might consist of the value of the iron ore that some other capitalist had used to make the steel he had used in building his machines. In that case the greater part of the value of the machines would be made up of the value of a raw material that (in the form of an intermediary good) our capitalist had incorporated into his commodity-product. This capitalist's entire output will consist of machines that will serve as fixed capital, either for other

capitalists in the same department or for capitalists in department II. Yet the largest single value component will be that added by raw materials, i.e., circulating constant capital. The depreciation of his own machinery, or even the wages and surplus value that show up in the value of the final product may well prove insignificant by comparison.

The reason $I(v+s/x)$ exists in the material form of one quarter fixed capital the three quarters circulating constant capital is because this and only this combination meets *the technical needs* of department II. It is a coincidence, or rather an artifact of the figures Preobrazhensky chose for his scheme, that the ratio of fixed to circulating capital in the value of I_c is the same as the respective values of the means of production that make up *the commodity-product* $I(v+s/x)$ and which *will function* as fixed and circulating capital once they are sold and enter into some individual capitalist's productive capital.

Given this fact, $I_s(a)$ must also exist materially as 25% fixed and 75% circulating constant capital. Only this would meet the technical demands of both departments, who each require use values from this part of the commodity-product. If we accumulated the 500 $I_s(a)$, 400 would go to increase I_c . Of this, one fourth would have to consist of fixed capital and three fourths of circulating capital. Similarly, in order for the 100 that went to increase I_v to be exchanged with department II for means of subsistence for I's new workers, it would have to meet the precise technical requirements of department II, i.e., 25% fixed capital, and 75% circulating constant capital.¹⁰

As for department II, its accumulated part of surplus value represents no net increase to the social stock of fixed capital whatsoever. If 25% of this accumulation fund went to increase the supply of fixed capital, this would not be *in natura*. This would only represent a commodity supply of 46.9 in means of consumption that could be exchanged against means of production that department I had already produced.

From this we conclude that the only addition to the supply of fixed capital possible under these conditions is the 125 taken by devoting the entire accumulation fund of department I to increase Ic. These 125 are the only means of production capable of functioning in a future process of production as fixed capital. Society has produced no others. The best that could occur would be if department II were to "loan" this 46.9 in means of consumption to department I so that the latter could take on the new workers it needs to set the additional Ic in motion and thereby produce an increased quantity of fixed capital *in the future*. There is simply no way, however, that department II could exchange this 46.9 in additional IIc(f) for elements of fixed capital at the present time. So long as we assume (as we did above) that, in order to meet the new demand for fixed capital, department I devotes its entire fund of accumulation to increase its own constant capital, no new means of production will be on hand for exchange with department II.

Once we examine the material form of the surplus product of both departments we see that the available additions to fixed capital do not amount to the 125 coming from Is(a) plus the 46.9 coming from IIs(a), but simply to the 125 in department I. The 46.9 in department II can only help I obtain the new labor power it would need if it added 500 to its constant capital. The amount of time it would take to boost I's output of fixed capital via such slow accretions to its productive capital would be even longer than we first believed.

The only way society can overcome this obstacle is to employ its existing reserves of fixed and circulating capital (including both the constant and variable parts of the latter). Presuming free competition this will eventually call forth the new construction of enterprises that produce fixed capital and, following this, the new construction of those that produce circulating capital as well. This way all of Is(a) can go to increase Iv. We only have to suppose that these reserves do

not exist to see how essential they are to solving the problem. First, if I_v goes up by 500, then $I(v+s/x)$ rises by the same amount (we assume that production has not yet been carried out, i.e., that this additional 500 I_v has not yet produced any surplus value). Department I can only acquire these extra 500 wage goods by exchanging means of production for 500 *newly-created* means of consumption in IIc. Here is the first impediment. IIc's entire accumulation fund equals only 187.5. Department I will be short of some 312.5 in means of subsistence for its workers.

The second problem is more basic. If all the technical proportions of production remain unchanged in our economy, any increase in I_v by 500 will necessarily call forth a 50% rise in I_c , from 4000 to 6000. The only way this would not be true would be if the productivity of labor were to fall, which is unrealistic unless we assume a crisis or a period immediately leading up to one. If the productivity of labor stays the same (as we have presumed) or rises (which is its natural historical tendency), I_c will have to go up by at least 50%. Now, if we also assume--and we have no reason not to--that the ratio of fixed to circulating constant capital does not change, $I_c(f)$ and $I_c(c)$ will each have to rise by 50%. The new I_c of 6000 will consist of 1500 $I_c(f)$ and 4500 $I_c(c)$.

We must remember, however, that a rise in $I_c(f)$ by 500 does not represent the *total* addition to fixed capital that is needed. This 500 is nothing more than the value that is transferred to the product of department I, that is, it is the depreciated part of a larger stock of fixed capital. Here, too, we are bound by the technical composition we assumed at the start. For 500 additional $I_c(f)$ to enter into the value of I's product, I must add ten times that, or 5000, to its total stock of fixed capital. Hence, this stock must also rise by 50%, from 10,000 to 15,000.

We started out from society's need for 1500 additional fixed capital, an amount equal to its total initial output of these types of means of production. Once we drop the simplifying assumption that all of the fixed capital is turned over in one year and is totally replaced in that time, any addition to society's output of fixed capital requires the *prior* construction of those means of production that will create it, and whose value is many times that of the final product. Simply to add 500 to the fixed capital replacement fund of department I necessitates the previous construction of 5000 fixed capital which will go to produce it. This is economically impossible. In real terms this would mean withdrawing huge resources from society to build the plant and equipment that would eventually produce this new fixed capital as part of its annual product. And this plant and equipment themselves need labor power and circulating constant capital with which to produce their fixed capital product. This is a one-way withdrawal of values from society, a withdrawal that will give no new values back to the economy for the entire period of construction of this new plant and equipment.¹¹

What would such an expansion in department I mean for department II? Hypothetically, at least, I would look like this:

$$\begin{aligned} \text{I. } 15,000 \text{ fixed capital:} \\ 6000(1500_f + 4500_c)c + 1500v + 750s/x + 750s(a) = 9000^{12} \end{aligned}$$

$I(v+s/x)$ equals 2250. Therefore IIc must rise by the same amount, from 1500 to 2250. This would break down into 562.5 fixed capital and 1687.5 circulating constant capital, or a 50% increase throughout IIc . Such a rise in $IIc(f)$, as in department I, can only take place if II's stock of fixed capital grows in the same proportion, from 3750 to 5625, which is again economically impossible.¹³

Preobrazhensky's general conclusion--following Marx--is that society can only meet such demands for rapid expansion of its industrial

base if the system possesses ample reserves of all forms of productive capital: Unused plant and equipment, stocks of raw materials and secondary products, supplies of means of consumption, and a surplus population to satisfy the increased demand for labor power.¹⁴ If we look once more at our original scheme on p. 224, we will recall that each department held one fifth of its stock of fixed capital in reserve. It is these reserves that will now be tapped by society in order to meet its new need for fixed capital. If this happens, our scheme will be:

$$\text{I. } 10,000 \text{ fixed capital:} \\ 6000(1500_f + 4500_c)c + 1500v + 750s/x + 750s(a) = 9000$$

$$\text{II. } 3750 \text{ fixed capital:} \\ 2250(562.5_f + 1687.5_c)c + 562.5v + 562.5s = 3375$$

$$\text{Total production} = 12,375$$

The portion of department I's output that will exist *in natura* as means of production suitable for functioning as fixed capital will equal 1500 $Ic(f) + 375 Iv(f) + 375 Is(f) = 2250$. Previously the aliquot of I's product that represented fixed capital was 1000 $Ic(f) + 250 Iv(f) + 250 Is(f) = 1500$. Half of the new demand for fixed capital has been satisfied. Preobrazhensky states that by devoting a substantial part of the new accumulation fund of department I to increase Iv , and by further relying on reserves of fixed capital to augment Ic on the appropriate scale, society can fulfill its original order of 1500 additional fixed capital during the second year of this "boom."

This, however, does not exhaust the problem. We note that the quantity of circulating constant capital also had to increase by one half in both departments. Similarly, II's reserves of fixed capital cannot materially satisfy I's demand for additional means of consumption (the latter equalled 500, while the most II could have provided would have been its whole accumulation fund, or 187.5). Thus society must also have on hand commodity supplies of raw materials and means of

consumption of sufficient size that they can enter into production along with the reserves of fixed capital.

One source of these reserves would be for department II to issue a "loan" of fixed capital to department I out of its amortization fund. Here department II would accumulate the share of its $s(a)$ that goes to constant capital only as a money hoard. That is, it would sell means of consumption to department I, but would make no corresponding purchases of fixed and circulating constant capital except for what it absolutely needed to replace unserviceable machines and to restore depleted stocks of raw materials, so as to keep production going at the old level. In this way department I could take the means of production intended for sale to department II and use them to expand its own production. In short, it would add to its own accumulation fund an equivalent of that of department II (excluding what II would have to add to II_v), and these would now exist in the appropriate material form. This constitutes just such a *de facto* "loan" of fixed capital from department II to department I as we mentioned on p. 229.

For the moment let us proceed with Preobrazhensky's analysis of how monopoly capitalism will satisfy this same demand for new fixed capital. He has altered the reproduction scheme to reflect the different technical makeup of an advanced capitalist economy: It has a greater share of its total capital existing as fixed capital, and a larger portion of these lying idle as reserves.

$$\begin{aligned} \text{I. } & 20,000 \text{ fixed capital (35\% in reserve):} \\ & 6000(2000_f + 4000_c)c + 1200v + 1200s = 8400 \end{aligned}$$

$$\begin{aligned} \text{II. } & 6000 \text{ fixed capital (35\% in reserve):} \\ & 1800(600_f + 1200_c)c + 360v + 360s = 2520 \end{aligned}$$

$$\text{Total production} = 10,920$$

Preobrazhensky has also changed the relationship between fixed and circulating capital (one to two) and the organic composition of capital (five to one) in line with the historical tendency for society to in-

crease the specific weight of fixed capital in its total product. We will see that this makes it far easier for society to meet any extraordinary demand for new fixed capital with its already existing resources and without calling for the new construction of plant and equipment. Although we will not deal with it in this context, Preobrazhsky uses this to subsequently demonstrate how monopoly capitalism is prone to prolonged periods of economic stagnation.¹⁵

As before, let us suppose that society increases its demand for fixed capital by 1500. Instead of devoting all of $I_s(a)$ to raising I_v , we need now put only one half of it, or 300, to that purpose. I_v will now equal 1500, as in our first example. Only now this calls for a 25% rise in I_c , and not the 50% of before. I_c will equal 7500, of which 2500 is fixed and 5000 circulating capital. Of the 1000 increase in $I_c(c)$, we can cover 300 of it with the remaining 300 $I_s(a)$. This leaves only 700 to be covered from I 's reserves of circulating constant capital. The 500 additional fixed capital, $I_c(f)$ comes from the increased amortization of fixed capital. This gives department I as:

$$\begin{aligned} \text{I. } & 20,000 \text{ fixed capital:} \\ & 7500(2500_f + 5000_c)c + 1500v + 750s/x + 750s(a) = 10,500 \end{aligned}$$

The new exchange fund, $I(v+s/x)$ now equals 2250.

This will, as before, necessitate a corresponding increase in II_c of 450, from 1800 to 2250, i.e., 25%. Thus, department II will expand its productive capital by 25% all the way around:

$$\begin{aligned} \text{II. } & 6000 \text{ fixed capital:} \\ & 2250(750_f + 1500_c)c + 450v + 450s = 3150 \end{aligned}$$

Of II 's accumulation fund of 180 only half, or 90, need go to increase II_v . The other 90 can go to help cover II 's increased demand for 300 $II_c(c)$. Only 210 have to come out of previous reserves; the increase in fixed capital of 150, as in department I, can come from accelerated amortization of the existing fixed capital stock.

How much of the social demand for 1500 new fixed capital do we

satisfy in this way? Before, the part of department I's product that consisted *in natura* as fixed capital was $2000 I_c(f) + 400 I_v(f) + 400 I_s(f) = 2800$. Now it is $2500 I_c(f) + 500 I_v(f) + 500 I_s(f) = 3500$. Department I has covered 700 of the 1500, not quite as much as under free competition. But this difference is insignificant compared to the relative ease with which society accomplished this expansion of its fixed capital output. First, only half of the accumulation fund had to go to increase the variable capital in both departments. This left part of the accumulated surplus value available to increase the supply of circulating constant capital. * Second, as a result of this, society had to tap a smaller quantity of its reserves of raw materials, auxiliary products, and other forms of circulating constant capital. Third, the relatively smaller increase in v meant that the technical proportions of production could be maintained with a much smaller boost in the plant and equipment needed to produce the desired quantity of fixed capital. As this would still have been an unmanageable burden for society if this construction had to take place all at once, it filled this demand for fixed capital by increasing the amortization of its current stock of fixed capital. In addition, this "loan" from the amortization fund constituted a relatively smaller portion of the existing stock, and placed a far lighter strain upon the economy's productive resources, than it did under free competition.

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For all these reasons, we see that^a/more highly developed capitalist economy, which possesses greater reserves of all forms of productive capital can more easily satisfy any momentary increase in its demand for fixed capital, that this demand will mean a smaller withdrawal of means of production and labor power for the construction of new enterprises, and that a lower share of existing reserves need be brought into production in the interim. In our present example, the new enterprises will not so much boost society's output of additional fixed cap-

ital, as they will pay back the loans from the amortization funds of departments I and II.

From the preceding example we see that reserves of fixed and circulating capital are absolutely necessary for the capitalist system; they give the capitalist economy the elasticity it needs in periods of rapid cyclical expansion of production. Without these reserves the existence of mass production for the market is impossible, as would be any sort of rapid expansion of the productive apparatus of the system. Unfortunately, in the Marxist literature that deals with the theory of capitalist reproduction, necessary attention is not given to this question. If Marx abstracted from this circumstance in the first stage of his analysis of the process of expanded reproduction, understanding full well its importance for a theory of crisis, it in no way follows from this that Marxist thought must stop at that point where Marx's investigation was interrupted by his illness and death. Here is why, on the basis of schemes which ignore these reserves, the fact that fixed capital does not depreciate in the course of one year, the uneven renewal and increase of fixed capital, and finally, the influence that the unevenness of capitalist development exerts on reproduction--here is why given schemes at such a level of abstraction and such a level of scholastic timidity and inability to go beyond Marx's interrupted investigation, it is impossible to understand the development either of a single capitalist cycle or of a single capitalist crisis.¹⁶

In reality such operations [the use of the amortization fund] take place all the time. Marx called this process the release of capital.¹⁷ In the given instance, it is a question of the release of a part of the fixed capital, which takes on the form of money capital and again takes on a fixed material form, when the amortization fund is employed for orders of new fixed capital. The ability to manoeuvre the amortization fund of fixed capital is in general a very important spring in the system of capitalist reproduction, increasing its elasticity in periods of cyclical boom.¹⁸

Preobrazhensky argues in *Zakat Kapitalizma* that the existence and use of the reserve fund becomes, under capitalism, a source of crises and stagnation. Under free competition the rush to build new enterprises that will turn out an increased volume of fixed capital when the latter is in short supply turns into its opposite. The shortage is covered out of existing reserves, and the construction of new plant and equipment leads to an eventual over-production of means of production. Prices fall and crisis ensues. But each crisis, as Marx had already noted,¹⁹ brought with it not a return to the old level of production but a process of recovery on a higher and broader technical plain than before. The tendency was towards greater extension and improvement of

the social stock of means of production, especially of fixed capital.²⁰

With the growth and expansion of the productive forces, and with the advent of the age of imperialism, such cycles of boom and crisis no longer act as a stimulus to further economic growth. The great capitalist trusts will, Preobrazhensky argues, meet any cutback in demand not by cutting prices and engaging in competitive wars of the strong capitals against the weak, but by cutting production. The technical basis for this is precisely those reserves that capitalism built up during previous cycles. We have seen that the larger these reserves the easier it is for capitalism to meet any new demand for increased output without constructing new enterprises or expanding its productive capacity. Excess capacity is brought into operation, unemployed workers are called back into production, existing stocks of fixed and circulating capital necessitate smaller increases in new investment. And when this new investment does eventually lead to over-production the crisis will be one of economic stagnation and not the cycle of crash, restoration, and boom that characterized capitalism during the period of free competition.²¹

This contradiction between the expanding technical foundations of capitalist production and the striving for surplus value formed the basis of Marx's theory of the falling rate of profit in Volume III of *Capital*. We have, on a number of occasions, referred to the contradiction between the need for adequate capital reserves in order to maintain material proportionality, and the existence of these reserves as a source of crises of over-production.²² In *Zakat Kapitalizma* Preobrazhensky began to examine the regularities and the logic behind this process and to adapt his analysis to the specific historical characteristics of capitalism. But in attempting to answer one set of questions he posed another, which for us is the most essential of all. In his use of the reproduction schemes his starting point is a one-time in-

crease in the demand for fixed capital. We must ask, however, where does this increased demand come from?²³ Is it really momentary, or is it systematic, inherent in the process of accumulation? Behind this is the even more basic question: How is fixed capital accumulated?

In trying to answer these questions we will find that Preobrazhensky had already worked out most of the basic analytical tools we need. This should not surprise us, for the fundamental dilemma facing the Soviet economy under NEP was how the country could accumulate fixed capital under the specific conditions of its backwardness and isolation.

NOTES TO CHAPTER 6

1. For Preobrazhensky's account of how *Zakat Kapitalizma* formed part of the overall study he had undertaken of the Soviet and world capitalist economies and the book's particular relation to the articles published in the VKA, see *Zakat Kapitalizma*, pp. 53-56.
2. *Capital*, II, pp. 175, 181; *Theories of Surplus Value*, Part II (Moscow, 1968), pp. 470-91.
3. We assume here, as throughout, that the rate of exploitation remains unchanged.
4. *Capital*, II, Ch. VI, pp. 140-41; Ch. XIV, pp. 257-60; Ch. XV, pp. 263, *passim*.
5. *Ibid*, p. 432. See above, Ch. 2, pp. 118-19 and pp. 137-38, Note 3.
6. We have already noted the relation between the VKA articles and *Zakat Kapitalizma*, as well as Preobrazhensky's general plan for subsequent volumes of *The New Economics* (see above, pp. 2-3). For the attack upon the book, see Grigorii Konstantinovich Roginsky, ed., *Zakat Kapitalizma v Trotskistkom Zerkale: O Knige E. Preobrazhenskogo Zakat Kapitalizma (The Decline of Capitalism in the Trotskyist Mirror: On E. Preobrazhensky's Book, The Decline of Capitalism)*, *op cit*.
7. We do know of the draft of the article, "O Metodologii Sostavleniya Genplana i Vtoroi Pyatiletki" ("On the Methodology of Drawing Up the General Plan and the Second Five-Year Plan"), submitted to *Problemy Ekonomiki*, but never published (see Introduction, Note 4). It seems inconceivable to us that *Zakat Kapitalizma*, with its argument about the conditions of proportionality and the need for ample reserves in the accumulation of fixed capital, was not also an indirect statement about the plight of the Soviet economy and the industrialization drive being undertaken at the time. Certainly the bureaucracy understood the connection, for the draft of this article was attacked as being the explicit line behind the veiled argument in *Zakat Kapitalizma* (see Roginsky, *op cit*, pp. 52-58).

8. *Zakat Kapitalizma*, pp. 61-62. For similar passages see pp. 54, *passim*, pp. 70-71, and 82-83.
9. Marx, for instance, notes (*Capital*, II, pp. 245-46) that the active life of fixed capital includes the entire time in which it functions in the process of production, including waiting time and other periods when it may lie idle, and not just those periods when it is in motion. Thus it continues to depreciate, though perhaps less rapidly, even when it is not being specifically used (it is, of course, subject to moral depreciation, unavoidable effects of age, rust, etc., as well as the wear and tear from direct use), so that its life span is averaged over the whole production period (which, Marx stresses, is longer than the working period proper).
10. In the next chapter we will see how it is necessary to modify this method of calculating accumulation in line with the assumption that fixed capital takes longer than one year to complete its turnover.
11. Preobrazhensky only mentions this in passing (*Zakat Kapitalizma*, p. 68). It is a problem more immediately relevant to the Soviet economy, where the need for massive renewals of depleted fixed capital would have meant a sharp fall in current output, given the long gestation period of investments in heavy industry. Preobrazhensky discussed this in some detail in VKA 22, and we will take this question up in Part IV, when dealing with his theory of expanded reproduction in the USSR. See also *Capital*, II, pp. 318-20.
12. We should note that this only raises the supply of fixed capital by 750 [500 $I_c(f)$ + 25% of the overall growth of $I(v+s/x)$, or 250] --i.e., by only half of what is required.
13. *Zakat Kapitalizma*, pp. 69-70. Preobrazhensky states that it is even more difficult for department II to meet this demand for new constant capital, due to the material composition of its product. While it is easier for II to put $IIs(a)$ towards increasing IIV , given its material form of means of consumption, expansion of constant capital is thus harder: Not just because it lacks the supply of fixed capital, but because its circulating capital is largely tied to agriculture, which in turn has certain definite natural limits to its expansion.
14. *Theories of Surplus Value*, II, p. 477.
15. For Marx's discussion of the historical tendency to increase the share of fixed capital in the total productive capital, see *Capital*, III, pp. 260-62.
16. *Zakat Kapitalizma*, pp. 70-71.
17. Preobrazhensky's use of the term "release of capital" is incorrect. Marx used the term "released capital" to refer to the additional part of an industrial capital that is advanced during the period of circulation to tide production over while the initial commodity capital is circulating. He shows that if an initial capital is advanced for the production period extending, say, nine months, then an additional capital will be necessary to keep production going for the time of circulation (in Marx's example, three months).

This does not mean that a new capital is needed every year to maintain the level of production; for once the first circulation period is complete the original capital returns, only part of which is now needed to complete the nine-month production period (which had been initiated with the supplemental capital). Thus at the end of the second nine months there is an increment of the original capital left over, equal in magnitude to the supplemental capital, and which can now be used to keep production going during the next period of circulation. The result is that with the end of every working period there is always left over, or "released" an amount of capital equal to the supplemental capital advanced in the first year. See *Capital*, II, Ch. XV). The fund to which Preobrazhensky refers was called by Marx the sinking fund.

18. *Zakat Kapitalizma*, p. 90.
19. *Capital*, II, p. 174, pp. 188-89; *Capital*, III, p. 119.
20. *Zakat Kapitalizma*, p. 20.
21. *Ibid*, pp. 62-65.
22. *Capital*, II, p. 472. See also Chapter 2, above.
23. Although the 1500 increased demand in fixed capital Preobrazhensky posited may seem arbitrary, it would not have been if we were talking about the Soviet Union. There vast quantities of fixed capital, destroyed during the war and Civil War, had to be restored all at once; in addition, the need for rapid industrialization would have made this demand for new fixed capital even larger. In the unpublished article we have already mentioned (Note 7, above) it would appear that Preobrazhensky addressed exactly this point, and tried to show, as he had done in VKA 22, that such rapid and massive accumulation of fixed capital was impossible in a country as backward as the Soviet Union. For further discussion of this point, see Part IV, below.

CHAPTER 7

THE ACCUMULATION OF FIXED CAPITAL

I. *The Accumulation of Fixed Capital and the Tendency Towards Under-Production of Means of Production*

In his analysis of the replacement of fixed capital Marx concluded that the value of fixed capital replaced during any one year must equal that which is simply transferred to the annual product and whose equivalent is accumulated as a money hoard. In Preobrazhensky's scheme department II has a fixed capital stock of 3750. Each year ten per cent of its value, or 375, passes into that of the commodities it helps produce. This 375 circulates, along with the rest of the commodity capital, and returns to the capitalist with the sale of his commodities. In the circuit C'-M', 375 of the money the capitalist gets back with the sale of his commodities represents the annual wear and tear of his fixed capital. Now, all or part of this 375 may have been transferred by fixed capital (machines, buildings, etc.) which do not need replacement at this time. In that case the capitalist will take this 375 and use it to replace that part of his fixed capital whose life span has ended in that particular year. But this is conditioned not only on his having enough money to replace his worn out machinery, etc., but upon fixed capital of the same value actually needing renewal. With simple reproduction our capitalists in department II will receive each year 375 in money as an equivalent for the ten per cent depreciation of their fixed capital. Conversely, ten per cent of their total stock of fixed capital will wear out and require replacement at the same time. If these two conditions do not balance one another, we will have either over-production in department I (where fewer than 375 need replacement), or under-production (where more than 375 must be renewed).

Marx derived this relationship--important enough in its own right--strictly on the basis of simple reproduction. In fact, to him this

constituted its great significance.

This illustration of fixed capital, on the basis of an unchanged scale of reproduction, is striking. A disproportion of the production of fixed and circulating capital is one of the favorite arguments of the economists in explaining crises. That such a disproportion can and must arise even when the fixed capital is merely *preserved*, that it can and must do so on the assumption of ideal normal production on the basis of simple reproduction of the already functioning social capital is something new to them.¹

This relationship cannot possibly hold true under expanded reproduction. There department I must produce enough means of production not only to replace the worn out portion of society's fixed capital, but an additional increment, equivalent to the amount of new fixed capital that is to be added to the social stock. It would seem even at first glance that this is bound to create a problem. The money department II receives as an equivalent for the depreciated part of its fixed capital whose value enters the annual product will quite obviously fall short of the amount of fixed capital it must purchase. It might be answered that this additional money comes from the sale of part of IIs(a) during the process of accumulation. This will be true only under the assumption that the entire fixed capital turns over and is renewed in the course of one year. As soon as we drop this assumption, as Preobrazhensky did in *Zakat Kapitalizma*, matters become much more complex. Each year a given quantity, f , is added to the stock of fixed capital. In the following year, however, not all of the value of f enters into the product, but only f/n , where n is the life span of fixed capital in years. In department I, on the other hand, all of $(v+s/x)$ is reproduced every year. Under these circumstances, will not $I(v+s/x)$ constantly outstrip IIc, since only a fraction of the accumulated part of surplus value that goes to augment II's fixed capital will show up in next year's value of IIc? And if so, what will guarantee that each year's new accumulation of fixed capital in department II will absorb this difference between $I(v+s/x)$ and IIc and thereby

avert a tendency towards chronic over-accumulation in department I?

To illustrate the problem, let us take Preobrazhensky's original scheme from *Zakat Kapitalizma* and break it down into its material components.

I. 10,000 fixed capital:

$$4000(1000_f + 3000_c)c + 1000(250_f + 750_c)v + \\ + 500(125_f + 375_c)s/x + 500(125_f + 375_c)s(a)$$

II. 3750 fixed capital:

$$1500(375_f + 1125_c)c + 375v + 187.5s/x + \\ + 187.5(37.5_f + 112.5_c + 37.5_v)s(a)$$

[We have not broken down IIv and IIs/x into (f) and (c), as they only exist as means of consumption and do not exchange with department I against any form of means of production. IIs(a) "breaks down" into (f) and (c) components only by way of designating what aliquots will go towards the various elements of productive capital when accumulated.]

If we add up all of the fixed capital components of I(v+s/x) we get 375, which balances the fixed capital part of IIc. The same with circulating constant capital, which equals 1125 in both the consumption fund of I and in IIc.

If we ignore the fact that the fixed capital does not fully depreciate in one year accumulation would proceed in the following manner.

In department I, 125 of its accumulated surplus value exists in the physical form of potential fixed capital. Of this, four-fifths, or 100, go to increase the fixed capital portion of Ic. The other 25 go to increase Iv, although they naturally must be sold so that the capitalists in I can reconvert these commodities into variable capital. As to the 375 which exist physically as circulating constant capital, four-fifths of this, or 300, go to augment Ic(c), and the other 75 go to increase Iv. Thus, after accumulation we have:

$$I. 4400(1000_f + 3300_c)c + 1100(275_f + 825_c)v + 500(125_f + 375_c)s/x$$

And after the year's production:

$$\begin{aligned} \text{I. } & 4400(1100_f + 3300_c)c + 1100(275_f + 825_c)v + \\ & + 550(137.5_f + 412.5_c)s/x + 550s(a) \end{aligned}$$

In department II accumulation proceeds in the very same way. If we view IIs(a) as existing as a value equivalent of a certain quantity of means of production and a sum of means of subsistence for the acquisition of new labor power, then, of the four-fifths of the total commodity-product that will go to purchase means of production, one quarter, or 37.5, goes to increase IIc(f) and three quarters, or 112.5, will go to buy additional elements of IIc(c). The other one fifth of the product goes to increase IIv.

$$\text{II. } 1650(412.5_f + 1237.5_c)c + 412.5v + 187.5s/x$$

And after the year's production:

$$\text{II. } 1650(412.5_f + 1237.5_c)c + 412.5v + 206.25s/x + 206.25s(a)$$

We see that overall, $I(v+s/x) = IIc$. In addition, the internal proportions between fixed and circulating capital balance as well. Department I has 412.5 in means of production that will function as fixed capital to offer for sale to department II. Department II in turn needs precisely this amount of new fixed capital. To purchase it department II has means of consumption worth 412.5 to exchange with department I. As for the circulating constant capital, department I has means of production of this type worth 1237.5, which is exactly what department II requires. The latter also has this amount of means of consumption to exchange with department I. Everything is in order. Department I has obtained the right quantity of means of consumption needed to advance its variable capital for another year and for the personal consumption of its capitalists; and department II has received means of production in just the right physical proportions between fixed and circulating capital.

We should be perfectly clear that, given the figures we have assumed, we were to able to maintain proportionality between all of the

material elements of expanded reproduction in the two departments for only one reason. They both have identical technical structures. The physical composition of $I(v+s/x)$, as we have already noted, is determined by department II's respective demand for fixed and circulating constant capital. If, say, department I had a ratio of fixed to circulating capital not of one to three, but of one to one, then of the 400 $Is(a)$ that went to increase Ic , not 100, but 200 would have had to go for fixed capital. But the technical proportions we have assumed would not allow this. Only 125 of $Is(a)$ physically exist as fixed capital. Quite clearly we would have to assume a different material composition of I's commodity-product in order for accumulation to proceed smoothly in both departments. $Is(a)$ would have to break down into 225 fixed capital and 275 circulating capital. Otherwise it could not provide both itself and department II (which must acquire some of its constant capital in exchange against Iv) with ^{the} different types of means of production they each need.

In reality this symmetry is just an accident of the figures we used for our scheme. There is no reason why the physical composition of I's product should in any way reflect the value composition of the means of production used to produce it. The only point to keep in mind is that the use form of I's product must reflect the *combined* demand of both departments for the two kinds of constant capital they require. We will have reason to return to this point later on.

As soon as we abandon the simplifying assumption that all fixed capital turns over in one year this scheme is no longer valid. Department I took 400 of its accumulation fund to add to its constant capital. Of this, 100 was for fixed capital. If fixed capital has an average life of 10 years, as we have assumed in our example, then the entire 100 does not reappear in the value of the product in the following year, but only one tenth, or 10. To calculate the figures for

accumulation we would have to add the 100 to the *total stock* of fixed capital in department I, and recalculate the value of the constant capital on that basis. In department II the 37.5 additional fixed capital will also go to increase II's stock of fixed capital, and only a value equivalent of 10 per cent, or 3.75, will pass into the value of IIc in the course of next year's production. If we alter our scheme accordingly we obtain this result (for the sake of simplicity we show only the final product, after both accumulation and production have been carried out):

$$\begin{aligned} \text{I. } 10,100 \text{ fixed capital:} \\ 4310(1010_f + 3300_c)c + 1100(275_f + 825_c)v + \\ + 550(137.5_f + 412.5_c)s/x + 550s(a) \end{aligned}$$

$$\begin{aligned} \text{II. } 3787.5 \text{ fixed capital:} \\ 1616.25(378.75_f + 1237.5_c)c + 412.5v + 206.25s.x + 206.25s(a) \end{aligned}$$

There is an apparent over-production in department I of 33.75, an over-production entirely of fixed capital. We say apparent, because it does not really exist. In terms of the value of the final product, $I(v+s/x)$ exceeds IIc by this amount. But in terms of *exchange* between the two departments, there is no discrepancy at all. II still had to *purchase* 37.5 in fixed capital from department I, and to do this it had to produce and sell this amount of means of consumption. In the next year II will add 165 of its accumulation to its constant capital, of which 41.25 will be for fixed capital. It will add this 41.25 to its stock of fixed capital, and only a value of 10 per cent (4.125) will enter into the value of II's product. Department I, whose accumulation fund equals 550, will put 110 of this to new variable capital. This 110 will eventually give rise to a surplus value of the same amount, of which half, or 55, will be taken by I's capitalists for their individual consumption. The increment, $dI(v+s/x)$, will be 165, and a quarter of this (41.25) will exist in the material form appropriate to their use as fixed capital.

What we have is a new condition for expanded reproduction, which arises as soon as we allow for the fact that fixed capital is accumulated, but not fully replaced every year. $I(v+s/x)$ will no longer equal IIc . It will equal IIc of the previous year plus the *total addition to II's means of production*. Or, what is the same thing, it will equal IIc of the current year plus the value of the *newly added* fixed capital which still remains fixed outside the value of the individual commodities it was used to produce. In our example this will be 1616.25 plus 90% of $37.5 = 1616.25 + 33.75 = 1650 = I(v+s/x)$.

If we look closer at our scheme we see that in solving one problem we have created another, more serious one. Production and exchange between the two departments balance each other, well enough. But now the technical structure of the economy has altered and, what is more, it has taken on a more backward character. In both departments the relation between fixed and circulating constant capital has fallen. Before, the ratio of the stock of fixed capital to the circulating constant capital was equal to $3.33:1$ in both departments. Now it has declined to $3.06:1$. In terms of the value composition of Ic and IIc , the proportion of its value made up by the wear and tear of fixed capital has dropped from 25 per cent to 23.4 per cent. The same holds true of the organic composition of capital: It has fallen from four to one in both departments to 3.9 to one. What is even more telling is that both the ratio of total means of production employed to variable capital and the ratio of total stock of fixed capital to variable capital have fallen--that is, there has been a decline in the productivity of labor (conversely, the share of variable capital in the total value of the annual product has risen, from 16.67% to 16.89%). All of these phenomena show that the relative weight of fixed capital, of those means of production that give society a more advanced technical foundation and tend to raise the productivity of labor, has fallen. Clearly this is

neither historically nor logically warranted.²

It is obvious that we must start out on a new basis. Accumulation must proceed in such a way that the breakdown of the accumulated surplus value between fixed capital, circulating constant capital, and variable capital leaves the relationships between $c(f)$ and $c(c)$, c/v , and total employed means of production to variable capital, unchanged. Just a glance at our original scheme (p. 243) would suggest that accumulation will then have to preserve the existing shares of fixed, circulating-constant, and variable capital in the total capital: Namely 10,000/14,000 (71.43%) for fixed capital, 3000/14,000 (21.43%) for circulating constant capital, and 1000/14,000 (7.14%) for variable capital. We can confirm this by setting up the following simultaneous equations:

Let x = the value of the newly added fixed capital
 y = the value of the additional circulating constant capital
 z = the value of the additional variable capital

Then we have:

$$\begin{aligned} (1) \quad & x + y + z = s(a) \\ (2) \quad & .1x + y - 4z = 0 \\ (3) \quad & .3x - y = 0 \end{aligned}$$

Equation (1) is a definitional equation, and expresses the fact that $s(a)$ must equal the sum of its constituent parts. Equation (2) is the equation for the organic composition of capital; given our present assumptions that the stock of fixed capital depreciates by 10 per cent per year and that $c/v = 4$, we will have $(.1x + y)/z = 4$. Equation (3) is the equation for the ratio of used up fixed capital to circulating capital in the c component of each department, i.e., $.1x:y = 1:3$. Solving these equations for x , y , and z respectively we have:

$$\begin{aligned} x &= 71.43\% \text{ of } s(a) \\ y &= 21.42\% \text{ of } s(a) \\ z &= 7.15\% \text{ of } s(a) \end{aligned}$$

Which is identical to what we estimated.

Returning to our original scheme on p. 243, department I has 500 surplus value to be accumulated. Out of this 500, 357.14 is added to

the fixed capital stock. A further 107.14 goes to increase the circulating part of constant capital. Finally, 35.71 goes towards additional variable capital. After accumulation the arrangement of department I's capital (rounding off decimal places where appropriate) is:

$$\begin{aligned} \text{I. } & 10,357.1 \text{ fixed capital:} \\ & 4142.8(1035.7_f + 3107.1_c)c + 1035.7v + 500s/x \end{aligned}$$

In department II, whose accumulation fund is 187.5, 133.9 goes for fixed capital, 40.2 for circulating constant capital, and 13.4 for variable capital, giving an arrangement of:

$$\begin{aligned} \text{II. } & 3883.9 \text{ fixed capital:} \\ & 1553.6(388.4_f + 1165.2_c)c + 388.4v + 187.5s/x \end{aligned}$$

At the end of the year's production we will have:

$$\begin{aligned} \text{I. } & 4142.8(1035.7_f + 3107.1_c)c + 1035.7v + 517.85s/x + 517.85s(a) \\ \text{II. } & 1553.6(388.4_f + 1165.2_c)c + 388.4v + 194.2s/x + 194.2s(a) \end{aligned}$$

This scheme retains all of the original value relationships between the different material elements of the productive capital within each department. If we add up the portions of each department's product that has to be exchanged we find that $I(v+s/x) = 1553.55$. $IIc = 1553.6$. The two magnitudes are, for all practical purposes, equal. Department I has produced enough means of production to replace II's used up constant capital. But this means that the conditions of expanded reproduction are not satisfied. As we demonstrated above, the longer turnover period of fixed capital requires not that $I(v+s/x) = IIc$, but that it equals IIc plus the remaining value of the newly added fixed capital, in this case IIc plus 90% of the value of the portion of $II(s)$ that went to fixed capital. This figure equals $1553.6 + 90\%$ of $133.9 = 1553.6 + 120.5 = 1674.1$. There is a *shortage* of means of production of 120.55. Department I has 53.55 newly produced means of production for exchange, while department II needs a total of 174.1 (133.9 in new fixed capital plus 40.2 in new circulating constant capital).

We see the problem even more strikingly if we work out accumulation

for the next year. $IIs(a)$ equals 194.2, of which 180.3 must go to increase its supply of means of production (138.7 for addition to the fixed capital stock, 41.6 for new circulating constant capital). Department I will devote 37.03 to increase its variable capital. The extra labor power set in motion will produce 37.03 in surplus value, out of which department I will take half, or about 18.5, for the individual consumption of its capitalists. Thus, of the 180.3 means of production required by department II, department I can provide only 55.5. Even if we assume that department II, either through the utilization of reserves, or through recourse to foreign trade, had somehow been able to cover its first-year deficit of means of production, in the next year this shortage would have grown in magnitude, and by a considerable amount. We see, therefore, that this under-production of means of production is not a momentary occurrence (as Preobrazhensky treated it in *Zakat Kapitalizma*), but *is systematic and arises out of the very process of accumulation.*

What is the source of the disproportion? The general condition of expanded reproduction is that department I's consumption fund grows by the same absolute quantity and at the same rate as II's constant capital. In social terms this means that department I each year must produce enough new means of production to exchange with department II in order to meet its own increased demand for means of consumption; and the latter magnitude must equal department II's demand for additional means of production. The relative sizes of the two departments and their technical makeups must be such that the value of the labor power department I employs plus the value of the consumed part of the surplus value this labor power creates is always equal to the value of the constant capital department II requires to produce these means of consumption. We have already seen that for expanded reproduction to proceed smoothly, and without any transfer of social capital from one depart-

ment to another--something that can never happen in a technologically advanced economy, and especially under the anarchy of capitalist production, where such transfers cannot be anticipated and planned in advance--their organic compositions of capital must be equal and remain constant (should it rise, the absolute size of department I must grow, in order to re-establish proportionality). This alone, however, is not enough. Given a particular organic composition their relative sizes are rigidly dictated, otherwise there would be an automatic imbalance between their respective demands for each other's products (as when the organic composition of capital rises). Now, starting off from a position of equilibrium, when we introduce the complicating condition that fixed capital is not amortized solely in the course of a single year, we do two things. One, we increase the share of I's accumulated surplus value that must go to increase its own constant capital. This in turn means a sharp reduction both in the relative quantity of labor power employed by I and the surplus value it produces. Two, we simultaneously raise the portion of II's accumulation fund that goes to purchase new means of production, thus sharply increasing its demand for fixed capital. From any given point of equilibrium between the two departments next year's accumulation will automatically bring with it a greater need for means of production on the part of department II and a reduced ability on the part of department I to satisfy it. The only way society could get around this difficulty would be if the absolute size of department I gave it enough exchangeable output to meet II's requirements for constant capital. With each year department I would have to augment its total scale of production such that there was an *absolute* rise in $I(v+s/x)$ sufficient to cover department II's increased demand for means of production.³

This result is virtually identical to what we found when the organic composition of capital, despite being equal in both departments,

rises. What is more, the processes operate in the same way. Each disrupts proportionality by simultaneously raising II's need for means of production and reducing the share of I's consumption fund in its total commodity-product. Capitalism solves this problem by perpetually transferring capital from department II to department I, thereby increasing the relative weight of the production of means of production in the entire social product. We will see below that the problem we have just uncovered has the same solution: The systematic transfer of capital into those sectors of industry that produce means of production. In the course of this process capitalism establishes a growing interdependence between its own production and that of other modes of production, an interconnection that leads to the inevitable subordination of these more backward economic systems to the more advanced.

II. Variations Arising From Unequal Organic Compositions of Capital, Unequal Proportions of Fixed and Circulating Capital in the Two Departments, and From the Application of Prices of Production

The schemes we have used in our discussion so far, including those taken from Preobrazhensky, make no complicating assumptions, other than the longer turnover period of fixed capital. The organic composition of capital is the same in both departments, which is strikingly unrealistic for an economy with a high level of technique and a well developed division of labor. Nevertheless, we have assumed it, because with equal organic compositions expanded reproduction presents no difficulties and raises no exceptionally disturbing questions. This allowed us to show (as with the case of a rising c/v) that the disproportions we found when we increased the depreciation period of fixed capital were solely attributable to that factor and to no other.

We know, however, that even when all the constant capital turns over in one year disproportions arise from other sources, namely the unequal organic compositions of capital in departments I and II, and

that these disturbances are systematic under expanded reproduction. We must now reintroduce this qualification, first, in order to make our analysis more concrete so that it more closely approximates the conditions of a real capitalist economy, and second, to see if this in any way affects our original results and conclusions.

In addition, we also assumed that both departments had the same level of technique, in terms of the relationship between fixed and circulating constant capital. Like positing equal organic compositions of capital, this condition is not realistic, and does not express the fact that department II, which produces means of consumption, uses relatively less fixed capital in its production than does department I. Again, allowing for unequal ratios of $c(f)$ to $c(c)$ in departments I and II is both a concretization that we must make in order to bring our analysis increasingly in line with real conditions, and a factor we must take into account to see if it in any way mitigates the basic tendency towards under-accumulation in department I that we have uncovered.

Finally, we saw in our discussion of VKA 17 that the application of prices of production reversed the direction of the disproportion between the two departments, and led to a persistent over-accumulation in the production of means of production. This was a predictable result, because the assumption of a general rate of profit meant that the surplus value is redistributed throughout the economy not according to the relative size of the variable capital each department employs, but to its total capital. The higher organic composition of capital in department I led to it attracting a greater share of this surplus value than did department II, and hence to an over-production of means of production. Therefore, it is extremely important that we apply prices of production to our present problem and assume an average, general rate of profit as the basis of accumulation, in order to see if once again the actual movement of social capital is the reverse of what we arrive

at in a purely value analysis.

When we have introduced all of these modifications in turn we will see that they do not fundamentally alter the problem, and that there is still a chronic under-production of means of production. This is quite surprising in the case of prices of production, for it shows that the original tendency Preobrazhensky discerned when he assumed that commodities exchange at their values is, in fact, still valid once we introduce more complicating factors. What is more, it makes our own attempts to solve the problem analytically "neater." Since the essence of the problem does not change, we can employ reproduction schemes that are relatively unencumbered by complications.

We should state, finally, that since the problem we are examining is in fact of the same nature as a rise in the organic composition of capital, it would make no sense to introduce that modification into our schemes. Clearly it could in no way counteract the tendency towards under-production of means of production, but could only reinforce it.

II-a. Unequal Organic Compositions of Capital

We start with the following scheme:

I. 10,000 fixed capital:
 $4000(1000_f + 3000_c)c + 1000v + 500s/x + 500s(a)$

II. 3750 fixed capital:
 $1500(375_f + 1125_c)c + 500v + 250s/x + 250s(a)$

Our scheme for department I is unchanged, so its accumulation fund will divide up into the same percentages of fixed, circulating-constant, and variable capital as before. Department II, however, now has a lower organic composition of capital, three to one, and so its accumulated surplus value will divide differently, according to these equations:

$$\begin{aligned} (1) \quad & x + y + z = IIs(a) \\ (2) \quad & .1x + y - 3z = 0 \\ (3) \quad & .3x - y = 0 \end{aligned}$$

Solving for x, y, and z, we get 69.77% of IIs(a) going for new fixed

capital, 20.93% for additional circulating constant capital, and 9.3% to increase IIv. In the first year, out of the 250(s), II will add 174.42 to its stock of fixed capital, 52.33 to IIc(c), and 23.25 to IIv. The arrangements of the total social capital will therefore be:

$$\text{I. } 10,357.1 \text{ fixed capital:} \\ 4142.8(1035.7_f + 3107.1_c)c + 1035.7v + 500s/x$$

$$\text{II. } 3924.4 \text{ fixed capital:} \\ 1569.7(392.4_f + 1177.3_c)c + 523.25v + 250s/x$$

At the end of the year's production:

$$\text{I. } 4142.8(1035.7_f + 3107.1_c)c + 1035.7v + 517.85s/x + 517.85s(a) \\ \text{II. } 1569.7(392.4_f + 1177.3_c)c + 523.25v + 261.63s/x + 261.63s(a)$$

When the organic composition of capital was the same in both departments, we saw that in the first year $I(v+s/x)$ equalled IIc, and the deficit of means of production showed up in II's inability to accumulate additional needed fixed capital. Now, with IIc/v lower than Ic/v , department I cannot even replace all of those means of production department II productively consumes simply in the course of one year. $I(v+s/x)$ is less than IIc by about 16.2. Not only will department II be unable to accumulate the fixed capital necessary to expand its production in the ensuing year, it will be unable to restore 16.2 of the constant capital immediately used up.

The overall deficit of means of production is 1726.75 (1500 IIc from the start of the first year plus the additional fixed capital = 174.42, plus the additional circulating capital = 52.33) minus 1553.55 = 173.2. As in our original example, let us assume that department II somehow is able to cover this deficit. What will happen in the second year? Department I [$s(a) = 517.85$] will add 369.9 to its fixed capital stock, 110.9 to the circulating portion of its constant capital, and 37 to its variable capital. Department II will add 182.5 to its fixed capital, 54.8 to IIc(c), and 24.3 to its variable capital. After rearranging the social capital and carrying out production for the year we have:

I. 10,727 fixed capital:

$$4290.7(1072.7_f + 3218_c)c + 1072.7v + 536.3s/x + 536.3s(a)$$

II. 4106.9 fixed capital:

$$1642.8(410.7_f + 1232.1_c)c + 547.6v + 273.8s/x + 273.8s(a)$$

IIc exceeds I(v+s/x) by 33.8. The total deficit of means of production equals 198. Both the deficit in the replacement fund of IIc and that of the accumulation fund for fixed capital have worsened. The total shortage of means of production has gone from 173.2 to 198, an increase of 24.8. The shortage of means of production destined simply to replace II's used up constant capital has gone from 16.2 to 33.8, a rise of 17.6. This means that the shortfall of fixed capital also increased by 7.2.

As we would have expected, the lower organic composition of capital in department II reinforces the tendency towards under-production of means of production brought about by the lengthened turnover period of fixed capital. When we lowered IIc/v from four to one, to three to one, this caused the share of accumulated surplus value going to new fixed capital to fall by some 1.5%. This in and of itself would have acted to ease the disproportion somewhat--not absolutely, but by slightly slowing its rate of growth. Counteracting this, however, is the fact that the fall in IIc/v raises the part of surplus value that goes to increase II's variable capital--by better than two per cent. We need not repeat what effect this will have on proportionality between the two departments. The increase in the rate of growth of IIv will augment its production of surplus value, and its total accumulation fund will grow (including the part going to new fixed capital) faster than department I's capacity to satisfy II's demand. Thus we see that, when we take account of the fact that the department producing means of production has a higher organic composition than that producing means of consumption, the tendency is towards an even more chronic shortage of means of production than we first found. Not only is department II

unable to accumulate new fixed capital, it can no longer even replace all of the constant capital it would use up in a single year of expanded reproduction.

II-b. Unequal Proportions of Fixed and Circulating Constant Capital

This case is virtually identical to the previous one, where we had unequal organic compositions of capital, and we can cover it quite quickly. Take the following scheme for the social capital:

$$\text{I. } 10,000 \text{ fixed capital:} \\ 4000(1000_f + 3000_c)c + 1000v + 500s/x + 500s(a)$$

$$\text{II. } 2500 \text{ fixed capital:} \\ 1500(250_f + 1250_c)c + 375v + 187.5s/x + 187.5s(a)$$

Here the organic compositions of capital are the same, but department II uses much less fixed capital to produce a given value of commodities than does department I. The ratio, $IIc(f)/c(c)$ is now one to five, instead of one to three. Quite clearly this will mean that II will demand relatively less fixed capital than before, and so we would expect this to alleviate the burden on department I for new fixed capital. If we solve a new set of simultaneous equations for distributing $II_s(a)$, however, we find just the opposite result.

$$\begin{aligned} (1) \quad x + y + z &= II_s(a) \\ (2) \quad .1x + y - 4z &= 0 \\ (3) \quad .5x - y &= 0 \end{aligned}$$

Here $x = 60.6\%$ of $s(a)$; $y = 30.3\%$ of $s(a)$; and $z = 9.1\%$ of $s(a)$. Even though II's demand for fixed capital will fall, the general division of $II_s(a)$ between means of production and variable capital is practically identical with what we found by varying the organic composition of capital. In any given year II will devote a greater share of its accumulated surplus value to increase its variable capital than will department I. Consequently, II's rate of accumulation will outpace that of I, and there will be a worsening shortage of means of production. We can illustrate this by working out the pattern of accumulation for

a two-year period. We already know what department I will look like after the first year's accumulation and production. As for department II, it will add 113.6 to its fixed capital, 56.8 to IIc(c), and 17.1 to IIv. At the end of the production year we will have:

- I. 10,357.1 fixed capital:
 $4142.8(1035.7_f + 3107.1_c)c + 1035.7v + 517.85s/x + 517.85s(a)$
- II. 2613.6 fixed capital:
 $1568.2(261.4_f + 1306.8_c)c + 392.1v + 196s/x + 196s(a)$

IIc exceeds I(v+s/x) by 14.65. II's total demand for means of production, equal to 1670.4, exceeds I's exchangeable supply by 116.9.

In year two I will, of course, have the same accumulation and production as in our example on p. 256. For department II, accumulation will proceed as follows: 118.8 to increase fixed capital, 59.4 to IIc(c), 17.8 to IIv, giving at the end of the year:

- I. 10,727 fixed capital:
 $4291(1072.7_f + 3218_c)c + 1072.7v + 536.3s/x + 536.3s(a)$
- II. 2732.4 fixed capital:
 $1639.4(273.2_f + 1366.2_c)c + 409.9v + 205s/x + 205s(a)$

IIc is greater than I(v+s/x) by 30.4, and II's overall deficit of means of production equals 137.4. The shortage of means of production has jumped by 20.3: The deficit within IIc by 15.65, and that of fixed capital by 4.65. So, once again we see the disproportion coming from both ends at the same time.

This, too, was a predictable result. Lowering the share of fixed capital in the total means of production employed in II has the same effect as lowering its organic composition of capital. To counter the tendency towards under-accumulation in department I, it would have to be the latter, and not department II, that lowered its ratio of c(f) to c(c). In that case I's accumulation and production of surplus value would tend to outgrow that of department II, raise its supply of means of production, and thus partially offset II's deficit. But this is an arithmetical possibility and nothing more. It contradicts the real

historical movement of capitalist development, which says that the growing productivity of social labor reflects itself first and foremost in the absolute increase of the share of means of production, and especially fixed capital, in the total annual product.

II-c. The Application of Prices of Production

Of all the variations we have introduced into our reproduction schemes, the application of prices of production is the one that gives a truly surprising result. When we modified the schemes to incorporate the observable historical trends for department II to have a lower productivity of labor and to require less fixed capital to produce its annual output, expanded reproduction proceeded as we would have expected. The basic tendency towards under-production of means of production was reinforced.

When we examined Preobrazhensky's analysis of expanded reproduction under pure capitalism we noted that if we applied prices of production and assumed a general rate of profit, it was department I, and not department II, that experienced over-production. This did not in any way invalidate Preobrazhensky's argument, since it left his essential point unchanged: That capitalism has an inherent tendency towards disequilibrium which it overcomes through the periodic transfer of capital from one department to another (often as a result of crises) and a growing interconnection between capitalism and other modes of production. Nor did it affect his application of this analysis to the Soviet economy under NEP, where, as we will discuss in Part IV, the erosion of the law of value and the deviation of prices from values is already assumed. It would seem to follow that the most important question our analysis of the accumulation of fixed capital raises is whether or not the existence of a general rate of profit and the systematic deviation of prices from values will change the tendency towards under-production

of means of production that we find in a value analysis of capitalist expanded reproduction.

When we apply prices of production to our schemes we see that they do not alter our results. The deficit of means of production is less than when we assumed commodities sold at their values, but it is still systematic and it grows with each year of accumulation. A result that appeared to contradict our first conclusion, because our initial assumptions were too simplified, now itself turns out to be the product of an analysis that was too abstract.

To illustrate the problem we will use the schemes from section II-a, i.e., where Ic/v is greater than IIc/v . If the organic compositions of capital were equal the annual rate of profit would, like the annual rate of surplus value, be the same in the two departments, and prices of production would effect no change in the distribution of the total surplus value. We assume, for the sake of simplicity, that the technical coefficients of production, $c(f)$ and $c(c)$ are the same in departments I and II, as this does not affect the nature of the problem.

I. 10,000 fixed capital:
 $4000(1000_f + 3000_c)c + 1000v + 500s/x + 500s(a)$

II. 3750 fixed capital:
 $1500(375_f + 1125_c)c + 500v + 250s/x + 250s(a)$

As before, we calculate the general rate of profit for each separate year, as the ratio of the total surplus value produced to the total capital advanced. Like Marx, we take the result of any year's production as a given datum for the next year. Though the prices of commodities produced in one year will deviate from their values, these deviations will even out for the great mass of commodities and will influence neither the distribution of the social capital *nor the value of labor power*, insofar as they pass into the prices of succeeding generations of commodities. They form part of the cost-price, upon which any capitalist must calculate his profit. With this in mind, we can

proceed. We will work out accumulation and expanded reproduction for a series of four years.

In the first year, the total capital is equal to the sum of the stocks of fixed capital, plus the circulating constant capital, plus the variable capital for the two departments taken together. This comes to 19,375. The total surplus value, $I_s + IIs$ is 1500, giving a general rate of profit of 7.74%. Department I, with a total capital of 14,000, will earn a profit, p , of 1083.6. Department II, whose total capital is 5375, has a profit of 416 (the discrepancy between total profit and total surplus value comes from having rounded off the figure for the rate of profit to workable decimal places). The new arrangement of capital will be:

$$\begin{aligned} \text{I. } & 4000(1000_f + 3000_c)c + 1000v + 541.8p/x + 541.8p(a) \\ \text{II. } & 1500(375_f + 1125_c)c + 500v + 208p/x + 208p(a) \end{aligned}$$

We recall from p. 248 that in department I:

$$\begin{aligned} x &= \text{addition to fixed capital stock} = 71.43\% \text{ of } I_s(a) \\ y &= \text{addition to circulating part of constant capital} = 21.42\% \text{ of } I_s(a) \\ z &= \text{addition to variable capital} = 7.15\% \text{ of } I_s(a) \end{aligned}$$

and from pp. 254-55 that in department II:

$$\begin{aligned} x &= 69.77\% \text{ of } IIs(a) \\ y &= 20.93\% \text{ of } IIs(a) \\ z &= 9.3\% \text{ of } IIs(a) \end{aligned}$$

We will take the scheme immediately above as the result of production from the year prior to the one we will start with. After the total mass of surplus value has been distributed between the two departments on the basis of the general rate of profit, it forms the starting point for accumulation and production in year one. Here department I, out of its fund of accumulation, will add 387 to its stock of fixed capital, 116.1 to its circulating constant capital, and 38.7 to its variable capital. Department II will distribute the accumulated share of its profits this way: 145.1 for new fixed capital, 43.5 for additional circulating constant capital, and 19.3 for new variable capital. After

the year's production on the basis of this accumulation we will have:

$$\text{I. } 10,387 \text{ fixed capital:} \\ 4154.8(1038.7_f + 3116.1_c)c + 1038.7v + 1038.7s$$

$$\text{II. } 3895.1 \text{ fixed capital:} \\ 1558(389.5_f + 1168.5_c)c + 519.3v + 519.3s$$

In value terms, we see that $I(v+s/x)$ is equal to IIc . In this regard we have obtained the same result as when we first examined the question of prices of production. The existence of the general rate of profit acts as a vehicle for redistributing the entire surplus value in such a way that, if exchange were then to take place according to values, department I would be able to meet department II's demand for new means of production and exchange between the two departments would balance. The existence of a general rate of profit, however, means that exchange does not occur on a value basis, but on that of the deviation of prices from values. It was when we distributed the mass of society's surplus value in line with the total capital of each department--which forms the real basis of exchange--that we saw a growing tendency towards over-production in department I. Here we saw one of the contradictions embodied in the general rate of profit. If somehow exchange could take place between these unequal price magnitudes it would effect an actual equal exchange of values; yet exchange cannot take place on this basis precisely because in price terms the two magnitudes, $I(v+p/x)$ and IIc , are unequal. And so there is the phenomenon of over-production in department I.

Taken at this level, we have merely reproduced the same problem we uncovered in section I, when we examined the accumulation of fixed capital under the most simplified conditions. Thus even though the general rate of profit causes $I(v+s/x)$ to equal IIc , in spite of the lower organic composition of capital in department II, we have still violated the new conditions of expanded reproduction. II requires means of production not equal to IIc , but to 1500 plus 188.6, or 1688.6.

This is an overall deficit of means of production of 130.6, even on the assumption that commodities would exchange at their values.

The question we must answer is this: When we assumed that the entire constant capital turned over in one year, and when the organic composition of capital was lower in department I than in department II, the application of prices of production restored equilibrium conditions in terms of a value-exchange between the two departments. It then followed that when we redistributed the total surplus value according to the relative sizes of the departments, department I actually showed an over-production of means of production as compared to what department II could, or needed to purchase. Now, however, we see that even where accumulation takes place on the basis of a general rate of profit, there is under-production in I. Will the redistribution of the surplus value in accordance with this general rate of profit--which would otherwise lead to a sizeable increase of I's exchangeable product--counter-balance this under-production, lead to the expected over-production in department I, or merely reduce the deficit, but not overcome it?

The surplus value produced during this first year has still to be distributed between the two departments. The total capital has grown to 20,125. The total surplus value is 1558. The rate of profit, p' , is again 7.74%. Department I, whose capital is 14,541.8, earns a profit of 1125.5; department II, with an advanced capital of 5583, receives a profit of 432.1. We then have for the final product:

$$\begin{array}{l} \text{I. } 4154.8(1038.7_f + 3116.1_c)c + 1038.7v + 562.8p/x + 562.8p(a) \\ \text{II. } 1558(389_f + 1168.5_c)c + 519.3v + 216p/x + 216p(a) \end{array}$$

$I(v+p/x) = 1601.5$, which is greater than IIc by 43.5. II's total demand for means of production is, however, far greater than this "surplus" that department I can sell to II for the latter's accumulation fund of fixed capital. II requires means of production equal in price to 1688.6, leaving it with a substantial shortage of 87.1. The redis-

tribution of the surplus value according to the general rate of profit allows I to reduce its deficit of means of production, but not by nearly enough to eliminate it. To demonstrate that this is not an artificial result of either our figures or the initial year of the schemes, we will work out the process of accumulation for a further three years.

Year Two:

$$\begin{aligned} \text{Ip(a)} &= 562.8, \text{ so } x = 402, \quad y = 120.6, \quad z = 40.2 \\ \text{IIp(a)} &= 216, \quad x = 150.7, \quad y = 45.2, \quad z = 20.1 \end{aligned}$$

Arranging the capital in I and II accordingly:

$$\begin{aligned} \text{I. } &10,789 \text{ fixed capital:} \\ &4315.6(1078.9_f + 3236.7_c)c + 1078.9v + 1078.9s \\ \text{II. } &4045.8 \text{ fixed capital:} \\ &1618.3(404.6_f + 1213.7_c)c + 539.4v + 539.4s \end{aligned}$$

Here, too, $I(v+s/x) = \text{II}c$. There is a deficit in the overall exchange of 135.5, an increase of 4.9 over the previous deficit, when calculated on the assumption that exchange would take place between values, and not prices of production. Converting into the latter, the total capital is 20,903.8, total surplus value is 1618.4, the rate of profit, 7.74%. In department I, capital = 15,104.6, $\text{Ip} = 1169.1$. In department II, capital = 5799, $\text{IIp} = 448.8$. The final product is:

$$\begin{aligned} \text{I. } &4315.6(1078.9_f + 3236.7_c)c + 1078.9v + 584.6p/x + 584.6p(a) \\ \text{II. } &1618.3(404.6_f + 1213.7_c)c + 539.4v + 224.4p/x + 224.4p(a) \end{aligned}$$

II's demand for means of production = 1752.9. I's exchangeable supply -- $I(v+p/x)$ -- = 1663.5. Deficit of means of production = 90.4, an increase of 3.3 over Year One.

Year Three:

$$\begin{aligned} \text{Ip(a)} &= 584.6: \quad x = 417.6, \quad y = 125.2, \quad z = 41.8 \\ \text{IIp(a)} &= 224.4: \quad x = 156.6, \quad y = 47, \quad z = 20.9 \end{aligned}$$

The new arrangement of the capital in both departments after the year's production is:

$$\begin{aligned} \text{I. } &11,206.6 \text{ fixed capital:} \\ &4482.9(1121_f + 3361.9_c)c + 1121v + 1121s \\ \text{II. } &4202.4 \text{ fixed capital:} \\ &1680.7(420.2_f + 1260.7_c)c + 560.3v + 560.3s \end{aligned}$$

$I(v+s/x) = IIc$ (the slight difference is due to rounding off decimal places). The deficit of means of production, on the basis of an exchange of values, is $1821.9 - 1681.5 = 140.4$, an increase of 4.9 over Year Two.

Converting into prices of production, the total capital = 21,712.8, total surplus value = 1681.3, the rate of profit = 7.74%. Capital in department I = 15,689.2, and $I_p = 1214.3$. Capital in department II = 6023.4, and $II_p = 466.2$. The final product is:

$$\begin{aligned} \text{I. } & 4482.9(1121_f + 3361.9_c)c + 1121v + 607.2p/x + 607.2p(a) \\ \text{II. } & 1680.7(420.2_f + 1260.7_c)c + 560.3v + 233.1p/x + 233.1p(a) \end{aligned}$$

II's demand for means of production = 1821.9, while I's supply now = 1782.2. The deficit of means of production = 93.7, once again an increase over the preceding year of 3.3.

Year Four:

$$\begin{aligned} I_p(a) &= 607.2: \quad x = 433.7, \quad y = 130.1, \quad z = 43.4 \\ II_p(a) &= 233.1: \quad x = 162.6, \quad y = 48.8, \quad z = 21.7 \end{aligned}$$

Arranging the capital in both departments:

$$\begin{aligned} \text{I. } & 11,640.3 \text{ fixed capital:} \\ & 4656(1164_f + 3492_c)c + 1164.4v + 1164.4s \\ \text{II. } & 4365 \text{ fixed capital:} \\ & 1746(436.5_f + 1309.5_c)c + 582v + 582s \end{aligned}$$

$I(v+s/x) = IIc$. The overall deficit of means of production based on a value exchange = 145.5, a rise of 5.1 over Year Three (the difference is once more due to rounding off to significant figures).

Converting into prices of production, the total capital = 22,553.1, total surplus value = 1746.4, the rate of profit = 7.74%. Capital in department I = 16,296.4, and $I_p = 1261.3$. Capital in department II = 6256.5, and $II_p = 484.3$. This gives a final product of:

$$\begin{aligned} \text{I. } & 4656(1164_f + 3492_c)c + 1164.4v + 630.7p/x + 630.7p(a) \\ \text{II. } & 1746(436.5_f + 1309.5_c)c + 582v + 242.2p/x + 242.2p(a) \end{aligned}$$

II's demand for means of production = 1892.1, while I's supply now = 1795.1. The deficit of means of production = 97, an increase over the last year of 3.3.

These calculations indicate that the existence of an average rate of profit cannot reverse the inherent tendency for capitalism to suffer from under-production of means of production. Yet we must not underestimate the extent to which *these results are completely conditional on the assumptions we made in setting up the reproduction schemes*. There are two factors in particular that would have seriously altered the outcome of this part of our investigation.

The first of these, and by far the least significant of the two, has to do with the particular figures we chose for the organic composition of capital in each of the departments. The deviation of prices from values will be the greater the larger is the differential between Ic/v and IIc/v . It should be possible, at least arithmetically, to construct a scheme where the under-production of means of production was arrested and converted into a surplus. If we were to take the following scheme for department I:

$$\begin{aligned} &I. \quad 20,000 \text{ fixed capital:} \\ &\quad 10,000(2000_f + 8000_c)c + 1000v + 1000s \end{aligned}$$

and substitute it for the one we used in this section, we would find that (assuming department II remained the same) we had an initial surplus of means of production of approximately 47.4 with the application of prices of production. What is more, this surplus would grow marginally from year to year--by about 0.6-0.7. Although mathematically feasible, such a scheme is not especially realistic. In the first place, it requires that the organic composition of capital in department I rises to 10:1, while that in department II stays as before--that is, that the organic composition of capital climbs to better than three times that in department II (any ratio less than that would not erase the under-production in department I). This would be presuming that, over a period of years, the productivity of labor had grown astronomically in department I *while in department II it remained unaffected by this devel-*

opment of technology. This is simply an unrealistic assumption. The reversal of the tendency towards under-production of means of production was not due to the absolute figure for the organic composition in department I, but to the disparity between Ic/v and IIc/v . While it is true that the productivity of labor rises sharply with modern technology, and that it will be higher in department I than in department II (which will tend to be more labor intensive), the production of means of consumption has become greatly mechanized along with that of means of production. Production indeed takes place in large, well-equipped units of production; and while the ratio of means of production employed to labor power employed will be higher in department I, it will not be so many times greater as we have had to posit it here in order to overcome the tendency for department II to outstrip department I.⁵

By the same token, the new scheme for department I also must change the ratio of fixed to circulating constant capital, so that more circulating capital is absorbed in the course of a production year per unit of fixed capital. This is possible only by again positing a sharp increase in the efficiency of new fixed capital that does not extend to department II, *and does not itself lower the value of raw materials, intermediate goods, etc., that make up the circulating part of constant capital*--an assumption that is no more realistic than that of the rise in the organic composition of capital being limited to one department.⁶

Far more important, however, is the second factor, which pertains to the volume of production we assumed in department I and the initial levels of exchange between $I(v+s/x)$ and IIc . It should be noted that in all of the schemes we used in this chapter we began with an equality between $I(v+s/x)$ and IIc . Yet the new conditions for expanded reproduction we derived dictate that $I(v+s/x)$ equal II's total demand for means of production, and not just IIc . We will show in Chapter 9 that this makes no difference to our result, *so long as we are dealing with a*

purely value analysis. There we will demonstrate that, even with an initial proportionality between the exchange funds of the two departments, the over-production of means of consumption will recur every year and that this will in turn necessitate a transfer of capital from department II to department I.

This is not true when we are dealing with the average rate of profit, however, since the volume of production in each department will determine its share of the total social surplus value. The advantage of retaining the equality between $I(v+s/x)$ and IIc in our value schemes was that it showed the analytical continuity between this new problem and the original schemes that Marx and Preobrazhensky both worked with. Its simplicity of exposition was an additional advantage. Conversely, it is this same simplicity that makes the result so deceptive when dealing with the average rate of profit. Let us go back to the scheme presented on p. 255 above. There the organic composition of capital is lower in department II than in department I. But instead of assuming a deficit between the exchange funds of the two departments, let us adjust the capital in department I such that $I(v+s/x)$ equals II's total demand for means of production, which was 1726.75. If $I(v+s/x)$ equals this figure, Iv will be 1151.2. We would in turn have to adjust the total capital in I, in order to retain the organic composition of capital equal to four to one and the existing ratios of fixed to circulating capital and total means of production to variable capital. The entire scheme would then look like this:

I. 11,510 fixed capital:
 $4604(1151_f + 3453_c)c + 1151v + 576s/x + 576s(a)$

II. 3924 fixed capital:
 $1570(392.5_f + 1177.5_c)c + 523.3v + 261.6s/x + 261.6s(a)$

We have rounded all of the figures for the sake of clarity. Now, if we were to take this scheme, and apply prices of production to it, we would find that in the first year there was an *over-production of means of*

production of about 73.5. What is more, it would grow by about 2.5 per year. Thus there would be a reversal of the tendency we have outlined in this chapter, similar to what we found when we dealt with the general rate of profit under pure capitalism. There would have to be a systematic transfer of capital out of department I and towards department II, a factor that helps explain the phenomenal form that capitalist crises usually take (i.e., over-production of means of production). (Here we must repeat our constant warning that the schemes are such highly abstract analytical tools that to seek in them a "holistic" explanation of the immediate causes of crises--as opposed to developmental tendencies that might, in combination with other factors, illuminate certain conditions under which crises might break out--is, we think, a highly dangerous objectification of them.)

Nevertheless, there is good reason for having constructed the analysis the way we did. In the first place, the problem Preobrazhensky was trying to solve was how society, given an initial demand for additional fixed capital, could meet such a demand and still maintain proportionality. We have shown that if, for whatever reasons, there is either a temporary or structural shortage of the production of means of production, then, given the conditions under which fixed capital is accumulated, this deficit will worsen over time and society will not be able to provide sufficient quantities of means of production without a transfer of productive forces into department I. What is more, in value terms this shortage of means of production--whose obverse is just that "one-time" demand for new means of production Preobrazhensky posited as his starting point--arises directly out of the accumulation process, and is explained by the fact that to construct means of production other means of production of even greater value are required.

Even more important, however, is that by proceeding with our analysis in this way we have duplicated, albeit in general form, *the situa-*

tion that existed in the Soviet Union in the 1920's, that is, where there was just such a structural shortage of means of production, primarily of fixed capital.

Here our findings are extremely important, for they show that regardless of whatever modifications we make in our schemes the basic dilemma facing an economy of the Soviet type still remains. In any industrial economy the production of means of production takes on an ever-increasing importance. It is the fact that this growth is not only one of quantity, but brings with it a constant improvement in technique, that makes it the main vehicle for increasing the productivity of social labor. Likewise, it is their respective abilities to anticipate and effect this growth that constitutes one of the great differences between capitalism and socialism--and this was precisely the impasse in which the Soviet Union found itself during its period of primitive socialist accumulation.

NOTES TO CHAPTER 7

1. *Capital*, II. p. 473.
2. To the extent that some commodities that comprise circulating constant capital enter wholly into the use values they help produce, and thus the value of the circulating portion of c is related to the number of use values produced in the course of the year, the introduction of more efficient machinery could cause the ratio of fixed to circulating components of c to fall. But this can only take place if we assume that accumulation brings with it an automatic rise in the productivity of labor, i.e., that the additional fixed capital always turns out a greater number of commodities during the year, an assumption that is not, in our example, warranted. In addition, it ignores what effects a rise in the productivity of labor has on the value of circulating capital: For as soon as it became generalized throughout the economy, the value of the individual commodities forming the circulating portion of c would also fall, though not necessarily in the same proportion as the rise in the productivity of labor (that is, not in the same proportion as the increased quantity of them demanded for the greater mass of commodities produced during the year). Also, it is important not to confuse the case of the individual commodity with that of the annual social product. If the productivity of labor rises as the result of a new, more efficient generation of machines being introduced, then the value of the circulating component of c could well rise; but this says nothing about the value of the annual product, which contains the entire value of the worn

- out means of production and all of the value of the labor power expended. The only "absolute" law we can speak of is that in every case, that of the individual commodity as well as the annual product, the share of living labor will tend to fall over time. For an additional discussion of this point, see *Capital*, III, pp. 260-62.
3. Once again, this is similar to Marx's discussion of how the mass of surplus value can rise while the share of variable capital in the total productive capital falls. See *Capital*, III, p. 223, and p. 177, above.
 4. *Capital*, III, p. 161.
 5. We can obtain a very general idea of the validity of this argument from statistics on the share of wages and salaries in gross output in British industry. This is in no way an accurate reflection of the "organic composition of capital," but it will not be far off in showing us the relative proportions of wages in the productive capital employed in industries devoted to producing means of production and means of consumption, respectively. In 1973 the "Census of Production" showed that wages-as-a-proportion-of gross-output was approximately 1.5 times higher in those industries we would classify as department II than in those we would count as department I. "Fact Service," (Labour Research Department Publications, London), Vol. 38, Issue 11, 13 March 1976, p. 44.
 6. *Capital*, III, pp. 260-62.

CHAPTER 8

MARX ON THE USE OF THE AMORTIZATION FUND

The problem we are dealing with is certainly not new. Marx was well aware of it, and devoted a fairly lengthy discussion to it in Part II of *Theories of Surplus Value*. Preobrazhensky, as we have seen, re-^{where}fers to similar passages, probably from Volume II of *Capital*,/Marx analyzes the use of the amortization fund as a source of actual accumulation. Preobrazhensky, following Marx, treated the amortization fund as a temporary source of reserves of productive capital which society could use to help extend production and thereby meet extraordinary new demands for fixed capital.

Marx asks, what are the material preconditions of accumulation and expanded reproduction? First, new labor power must be available on the market. This requires both a constant reserve army of labor and a regular increase of the population. Second, the capitalist who wants to expand his operations must find additional means of production ready for purchase on the market. He needs additional machines, raw materials, intermediate goods (e.g., steel for the machine builder, concrete for the construction contractor, cloth for the textile manufacturer, etc.) over and above what he used in past years. Where are these extra means of production (or means of subsistence for laborers) to come from? All the other capitalists, upon whom our present capitalist depends for his supplies, have geared their own production to the average needs of preceding years. If our capitalist wants more machines, or fuel, etc. he must order them, and wait for them to be produced and delivered before he can use them. But this would cause a real interruption in the process of production, on the one hand, and would only push off the problem to these other capitalists, on the other. For the machine builder also will need new machines, raw materials, etc., if he is to extend

his production in order to meet the demands of our first capitalist. He, too, would have to order these new elements of his productive capital, wait for them to be produced, etc., and so the whole process would be delayed right down the line. It is obvious that expanded reproduction is only possible if all capitalists *simultaneously* extend their production.

Just as the production and reproduction of existing capital in one *sphere* presupposes *parallel* production and reproduction in other spheres, so accumulation or the formation of additional capital in one branch of production presupposes *simultaneous or parallel* creation of additional products in other branches of production. Thus the scale of production in all spheres which supply constant capital must grow simultaneously (in accordance with the average participation--determined by the demand--of each particular sphere in the general growth of production) and all spheres which do not produce finished products for individual consumption, supply constant capital. Of the greatest importance, is the increase in machinery (tools), *raw material*, and auxiliary material, for, if these preconditions are present, all other industries into which they enter, whether they produce semi-finished or finished goods, only need to set in motion more labor.

It seems therefore, that for accumulation to take place, continuous *surplus production* in all spheres is necessary.¹

Marx maintains that there is one element of productive capital where at least part of the new supply is constantly on hand in the market--namely fixed capital. As we know, when fixed capital is bought, the money for its purchase, which we assume is equivalent to its value, is laid out all in one go, but it need not be repurchased for some years afterwards. Every year the capitalist will receive in money an equivalent for that year's depreciation. If his fixed capital lasts 10 years, he will get back one tenth each year, which he will retain as a hoard, until it is time to buy more fixed capital to replace that which has just worn out. This means that in every year but the last one, the capitalist has a monetary fund, the sinking, or amortization fund, from which he can "borrow" in order to extend production. In reality this is one of the central functions of the credit system. For the specific size of the amortization fund may not be sufficient to

allow that particular capitalist to increase production in any given year, especially as capitalism develops and thereby necessitates an ever-larger initial investment of machines and constant and variable circulating capital. Through the credit system, however, the amortization funds of a number of capitalists together can be pooled and made available to others. "With the development of the credit system, which necessarily runs parallel with the development of modern industry and capitalist production, this money no longer serves as a hoard but as capital; however not in the hands of its owner but of other capitalists at whose disposal it has been placed."²

This is one side of the matter, that of the means of purchasing this new fixed capital. But our problem, as we have elaborated it so far, is that of the *supply*. How is this capital to be produced in the necessary quantity to meet society's expanding needs, and at the appropriate points in time? Marx's answer is that while the purchasers of fixed capital may only replace their stock once in 10 years, as an intermittent series of one-time acquisitions, the producers of fixed capital are constantly engaged in production. If a machine builder produces and sells fixed capital worth, say, 10,000,³ and if its average durability is 10 years, then he would in theory only have to produce 1000, the equivalent of this average wear and tear, in each year after that as a replacement supply for his original customers. In reality he does not even do that, since if the 10,000 fixed capital is purchased all at one time, no fixed capital need be bought again for another 10 years. Obviously the machine builder is not going to cut his yearly production by nine-tenths after he has produced the initial fixed capital. Nor is he going to discontinue production for nine years, waiting to take it up again and produce another 10,000 in replacement fixed capital in year ten. He will produce 10,000 fixed capital every year, even under conditions of simple reproduction, i.e., presuming no

accumulation. This means that on average he will have, each year following the first, some 9000 in fixed capital produced and ready for sale to all other capitalists who need to accumulate and expand their own scale of production. What is more, this is a necessary condition of his even staying in business. Simply by maintaining his old level he must find new purchasers to buy this 9000 "superfluous" product *each and every year.*

Thus even the mere reproduction of the capital invested in this sphere requires continuous accumulation in the remaining spheres of production. But because of this, one of the elements of continuous accumulation is always available on the market. Here, in one sphere of production--even if only the existing capital is reproduced in this sphere--exists a continuous supply of commodities for accumulation, for new, additional industrial consumption in other spheres.⁴

We must ask, to what extent does Marx's solution for the individual capitalist apply to society as a whole? There we have different capitalists investing, replacing, or simply accumulating a monetary equivalent of their fixed capital at all times. This is the basis of Marx's own analysis of the replacement of fixed capital under simple reproduction, which we have already examined. There we saw that the amount of fixed capital physically replaced at any one time must equal that value equivalent of still-functioning fixed capital which is accumulated as a hoard, as money. Thus if we take our current capitalist who builds machines as representing the total social production of fixed capital, for each year that he sells fixed capital worth 10,000 he is selling an equivalent of one tenth of society's fixed capital stock which has been used up in that year. Each year one tenth of society's users of fixed capital replace their stock in kind, while nine-tenths continue to function with the 10,000 each of them has purchased in turn in one of the last nine years.

Suppose, however, that our machine builder has started a new enterprise and that his output is over and above that which society previ-

ously consumed. Then, in addition to the normal balance of replacements and hoards, there is an extra supply of 10,000 in fixed capital every year. Presuming that he actually finds buyers for his product, society is actually increasing its productive consumption of fixed capital by 10,000 a year for the next 10 years. After that time, if no other new producers come onto the scene, his yearly production will simply go to replace the worn out machinery his old customers had bought from him 10 years before. In the interim, however, society will have added 100,000 to its fixed capital stock. If we also recall that our machine builder, as someone who was creating a real addition to society's supply of means of production, himself required instruments of labor, raw materials, etc., to first begin and then carry on production, the actual increase to the social stock of constant capital will be quite a bit larger.

The question is to what extent this perpetual supply of new fixed capital that arises out of the unequal rate of replacement of fixed versus circulating constant capital, is adequate to meet the ever-increasing demand for new fixed capital we have come up against in our prior discussion. On the other side of the question, to what extent is the amortization fund a sufficient source of funds to allow for regular accumulation? We can answer both of these questions by referring to the table on the following page.

We have assumed that society adds 100 to its fixed capital stock in the first year, and that, given expanded reproduction, augments this addition by 10 each year. We have also assumed that the average life of this fixed capital is five years, so that it depreciates by 20% each year. In addition, we presume that somehow, either through credit or past monetary reserves, society had the money to pay for these additions to fixed capital for the first five years, but thereafter had to rely on the amortization fund to finance all subsequent accumulation.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
YEAR	ADDITION TO FIXED CAPITAL	TOTAL STOCK OF FIXED CAPITAL	YEARLY DEPRECIATION*	CUMULATIVE DEPRECIATION FUND (Col. 4 + Bal. of Prev. Yr.)	FIXED CAPITAL REPLACED IN YR.	TOTAL PURCHASED	BALANCE (Col. 5 minus the sum of Cols. 2 + 6)
1	100	100	20	20	0	100	20
2	110	210	42	62	0	110	62
3	120	330	66	128	0	120	128
4	130	460	92	220	0	130	220
5	140	600	120	340	100	240	240
6	150	750	150	390	110	260	130
7	160	910	182	312	120	280	32
8	170	1080	216	248	130	300	-52
9	180	1360	272	220	140	320	-100
10	190	1550	310	210	250	440	-230
11	200	1750	350	120	270	470	-350
12	210	1960	392	42	290	500	-458
13	220	2180	436	-22	310	530	-552

*Assuming an average life span of five years.

Let us first look at the question of supply. Because no replacement of fixed capital is necessary for the first five years, we see that production grows considerably before any replacement takes place. Let us assume that this increased production of fixed capital comes from our machine builder. In the first year he produces 100 in machines which are just enough to satisfy society's increased demand for fixed capital (Column 2). Now, he, too, accumulates, and expands his own output to 110 in year two, again just enough to cover the total social need. And so on all the way through year five. At that point, however, he ups his yearly output to 150 (the start of year six in our table), but the economy as a whole needs not only 150 in new fixed capital, but now has to replace the first 100 he produced in year 1 (Column 6). If he satisfies this demand for replacement-fixed capital the machine builder will have only 50 left over to cover the new demand for fixed capital. And so we would have to find a new machine builder to launch an enterprise in addition to our first capitalist. The production of the latter, which was quite adequate to allow ongoing accumulation of fixed capital for the first five years, is no longer enough. Society must invest in a new enterprise that will produce fixed capital. This second producer will start off with a yearly output of 100, as did our first, and add 10 to his yearly output in each successive year--this would then serve to cover the yearly replacement of all the fixed capital that was purchased in these first five years. Meanwhile our first capitalist will continue expanding his own production by 10 per year, thereby continuing to cover the overall needs for new fixed capital. This will work well enough until the end of year 10. At that time, however, the same problem will reappear. Machine builder number one will be able to offer 200 in machinery (the start of year 11 in Column 2). Machine builder number two will have 150. These 150 will be just enough to cover the *replacement* of the 150 purchased from machine builder num-

ber one at the start of year six. If each machine builder keeps on producing as before, society will be able to continue to expand (via machine builder number one) and to replace the fixed capital produced from year six onwards (via machine builder number two). But now the very first machines, purchased in year one, and which have already been replaced once, will need a second renewal. Society will again be short by 100 in fixed capital, unless it invests the capital to build a third machine building factory, whose output could cover this replacement for the next five years.

In fact, every five year period would necessitate the investment in a new enterprise that built fixed capital. We see from this that what Marx said about the individual capitalist is true for society as a whole only up to a certain point. For any new enterprise that produces fixed capital merely simple reproduction does in fact require the constant expansion of social demand for such means of production. But this increase in demand is not perpetual, but lasts only as long as the life time of the first generation of means of production that were purchased. After that all of the new enterprise's output goes to simply replacing its original product.

As to the amortization fund, this^{is}/somewhat more complicated. Looking first at years one to five in our table, we see that each year the aggregate owners of fixed capital receive a money equivalent of 20% of the value of their fixed capital. This they place in what we have called the cumulative depreciation fund, where it will sit until it is needed for future purchases. Up through the end of year five things would appear to stand all right. The fund has grown to 340, and there is a fixed capital stock of 600. Here, however, we begin to run into difficulty. Although the fund stands at 340, our capitalists must make a deduction of 100 in order to replace the 100 in fixed capital they purchased in the first year. These have now worn out and, at the end

of the production year in year five, must be scrapped and new fixed capital, worth 100, must take their place. This leaves a balance at the close of year five of 240 (Column 8).

At the start of year six the cumulative fund actually grows. We had a balance of 240 at the close of the preceding year, to which we must add the depreciation for that year, equal to 150. So in money terms the capitalists have a cumulative amortization fund of 390. This, of course, would be more than enough to cover the replacement needs for that year, equal to 110. But in addition to that we now want to see if the amortization fund can sustain *accumulation*, and so out of the fund also must come the money to buy 150 in new fixed capital, or 260 in all. So the monetary balance at the close of year six stands at only 130.

In year seven we have a money-equivalent of 182 in depreciation of the existing fixed capital stock. This is added to the balance from the close of year six, so the cumulative monetary hoard rises to 312. Once again, however, the demands upon this fund exceed its growth. We must replace 120 in old fixed capital (that purchased in year three) and add another 160. The total purchase of fixed capital comes to 280, leaving a monetary balance of just 32 at year's end.

In year eight we actually move into the red. The balance of 32 is augmented by the depreciation that accrues in year eight, making a total of 248. But this has to support fixed capital purchases of 300 (130 to replace year four's worn out stock plus 170 new fixed capital). The money balance at the end of year eight thus shows a deficit of 52. The only reason things don't collapse completely at this point is because of the depreciation fund of the following year. In year nine 272 in money equivalent for the depreciation of the fixed capital stock comes in, which makes up the deficit and leaves 220 in the cumulative depreciation fund. Here again, however, the requirements on this fund

are too great. Total purchases now come to 320, and the deficit in the monetary balance at the end of the year grows to 100. The same process repeats itself in year 10. The addition to the amortization/wipes out the deficit well enough, but leaves only 210 in the cumulative fund. Only now the demands upon this fund have mushroomed. Not only must the fixed capital added at the start of year six be restored at the close of year 10, but the fixed capital from year one, which was already replaced at the end of year five, has gone through another five year cycle and must be replaced again. Thus the cumulative fund must finance the purchase of: a) At the beginning of year ten, 190 in new fixed capital; b) at the end of year ten, 100 in fixed capital to replace that added in year one and which has now worn out a second time; c) plus 150 in fixed capital which was newly added in year six, and whose first five year life time has now ended. This all comes to 440, leaving a deficit balance of 230.

Still, some purchases of fixed capital can carry on. If we assume that our capitalists are able to obtain credit to carry this growing deficit, we see that they can manage a positive accumulation fund for three years more. Even though the balance at the close of year 10 is 230 in the red, next year's depreciation covers it and leaves 120 in the cumulative fund. This, as before is totally eaten up--it can cover none of the purchases of new fixed capital (200), and less than half of the replacements (270). The deficit is 350 at the end of year 11. Year 12 shows the same pattern; finally the deficit is so great (458) that not even the depreciation fund in/^{year}13 can erase it. The cumulative depreciation fund disappears altogether.

This little exercise shows that the amortization fund can only partially solve the problem of a growing demand for fixed capital. It is true that in any given year the additions to the fund from the yearly depreciation of the existing stock of fixed capital will always be

greater than society's need for the replacement of old stock. With the assumption of expanded reproduction, the addition to the fund from the fixed capital added in year five is by necessity greater than the value of that added in year one, which is now coming up for replacement. The point is that the amortization fund cannot possibly cover both the requirements of renewal and additions to the fixed capital stock.

This may not seem like a very spectacular discovery, but it does show that the employment of the amortization fund can be no more than a partial solution to our problem. The problem itself, however, still remains. It is not enough to say that accumulation is provided for via the simultaneous, parallel production of a surplus product in each branch of production. First, because production takes place on the basis of a definite technical structure, e.g., a given ratio of fixed to circulating constant capital and a given organic composition of capital, this surplus product must be of a certain size and represent the right kinds of use values. It must also anticipate, as Preobrazhensky noted in *The New Economics*, the future needs for means of production, particularly given the fact that in an advanced society the production of commodities of a certain value requires the prior production of the means of production that will produce those commodities, and whose value will be many times that of the commodities themselves.⁵ Second, under capitalism we have the contradictory constraint that this surplus product is limited in size by virtue of the fact that it is production for the market, for sale, for the realization of *surplus value*. It is interesting that Preobrazhensky, from a different vantage point than Marx, draws the same conclusion: Capitalism must expand its production of means of production if it is to have on hand the reserves it will need to meet the future demands of accumulation; yet this expansion brings with it the persistent threat of crises of over-production. And so production is either held back, as under monopoly capitalism, or

leads to purely spasmodic bursts of new construction which cannot sustain themselves given production for profit. This explains why Preobrazhensky held that the tendency towards under-production of means of production would lead to crises of over-production. Society must "over-produce" if it is to avoid chronic shortages; yet this kind of over-production is a "luxury" capitalism cannot afford.

Marx, both in *Theories of Surplus Value* and in *Capital*, defined the problem of accumulation and its inherent endemic nature: The accumulation of capital constantly pushes capitalism beyond the bounds of its given structure and level of technique, while the surplus production this calls for is itself limited by the need to realize it as surplus value. The very act of accumulation raises this problem anew, with each and every period of reproduction.⁶ The use of the amortization fund can never eliminate this difficulty--it can at best act as a temporary, equilibrating lever, which makes the economy more adaptable to momentary disturbances. Marx never claimed it was more than that; he simply demonstrated some of its potentialities. Nevertheless, we are no nearer a genuine solution to our problem than when we first uncovered it.

NOTES TO CHAPTER 8

1. *Theories of Surplus Value*, Part II, p. 485. Original emphasis.
2. *Capital*, II, p. 185.
3. We have altered Marx's example here.
4. *Theories of Surplus Value*, II, p. 481.
5. *The New Economics*, pp. 66-67.
6. "The real barrier of capitalist production is *capital itself*. It is that capital and its self-expansion appear as the starting and the closing point, the motive and the purpose of production; that production is only production for *capital* and not vice versa, the means of production are not mere means for a constant expansion of the living process of the *society* of producers. The limits within which the preservation and self-expansion of the value of capital resting on the expropriation and pauperization of the great mass

of producers can alone move--these limits come continually into conflict with the methods of production employed by capital for its purposes, which drive towards unlimited extension of production, towards production as an end in itself, towards unconditional development of the social productivity of labor. The means--unconditional development of the productive forces of society--comes continually into conflict with the limited purpose, the self-expansion of the existing capital. The capitalist mode of production is, for this reason, a historical means of developing the material forces of production and creating an appropriate world-market and is, at the same time, a continual conflict between this its historical task and its own corresponding relations of social production." *Capital*, III, p. 250. Original emphasis.

CHAPTER 9

THE ACCUMULATION OF FIXED CAPITAL UNDER "PURE" CAPITALISM

If anything, the chronic under-production we have found in department I is even more fundamental than that which Preobrazhensky described in VKA 17. No matter whether we assume that commodities exchange at their values or according to their prices of production, this under-accumulation still exists, except under the most narrowly-defined of circumstances. Nevertheless, at root the problems are the same. The tendency for capitalist development to increase the social productivity of labor, to replace the living labor of men with the past labor embodied in machines, itself stifles the further development of this productivity. This, as we see, is the tendency of capitalist accumulation. Yet we also know that capitalism does overcome the problem, that it continues to exist, in spite of the myriad of economic and social contradictions it engenders. The answer to this is of course political and is to be found in the concrete history of the class struggle. When capitalism departs from the historical stage it will not be because the reproduction schemes "proved" that it could not accumulate fixed capital. It will be because the constant adjustments and readjustments it must make (some of whose outlines the reproduction schemes permit us to define) do not entail the simple manipulation of c 's and v 's, but the *organization of human labor*. There is not a single "solution" to any of capitalism's so-called economic problems that does not bring with it intense social conflict, and there is no problem it cannot solve if the proletariat is not sufficiently prepared to resist. The reproduction schemes, or any similarly abstract form of analysis cannot possibly reflect the complexities of real history. They can enlighten us as to certain inherent tendencies or directions of development, but nothing more. To take them literally, and to draw implications from them that

their abstract nature does not warrant--as, for instance, Luxemburg attempted to do--is to become a prisoner of their essentially formal structure. We can use the schemes to uncover a whole range of contradictions that, if left at that level of analysis, would imply the inevitable end of capitalism, its final breakdown. And when the breakdown does not occur, or is too preposterous a conclusion to accept, we must invoke "outside" factors to explain why.¹ If a breakdown theory is unacceptable from both a philosophical and political point of view, and if the reproduction schemes are to retain more than a heuristic value--and one which, moreover, becomes extremely limited as soon as we concretize our analysis--we must be able to use them to explain why, in fact, a breakdown does not take place. At least from a purely economic point of view, we must adapt them to reflect the real flexibility and elasticity capitalism does possess to *potentially* extricate itself from some of its most basic economic contradictions.

This, as we have argued, is one of the great contributions Preobrazhensky made to Marxist thought. While never exceeding the bounds of what they really do tell us, he continually tried to modify the schemes to reveal some of the fundamental tendencies, not only of capitalism, but, as we shall see, of the historically unprecedented economy of the Soviet Union during the 1920's and its period of primitive socialist accumulation. He did not abandon Marx's analysis of expanded reproduction when the tools Marx bequeathed proved inadequate to explain the concrete phenomena of capitalist development, any more than Marx himself took the schemes as literal statements about capitalist reality. We must, as Preobrazhensky understood perfectly well, adapt the reproduction schemes to our total analysis of the capitalist and post-capitalist world, and not our analysis to the formalisms of the schemes. This does not mean that the problem of under-accumulation we have found is a mere artifact. If so this would call into question

Marx's entire analysis of capitalist reproduction. We must recognize that given the premises on which they are constructed the schemes point to a real tendency within capitalism. Yet premises change. What we discover as an essential characteristic of the system at an abstract level of analysis, may not appear on the surface of events, due to other complexities that modify or mask the inherent tendencies at work. This is the case with the law of value, that analytical abstraction without which it would be impossible to "make sense" of capitalist production and exchange. Yet the law of value is at the same time a social abstraction, without which capitalist society could not sustain itself from one generation to the next. The situation is similar with the reproduction schemes. If capitalist accumulation and exchange took place simply on the basis of the law of value, then we would indeed expect to see persistent under-production of means of production, leading the system into a dead end. This, however, is too abstract an analysis. The premises upon which it is founded may demonstrate the inherent tendencies of the system, but they do not explain its phenomenal form and external movements. For this we must allow for other conditions, some of which, e.g., speculation and the vagaries of the modern credit system, can never be expressed in the schemes. Others, such as a rise in the organic composition of capital, the extended amortization period of fixed capital, and the application of prices of production, can be. But they may alter our results. If, on the other hand, these modifications are still inadequate to account for what we observe we must look around to see what further concretizations must be made, before abandoning the schemes altogether.

This was the method Preobrazhensky adopted, and it is the one we must use to try and find a solution to the problem of the accumulation of fixed capital. In this chapter, the concluding one of our discussion of the accumulation of fixed capital under the assumptions of an

abstract and pure capitalism, we will examine how capitalism, through the transfer of capital from department II to department I, can and does mollify the problem of under-accumulation. We will defer the continuation of this discussion and its application to the system of concrete capitalism until Part IV, where we will treat it as an introduction to our analysis of the Soviet goods famine. This will prove a complicated explication and requires the prior analysis of the material foundations of circulation in a mixed commodity-capitalist or commodity-socialist economy.

I. The Use of Reserves Under Pure Capitalism

In the discussion that follows we will use the schemes we first presented in Chapter 7. We have already shown that the modifications we might make in them do not change the problem in its essentials, and these schemes are simpler and easier to work with.

Take our scheme from p. 249, that is, after accumulation and production in the first year:

- I. 10,357.1 fixed capital:
 $4142.8(1035.7_f + 3107.1_c)c + 1035.7v + 517.85s/x, + 517.85s(a)$
- II. 3883.9 fixed capital:
 $1553.6(388.4_f + 1165.2_c)c + 388.4v + 194.2s/x + 194.2s(a)$

Out of its accumulation fund of 194.2, department II must take 138.7 to augment its stock of fixed capital, and 41.6 to increase $IIc(c)$. We know that prior to this year I's exchange fund consisted in a material form of one quarter fixed capital and three quarters circulating constant capital. Otherwise it could not have supplied II with fixed and circulating capital in the proper proportions. If this division stays the same, then, for I to meet II's demand for 138.7 in fixed capital, $I(v+s/x)$ as a whole must grow to 554.8, of which two thirds is the equivalent of the variable capital, or 369.9. Given an unchanged organic composition of capital, this in turn calls for a rise in Ic by

1419.5, which will break down into 369.9 as the value equivalent of the wear and tear of new fixed capital and 1109.6 as the additional circulating portion of I_c . Finally, presuming that the rate of depreciation remains unchanged as well, this growth of $I_c(f)$ by 369.9 implies a prior increase in I's total fixed capital by 3699. Adding all these figures up, we would need a total growth in I's output of means of production of 3699 in additional fixed capital, plus 1109.6 in new circulating constant capital, plus an equivalent of 369.9, which will exchange against means of subsistence for the new workers employed through the increase in I_v --a total of some 5178.5 in means of production, a growth better than 83% of the previous year's output. To say that this would be beyond the means of this or any other economy is to beg the question. The result becomes even more bizarre when we note that the actual increase in I_v of 369.9 will mean an equal rise in I_s , half of which will enter the exchange fund, making the latter--as we already noted--equal to 554.8. Now, II only has 180.3 for exchange, and so we would actually have over-production in department I. The reason for this rather peculiar result is that we assumed that the division of I's output between those means of production which serve as fixed, and those which serve as circulating capital was the same as before. Yet II's accumulation of means of production will consist of 71.43% fixed capital, and 21.42% circulating constant capital, and not 25% and 75%, as we had before accumulation took place. This over-production would be entirely of circulating constant capital, which would have increased by $\frac{3}{4} \times 554.8 = 416.1$, 10 times what II required.

It is clear that we must start from the other end. II's exchange fund will increase by 180.3. If 138.7 of this goes for fixed capital, this leaves 41.6 to increase $II_c(c)$. This will call forth a corresponding rise in $I(v+s/x)$ of 180.3, of which two thirds is variable capital, or 120.2. This will cause: a) I_c to rise by 480.8 [$120.2 I_c(f)$

and $360.6 I_c(c)$], and b) the total stock of fixed capital in I to go up by 1292. Now, department I only has 517.85 in its accumulation fund. How could it raise its production by such a large amount, i.e., by about 1680? (We ignore for the moment the problem of the material composition of I's product.)

One way would be for I to accelerate the amortization of its fixed capital. If we let the entire increase in circulating capital, $I_c(c) + I_v = 480.8$, come from the accumulation fund, this leaves 37 to be added to I's fixed capital, bringing it up to 10,394. If the rate of depreciation of I's fixed capital went up from 10% per year to around 11%, i.e., if it was replaced not in 10 years, but in just under nine, then $I_c(f)$ would go up by the requisite 120.2.

A second method would be if I had existing reserves of fixed capital which it could tap in order to raise $I_c(f)$ by the necessary amount. This case is exactly as that in *Zakat Kapitalizma* and we need not dwell on it here.

Neither of these solutions is very satisfactory in the long run. The second implies a fairly rapid depletion of reserves. This is not, after all, a one-time rise in II's demand for fixed capital, but will recur every year. If reserves are employed it can only be until new enterprises are built which can place I's output of means of production, primarily fixed capital, on a new, higher level.

The first solution, meaning as it does an increasingly rapid turnover of fixed capital, also has material limits. First, the rate of amortization would have to increase every year, so that the number of years for which we could solve the problem this way is quite finite.² Second, this acceleration in the rate of depreciation must be real--it cannot be caused by moral depreciation, speculation, or any number of other methods of capitalist book-keeping which cause fixed capital to be written off before its natural lifetime is up. In our case the more

rapid rate of depreciation of fixed capital must mean that the same or more use values are produced in a shorter period of time. This, too, has limits. The length of the working day, or the time during which the means of production function, can be increased only so much; the same is true of the intensity with which these means of production can be used.

Any increase in the rate of depreciation brings with it certain complications which make this type of solution more difficult. If the fixed capital functions at an increased intensity, or for a greater number of hours per day, this raises the demand for circulating constant capital (raw materials, fuel, etc.) on the part of department I. In terms of the circulation of values, the entire circulating capital would in fact have to turn over more quickly. To some extent this/^{would} actually help alleviate our problem, in that more surplus value would be produced in the course of a year and a greater quantity of means of production could be offered for sale to department II.³ The reproduction of $Ic(c)$, however, is not simply a question of the circulation of values. It is a matter of production. To the extent that $Ic(c)$ exists as raw materials which come from agriculture, or depends upon such raw materials to produce intermediate goods, its increased supply has real technical limits. Some of these are natural, e.g., industrial crops have only certain growing seasons, or are dependent on climatic conditions, etc. Others are a function of technology and the state of agricultural production.⁴ If these agricultural products originate from pre-capitalist petty production, as we have mentioned in Chapter 2, then these technical limits are even narrower.⁵ For the present, however, we assume that all production is capitalist, though we will take this point up again in our discussion of the Soviet goods famine.

Changes in the rate of depreciation may not be possible unless there is a simultaneous rise in the intensity of the exploitation of

labor power. If the working day is lengthened or if the same means of production are consumed more intensively, then each of these may necessitate the expenditure of more labor, either in quantity or in quality, by the same number of workers. This rise in the rate of exploitation would represent at the same time a very real means for capitalism to extract the extra values that it cannot produce with the current relations between constant and variable capital and the existing degree of exploitation--i.e., without a fundamental change in the relationship between capital and wage labor. This is a "method" that capitalism can and does use. It is the reason that any analysis of an economic crisis must at the same time be political.⁶

No matter whether capitalism meets this shortage of fixed capital by relying on reserves or by accelerating the amortization of its fixed capital, there is a third problem that results. The value of the year's product would be as follows:

$$\begin{aligned} \text{I. } & 4623.6(1155.9_f + 3467.7_c)c + 1155.9v + 578s/x + 578s(a) \\ \text{II. } & 1609.1(402.3_f + 1206.8_c)c + 402.2v + 402.2s \end{aligned}$$

$I(v+s/x)$ equals II's demand for means of production, which comes to 1733.9. If $I(v+s/x)$ meets the actual material requirements of department II, then Iv will consist of $2/3(1733.9 - 1206.8) = 351.4$ fixed capital, and $2/3(1206.8) = 804.5$ circulating constant capital. Is/x will be half that, or 175.7 fixed, and 402.3 circulating constant capital. The proportion of those means of production that will function as fixed capital for department II to those that will enter its constant capital as circulating capital has risen over the ratio we started with. Whereas before accumulation took place it was 25% fixed and 75% circulating constant capital, now it is 30.4% and 69.6% respectively. With each year's accumulation, in which 71.43% of the accumulated surplus value must be put towards increasing the stock of fixed capital in each department, and 21.42% towards acquiring the raw materials,

etc., for these implements to work up, the overall share of fixed capital in the part of society's productive capital that represents means of production rises. This merely reflects the phenomenon we have referred to many times before, that is, the changing technical base of social production, which, once again, we will analyze in more detail in Part IV.

In sum, this last difficulty, the need to constantly gear production not towards the replacement of the existing stock of means of production but towards the anticipation of what that stock must look like in the future, is certainly not an obstacle to capitalism overcoming the problem of underproduction of means of production. It is, as we have stated, the reflection of an historical tendency, which for capitalism becomes a deep contradiction and conflicts with the inherent anarchy of that mode of production--but it is a tendency to which capitalism adapts, nonetheless. The basic problem is still with us, however, and neither the reliance upon reserves of constant capital nor the accelerated amortization of fixed capital offer capitalism a way out.

II. The Transfer of Capital From Department II to Department I

When Marx moved from his analysis of simple reproduction to expanded reproduction he had to make a major adjustment in his schemes. Once accumulation was assumed $I(v+s)$ would no longer equal IIc . Marx could either have boosted total production in department I, bringing the absolute value of $I(v+s/x)$ up to that of IIc , while leaving all of the technical dimensions between c and v the same in the two departments, or conversely, he could have reduced production in department II, again preserving the original values for c/v . Yet Marx chose neither of these. In order to demonstrate the continuity, as well as the distinctions between simple and expanded reproduction, he chose to keep the total volume of production in the separate departments just as they

had been under simple reproduction. Simple reproduction is a moment in the process of expanded reproduction, and there is no particular reason to assume that the movement from simple to expanded reproduction would actually involve *two separate stages* in the development of a real capitalist economy, whereby it underwent some form of transition from a lower volume of production to a higher in order to effect accumulation.

As a result Marx elected to *rearrange* production within one of the departments, so that, while its overall volume of production remained as it had been, its exchange fund would balance that of the other department, which would be left unaffected. This inevitably meant altering the organic composition of capital. It was perfectly logical for Marx to have carried out this adjustment within department II, rather than department I, since historically it is the former that has a smaller amount of constant capital in its productive capital. But in doing this Marx introduced a new point of disequilibrium in the system, although he himself did not work out, at least not as far as we have discovered, how this disproportionality would arise, simply from the fact that the two departments of social production had different technical structures.

In our analysis of the accumulation of fixed capital we were faced with a very similar problem. We started out with a scheme which showed equilibrium in the exchange between IIc and $I(v+s/x)$. Yet the new conditions of proportionality were that $I(v+s/x)$ equal not only IIc , but II 's total demand for means of production, which, given the assumption that fixed capital does not turn over in one year, would be appreciably larger. Thus there was a built-in disproportion before we even began our investigation. Here, too, we could have got around this in one of two ways. We could, as we noted in our discussion of prices of production, have boosted the volume of production in department I and assumed that its exchange fund could cover that of department II. The problem

with this solution is that it would have totally obscured the real historical process whereby capitalism developed and increased the volume of fixed capital in its total productive capital and, in so doing, had to make precisely the adjustments in the patterns of accumulation and exchange we have outlined here. The continuity between the process of the accumulation of fixed capital and the process of expanded reproduction as outlined by Marx and subsequent Marxists, would have been lost.

Nor, however, could we have followed Marx and rearranged production within one of the departments. For this would have meant lowering the organic composition of capital in department II (to do so in department I would have been unrealistic) and this would, as we know, have brought with it an automatic tendency towards under-accumulation in department I, a tendency which would have obscured that other tendency towards under-production of means of production associated with the accumulation of fixed capital. The sources and special characteristics of the latter would have been inextricably confused with those of the former.

We wanted to show how the tendencies for an under-production of means of production grew out of the reproduction schemes premised upon expanded reproduction, but with all of the constant capital turning over in a single year. On the one hand, as we will demonstrate in this section, even setting up the schemes so that $I(v+s/x)$ initially is in balance with the total exchange fund of department II will not eliminate the tendency towards under-production in department I. On the other, using the schemes we have presented here allows us to show three things:

- 1) It mirrors the real historical process whereby capitalism moved from a stage of manufactories to genuine modern industry, with large-scale production based on heavy machinery and increasing quantities of fixed capital. This fixed capital had to be accumulated, and the process we have described here reflects that stage of developing capitalism quite

accurately. 2) It allows us to show with full clarity the way that capitalism carries out its accumulation of fixed capital, namely the transfer of capital from department II to department I. This is the mechanism by which capitalism ensures the absolute growth of department I, which we would have otherwise had to posit. One way, as we have seen, that capitalism effects this transfer of capital is via the deviation of prices from values, i.e., through the allocation of the social surplus value according to the average rate of profit. 3) These schemes further reflect, although only in their broadest outlines, the actual situation in the Soviet Union following the October Revolution, that is, an economy where department I could barely replace existing stocks of means of production, much less embark on a path of positive accumulation. And when accumulation proper did begin, it had to do so on a basis of restoring not simply the average depreciation of fixed capital, but massive quantities of fixed capital all at once.

We have, in addition, tested out various possible solutions to this tendency towards under-production of means of production. All of them so far have pointed to the need to invest in new enterprises that can produce fixed capital. This was impossible so long as we stuck to our assumptions that each department a) accumulated solely out of its own surplus value, and b) fully utilized its accumulation fund. In that situation department II would produce on too large a scale, while department I would have insufficient capital to expand production. We have already seen how Preobrazhensky approached this problem in VKA 17.

When new investment is needed it is not department I or department II alone that makes capital available, but society in general. Capital is constantly transferred from branches of production where there is excess production to those where it is insufficient. In Chapter 4 we detailed how this is done. In our case, where there is under-production in department I, the capitalists in department II will invest in plants

that produce means of production, primarily fixed capital. Such ready transfers of capital would not be possible were it not for ample reserves of implements of labor, raw materials, and means of subsistence, on the one hand, and a highly developed credit system on the other. Capital, after all, takes the legal form of titles to property, and its fluidity derives from the very act of realizing the result of production, commodity capital, as money, which is the universal equivalent and the only form that allows production to begin again in the following period. The modern credit system centralizes this money capital and, effectively, disposes of it where it can be most profitably invested.

How would such a transfer of capital work? Again, take our initial scheme, after production and exchange in the first year:

I. 10,357.1 fixed capital:

$$4142.8(1035.7_f + 3107.1_c)c + 1035.7v + 517.85s/x + 517.85s(a)$$

II. 3883.9 fixed capital:

$$1553.6(388.4_f + 1165.2_c)c + 388.4v + 194.2s/x + 194.2s(a)$$

Department I will have to accumulate all of its available surplus value, $Is(a)$. Out of this 517.85, 369.9 will go to new fixed capital, 110.92 for the circulating part of Ic , and 37.03 to increase Iv . This gives:

I. 10,727 fixed capital:

$$4290.7(1072.7_f + 3218_c)c + 1072.7v + 517.85s/x$$

This increase of Iv by 37.03 means that II can add the same amount to its means of production, and so this much is withdrawn from $IIs(a)$. To figure out how this will divide up between new fixed capital and additions to $IIC(c)$, we solve for the following two equations:

$$(1) \quad x + y = 37.03$$

$$(2) \quad .3x - y = 0$$

x , the addition to fixed capital, equals 28.5 and y , the additional $IIC(c)$, is 8.5. Given an annual rate of depreciation of fixed capital of 10% and an organic composition of capital of four to one, we must also subtract 2.85 from the 194.2 $IIs(a)$ to add to IIV . We have for

department II:

$$\text{II. } 3926.6 \text{ fixed capital:} \\ 1570.7(392.7_f + 1178_c)c + 392.7v + 194.2s/x$$

Out of the 194.2 IIs(a) we have taken a total of 37.03 to increase II's supply of means of production and 2.85 to increase IIv, or 39.9 in all. This leaves 154.3 to be distributed between the two departments. We solve this the same way Preobrazhensky did in VKA 17. We know that the increment to Iv must equal II's entire addition of means of production, i.e., its new fixed capital plus IIc(c). This gives us the following equations:

$$\begin{aligned} (3) \quad h + 2i + j &= 154.3 \\ (4) \quad h - 12.99i &= 0 \\ (5) \quad i - 12.99j &= 0 \end{aligned}$$

Where: h = the increment to I's total means of production [fixed capital + Ic(c)]
 i = the increment to Iv = the increment to II's total means of production
 j = the increment to IIv

We obtain equations (4) and (5) from our original simultaneous equations (p. 248, above). The ratio of the total additional means of production to the additional variable capital is $(71.43 + 21.42)/7.15 = 12.99$. Solving these equations we get $h = 133$, $i = 10.2$, and $j = 0.79$.

Using equations (1) and (2), out of h we take 102.3 to add to I's stock of fixed capital and 30.7 to add to Ic(c). The new variable capital in I we already have from equation (4). It equals 10.2. For department II, where i = the total addition to constant capital, we take 7.88 for the stock of fixed capital and 2.36 for IIc(c). Again, we have the figure for the increase in IIv from equation (5)--it comes to 0.79.

Arranging all of the capital accordingly we have:

$$\text{I. } 10,820.3 \text{ fixed capital:} \\ 4331.6(1082.9_f + 3248.7_c)c + 1082.9v + 517.85s/x$$

$$\text{II. } 3920.3 \text{ fixed capital:} \\ 1568(392_f + 1176_c)c + 392v + 194.2s/x$$

$I(v+s/x) = 1600.75$. II's aggregate accumulation of means of production (the initial IIc plus the total additions of fixed and circulating con-

stant capital) = 1600.8. The net transfer of capital from department II to department I is 143.2.

In this way, by apportioning the total surplus value produced in a given year according to the material needs of both departments, we obtain an overall arrangement that satisfies all the demands of exchange between the two departments. In addition, we should note that we solve an additional problem. Previously we had to carry out production to the end of the year in order for department I to produce all of its consumption fund equivalent available for exchange with department II. It was only after the variable capital added by accumulation had produced surplus value that I would have all of the commodities II needed. The other side of this condition, however, was that II had to have a certain quantity of means of production in reserve, to tide production over until the close of the year. By arranging the entire social surplus value we have not only overcome the under-production in department I brought about by the immanent tendencies of accumulation in the two departments, but have also eliminated the initial imbalance between $I(v+s/x)$ and II's demand for means of production caused by the temporal discontinuity in their respective process of production and accumulation.⁷

The question we must ask is whether, having established equilibrium between the two departments, it will sustain itself in coming years through "normal" accumulation, without requiring any further transfer of capital between departments. The arrangement of capital we have just arrived at will yield the following product at the end of the year:

$$\begin{array}{l} \text{I. } 4331.6(1082.9_f + 3248.7_c)c + 1082.9v + 541.5s/x + 541.5s(a) \\ \text{II. } 1568(392_f + 1176_c)c + 392v + 196s/x + 196s(a) \end{array}$$

$Is(a) = 541.5$, of which 386.8 will go to the stock of fixed capital, 116 to $Ic(c)$, and 38.7 to Iv . $IIs(a) = 196$, of which 140 goes to fixed capital, 42 to $IIC(c)$, and 14 to IIv . If we arrange the capital ac-

according to these figures and carry out production to the end of the year [thus giving us the maximum level of $I(v+s/x)$], we will have:

I. 11,216 fixed capital:

$$4486.3(1121.6_f + 3364.7_c)c + 1121.6v + 560.8s/x + 560.8s(a)$$

II. 4060 fixed capital:

$$1624(406_f + 1218_c)c + 406v + 203s/x + 203s(a)$$

Although $I(v+s/x)$ exceeds IIc by 58.4, II's total demand for means of production is greater than $I(v+s/x)$ by about 67.55.

We see, then, that equilibrium can only be maintained by rearranging the total surplus value each and every year, i.e., by transferring capital from II to I. There is no one-time reallocation of capital that will guarantee a balance between $I(v+s/x)$ and II's demand for means of production in subsequent years. As soon as we allow accumulation to proceed on the basis of the resources already within each department our old disproportion will automatically return.

This, of course, is the same conclusion Preobrazhensky arrived at in VKA 17 when dealing with the disproportionalities that arise when departments I and II have unequal organic compositions of capital and when the organic composition rises. What he said about the viability of this type of solution, which takes place solely within the bounds of pure capitalism, applies here, as well. These transfers can only occur at the potential cost of masses of values. The need to constantly redistribute the social capital between branches of production introduces countless points disturbance in the process of capitalist production and exchange, precisely because this production is only geared to the realization of surplus value. It is production for the moment, and not in accordance with any sort of social plan. What is characteristic of capitalism is not just that this process of transferring capital--which goes on all the time, and for which the general rate of profit is a prime vehicle--is attended by crises; crises are themselves one of the main mechanisms for effecting these rearrangements and restoring the

two departments to a position of proportionality. But we already know that this is not the whole story by any means. Capitalism does not carry out accumulation and production strictly within its own economic borders. It constantly breaks out of them and draws other modes of production into its orbit, where they produce for capitalist production and purchase as part of its market. These other forms of economic organization give capitalism a powerful mechanism for regulating the disproportions that would otherwise arise from the accumulation process. So, once more following Preobrazhensky, we will investigate the problem of expanded reproduction of fixed capital not under pure, abstract capitalism, but as it exists concretely, in constant inter-connection with pre-capitalist, or developing-capitalist and subordinate modes of production. The analysis Preobrazhensky developed in VKA 17 established theoretical principles necessary for a concrete study of the Soviet economy during NEP. We cannot simply proceed in that same order, and move on to apply what we discovered under pure capitalism to the conditions of concrete capitalism. This is because the solution to the question of the expanded reproduction of fixed capital turns out to be inseparable from that of the reproduction and circulation of the *material* elements of the social capital. For that we must first trace out, in some detail, the basic process of circulation of these material elements and their reproduction in a mixed economy of petty and industrial production. The groundwork for that task was laid out not in the last two parts of this thesis, but in Part I, where we derived the rudiments of a two-sector reproduction scheme. The Soviet economy was more complex, in that, as we have stressed many times, the two sectors represented two modes of production with different techniques and different principles of organizing labor power. We must therefore move on directly to our analysis of the Soviet goods famine: First in its general outlines, then in terms of the circulation and reproduction of the

individual elements of reproduction in the two sectors, and then in terms of expanded reproduction of these elements, with particular attention to the reproduction of fixed capital. It is there, in that latter discussion, that we will take up the question of the accumulation of fixed capital under concrete capitalism. We will use it to establish the basic conditions of proportionality in the accumulation of fixed and circulating capital in a mixed economy, and as the touchstone for analyzing the chronic shortage of productive capital in the Soviet Union.

NOTES TO CHAPTER 9

1. For a good example of this see the last chapter of Luxemburg's *Accumulation of Capital*, where she allows that capitalism will not actually reach the point of imminent breakdown, and the revolutionary action of the proletariat will intercede and establish socialism long before. She does not, however, abandon the breakdown theory, in spite of its determinist implications.
2. Carrying out accumulation and production for an additional year, we have:
 - I. 10,394.1 fixed capital:
 $4623.6(1155.9_f + 3467.7_c)c + 1155.9v + 580s/x + 580s(a)$
 - II. 4022.6 fixed capital:
 $1609.1(402.26_f + 1206.8_c)c + 402.2v + 201.1s/x + 201.1s(a)$

II will increase its fixed capital by 143.6, its circulating constant capital by 43, and IIv by 14.4. Thus $I(v+s/x)$ will have to rise by 186.6, meaning a rise in Iv by 124.4 (which will increase Is/x by 62.2 at the end of the year). This increase in Iv will, if we maintain proportionality throughout I's productive capital, mean that Ic goes up by 497.6: 124.4 Ic(f) and 373.2 Ic(c). The total increase in Iv and Ic(c) taken together is thus equal to 497.6. If we let all of this come out of Is(a), this leave 82.4 to go to increase the stock of fixed capital, bringing it to 10,476.5. We also know that Ic(f) must rise to 124.4, to 1280.3. Dividing the stock of fixed capital through by this figure, we get an amortization period of just under 8.2 years, or about 12.2% per year, which is quite a substantial increase.
3. This is true only if, as in our example, the reduction in the turnover period results from a fall in the production period or from a rise in both the intensity of labor and the intensity with which fixed capital is employed. If the reduction in turnover time comes only from a drop in the time of circulation, this has no effect on the mass of surplus value, and hence the mass of use values, produced during the year; it simply lowers the amount of variable capital (and circulating capital in general) that must be advanced.

This would raise the annual rate of surplus value and the annual rate of profit, but would have no effect on production. See *Capital*, II, Chs. XV-XVII.

4. See *Capital*, III, pp. 118-19.
5. See above, Chapter 2, pp. 129-30 and p. 138, Note 9.
6. This was one of the main themes of Preobrazhensky's writings about capitalist crises. In the last instance, argues Preobrazhensky, economic crises posed the need for the bourgeoisie to attempt to redefine the conditions under which labor power is bought and sold, for a crisis always posed the essential problem of how the capitalist class could extract more surplus value out of the proletariat, and thus restore profitability. Quite obviously this proved central to Preobrazhensky's analysis of fascism, which he viewed as the form of the bourgeois state most appropriate to enforcing this new relationship between capital and wage labor. At the same time, crises provide the capitalist class with the opportunity to scrap outmoded fixed capital and restore it with new, modern plant and equipment--at the same moment that it is attempting to purchase labor power at bargain basement prices. See in particular "Economic Equilibrium Under Concrete Capitalism and in the System of the USSR," VKA 18, and *Teoriya Padaiushchei Valiuty*, Ch. 7.
7. This still says nothing about the material composition of I's production and its ability to satisfy II's demand for various kinds of means of production in the right proportions. We will defer this analysis, however, until Part IV, concentrating here upon its solution in value terms.

PART IV

EXPANDED REPRODUCTION IN THE USSR DURING THE PERIOD OF PRIMITIVE SOCIALIST ACCUMULATION

CHAPTER 10

GENERAL OUTLINES OF THE GOODS FAMINE

I. Preobrazhensky's Scheme For Expanded Reproduction in the USSR

Preobrazhensky never carried out his proposed study of the concrete conditions of expanded reproduction in the Soviet economy, in which he would have used the kind of detailed statistical analysis he thought necessary. If the two articles of 1926 (VKA 17 and 18) were preliminary to his last one of 1927 (VKA 22), the latter in turn was still theoretical in nature. It is concrete in the philosophical sense used by Marx, in that it introduces further complexities and details which Preobrazhensky synthesized into a more sophisticated and "complete" picture of reality. Yet it is still abstract, in the sense that it only presents the analytical framework Preobrazhensky thought to be essential for further work. The analysis of "Economic Equilibrium in the System of the USSR" (VKA 22) differs from that of the two earlier articles precisely in the fact that it deals with an historically-given, specific economy. To study it properly, we must first fill in those particulars and unique characteristics that make this society what it is. Preobrazhensky had, of course, done this throughout his other works, from *The New Economics* to the writings on financial policy. We have already described in a number of places his theory of two regulators and his analysis of the conflict between the law of value and the law of primitive socialist accumulation. This, as we noted at the opening of Part II, was what led him to start his analysis of the reproduction schemes from the standpoint of two sectors, each representing a different mode of production. In the Soviet system, however, not even these schemes were adequate. We already came upon this difficulty

ourselves, in our examination of the accumulation of fixed capital. There we saw that any solution to the problem in value terms could only be conditional, and constantly demanded to go beyond a pure value analysis to take account of the reproduction of the individual components of productive capital in terms of their distinct use values and functions within the process of production. Following our analysis both of expanded reproduction under concrete capitalism and of the accumulation of fixed capital, we might, as Preobrazhensky observed, choose the following scheme for studying the Soviet economy:

State Sector:

- I. $c + v + \text{surplus product}$
- II. $c + v + \text{surplus product}$ *plus the surplus product alienated from other sectors*

Capitalist Sector:

- I. $c + v + s$
- II. $c + v + s$

Petty Production Sector

- I. $c + \text{consumption fund} + \text{surplus product}$
- II. $c + \text{consumption fund} + \text{surplus product}$

Here we would note immediately that the categories of this scheme reflect the different modes of production that coexist in the Soviet economy. Neither the state sector nor the peasant sector produces "surplus value" in the proper sense of the term. In the state sector this category has been in large part eroded by the transformation of the market, the modifications in the category of commodity (without which the production of surplus product cannot take place), and the changes that have occurred in the other categories of capitalist political economy, whose withering away and nascent transformation Preobrazhensky analyzed in Chapter 3 of *The New Economics*. We have already described why surplus value does not exist in the petty-commodity sector: The value of labor power is not regulated by the law of value, and hence

the category of "variable capital" does not apply to this sector.¹

Nevertheless, this scheme cannot convey all the information we need. "The above scheme," says Preobrazhensky, "is inadequate for our purposes, because it gives no idea as to how the individual magnitudes break down from the point of view of their exchange with the different departments of the different sectors."² Preobrazhensky proposes that we adopt the more detailed scheme which we have reproduced on the next page.

This scheme is extraordinarily complex, and it would be useful for us to briefly summarize Preobrazhensky's explication of it.³ Let us first examine the constant and variable capital components within each department of each sector. None are completely reproduced within any one department or any one sector alone. This^{is}/first of all due to the physical composition of production. For instance, department I of the state sector, no matter how relatively self-sufficient it might be in the production of machines and other forms of fixed capital, still needs certain means of production from the peasant sector. Likewise with department II of the state sector. It will purchase means of consumption from petty bourgeois agriculture, i.e., its workers will spend part of their wages on commodities of peasant origin. In addition, we should note the introduction of imports into the scheme. We shall see below that planned imports and exports play a large role in helping the system achieve equilibrium. As Marx observed in Volume II of *Capital*, foreign trade would be necessary to relieve any imbalance in reproduction, particularly when we considered the elements of reproduction in their material form. Imports play precisely this role in both the state and peasant sectors. That they do not do so in the capitalist sector reflects the fact that capitalism in the Soviet economy has a relatively small role in production *per se*, and is generally confined to trading and merchant undertakings. In addition, department II of

STATE SECTOR

<i>All of the fixed capital c</i>	<i>The part of the constant capital annually reproduced on an expanding scale:</i>	<i>Wage fund:</i>	<i>Surplus product:</i>
	<i>Department I</i>		
	(a) via reproduction within the department	(a) the part that is replaced by means of exchange with //c of the state sector	(a) accumulation fund (1) For expanding existing enterprises (2) For constructing new factories
	(b) by means of exchange with other departments /	(b) by means of exchange with //c of other departments	(b) the fund of non-productive consumption of the Soviet system, which passes into //c of all sectors and into c of military industry
	(c) via imports		
<i>c</i>	<i>The part of the constant capital annually reproduced on an expanding scale:</i>	<i>Wage fund:</i>	<i>Surplus product:</i>
	<i>Department II</i>		
	(a) by means of exchange with department I of the state sector	(a) the part replaced within the department itself	(a) accumulation fund in the department itself (additional v, additional increase to its own c)
	(b) by means of exchange with the consumption funds of the departments / of other sectors	(b) the part replaced by means of exchange with the consumption funds of other departments //	(b) the fund of non-productive consumption of the Soviet system
	(c) by means of exchange with part of fund of non-productive consumption of department I		
	(d) via imports		

Surplus fund of socialist accumulation ^a

a, The movement of the material composition of the fund of socialist accumulation is clear from the entire scheme of reproduction. More detail about this will be given in the numerical analysis of the Control Figures of Gosplan.

CAPITALIST SECTOR

<i>c</i>	<i>c</i>	<i>+v</i>	<i>+s</i>
	<i>Department I</i>		
	Same as in the state sector, except for imports	Same as in the state sector	(a) accumulation fund (b) fund of capitalist consumption (c) fund of nonproductive consumption of the Soviet system (d) expropriation for the fund of socialist accumulation
<i>Dept II</i>	Same as in the state sector	Same as in the state sector	Same as in department I of the capitalist sector

PETTY BOURGEOIS SECTOR

c	<i>Means of production for the production of means of production which are annually reproduced on an expanding scale</i>	<i>Consumption fund</i>	<i>Surplus product</i>
	(a) reproduced within the department	(a) reproduced by means of exchange with //c of the state sector	(1) the part that remains within the department (2) the part exchanged for addition to the consumption fund (3) for additional means of production from other sectors
Department I	(b) by means of exchange with Ic of the state and capitalist sectors	(b) by means of exchange with //c of the capitalist sector	(b) fund of nonproductive consumption of the Soviet system
	(c) via imports	(c) by means of exchange with //c of its own sector	(c) expropriation into the fund of socialist accumulation
c	<i>Means of production for the production of means of consumption annually reproduced on an expanding scale</i>	<i>Consumption fund</i>	<i>Surplus product</i>
	(a) created within the department	(a) produced internally (predominant part)	(1) fund of additional consumption produced internally (2) exchange for additional means of production from other departments of other sectors (3) own additional means of production
Department II	(b) reproduced by means of exchange with the consumption fund and a part of the fund of nonproductive consumption of its own sector	(b) by means of exchange with a part of //v of the state sector, and //v of the capitalist sector	(b) fund of nonproductive consumption of Soviet society, in natural form
	(c) by means of exchange with v and a part of the fund of nonproductive consumption of department I of the state sector		(c) expropriation into the fund of socialist accumulation
	(d) by means of exchange with a part of v and s of department I of the capitalist sector		

the petty-commodity sector is able to reproduce part of its own constant capital, in the form of seeds manure, livestock for breeding, etc.

We should also look at the function that the state sector's non-productive consumption plays in reproducing the constant capital of all three departments II. It must be remembered that IIc of each sector exists in the physical form of means of consumption, while non-productive consumption of the Soviet state is a category that corresponds to the personal consumption of the capitalist class in capitalist simple and expanded reproduction. SII can produce the equivalent of this share of its surplus product in kind, but this is not true of SI, where the fund of non-productive consumption exists physically only as means of production which must be exchanged against all three IIc's. The three departments II, in turn, require means of production which they obtain in large part from SI. Thus we see the crucial role that the non-productive consumption fund of SI plays in allowing for the renewal and expansion of the constant capital in all departments II.⁴

Therefore, the reproduction of the c and v parts of the productive capital of each sector (remembering that "v" exists only in a conditional sense in the sphere of petty production) shows the high degree of interconnection that exists between them all. No part of this productive capital can be reproduced without mutual exchange involving all departments of all sectors.

The reproduction of the surplus product in each sector tells us a great deal about the nature of the Soviet economy in the period of primitive socialist accumulation. In department I of the state sector it consists of two basic parts. One goes to accumulation within the state economy, and breaks down into the categories of new constant and variable capital. These go to expand existing enterprises and to build new ones. The second part is for non-productive consumption of the state sector. It corresponds, as we said, to capitalist personal con-

sumption under capitalist reproduction, in that it forms the state's consumption fund, which either exists *in natura* or is exchanged against all three IIc's. In social terms, the part of this fund that exists as means of production (SIs/x) is exchanged for means of consumption which go to sustain those working in Soviet administration and trade, workers in defense plants, the military, leakages into the private trading network, etc. The only exception is that part of the non-productive consumption fund which goes *in natura* to form the constant capital of military-related industries.

For the state's department II, the part of the surplus product that goes for accumulation is fairly straightforward: A portion goes to new constant capital, and must exchange against means of production from all the sectors; the remainder goes to increase *v*, and is produced either *in natura* within SII, or is exchanged for goods produced by PII. Physically, the non-productive consumption fund of SII is reproduced the same as SIIv--it either goes directly for the consumption of the "non-productive" workers of the Soviet state, or must be exchanged for commodities of PII which can fulfill this function.

The surplus product of the capitalist and petty-commodity sectors is quite interesting. Part of it goes towards accumulation within the respective sectors: Some goes for the personal consumption of new workers, the rest to augment means of production. Both obviously require exchange with other sectors to achieve reproduction. Another portion of the surplus product is consumed by the capitalists (or, where applicable, by those peasants--predominantly kulaks--who can expand their personal consumption as a direct result of accumulation, that is, over and above the portion we would normally terms as "*v*"). The remainder of the surplus product directly reflects the subordinate role that both K and P play in relation to the state economy. This portion goes first of all into the fund of primitive socialist accumu-

lation. The state directly expropriates it through taxes, by means of non-equivalent exchange, through interest on agricultural credits, etc. The other part is for the fund of non-productive consumption of the state apparatus, the military, etc. Of course, the shares of private production that go to non-productive consumption or to socialist accumulation are physically indistinguishable in most cases (except, perhaps, where the peasantry makes such payments directly by means of labor service⁵). They must be distinguished conceptually, however, because they represent different applications of social labor, and in fact have a reciprocal relationship: The fund of non-productive consumption, no matter how necessary it may be, is a direct block to more rapid accumulation in the state sector.

These, then, are the essential outlines of Preobrazhensky's scheme for expanded reproduction in the USSR.⁶ We will go into all of the categories we have described here and the way in which they are reproduced in much more detail in the next chapter. Even now it should be clear that only such a complex scheme would have allowed Preobrazhensky to carry his analysis of the Soviet economy to the depths he wished, which meant not only revealing the quality and origins of the quantitative disproportions within the economy, but the imbalances in the material composition of each sector's productive "capital" as well. This is, perhaps, the crucial point. We are no longer dealing with only those parts of each department's product that exchange with *different* departments of the same or other sectors (as is adequate with a strictly value analysis). We now must go further and consider exchange *between the same departments* of different sectors, such as that between department I of the state sector, which produces agricultural machinery, and department I of the petty bourgeois sector, which produces raw materials. It is only then that the full implications of the Soviet goods famine and the country's backwardness emerge. Before moving on to that

analysis, it is necessary to first examine Preobrazhensky's theory of the general morphology of the goods famine, so that we can discern the basic tendencies at work under expanded reproduction and from there draw out more complex inter-relationships.

II. Non-equivalent Exchange as the Basis of the Reproduction Schemes

One of the central arguments of *The New Economics* is the need for the state sector to accumulate off of the private sector via non-equivalent exchange. We must be quite careful about what is meant by this. Preobrazhensky was not, as Day ludicrously asserts, advocating an ever-widening gap between state and peasant prices.⁷ The productivity of labor of Soviet industry was far lower than that of Western capitalism; yet it was quite a bit higher than that of petty production. On the one hand, the Soviet economy could not hope to compete with capitalist industry if the latter were allowed access to the domestic private market. Thus the relatively high prices of Soviet industry were reinforced and protected politically by the monopoly of foreign trade. At the same time, peasant prices were kept low, also by economic-political measures. This was not the result of a policy of "milking" the peasantry. If, as Preobrazhensky repeatedly argued, one hour of peasant labor exchanged equally for one hour of labor expended in state industry, there would be a *de facto* subsidy of the private sector by the state, since the latter, in exchanging one hour's product for one hour's product, would in effect be exchanging one hour of skilled labor for one hour of average or socially necessary labor. The state would actually be exchanging more of its own values for fewer values of peasant production. Non-equivalent exchange, of course, takes place regularly under capitalism, wherever the latter intersects with and subordinates pre-capitalist forms of production. It is no less a reality in the Soviet economy; only here, given the lower productivity of labor in Soviet

industry as compared to the world market, this non-equivalence must be enforced. It is, then, what Preobrazhensky calls an obligatory condition of primitive socialist accumulation.

Preobrazhensky viewed non-equivalent exchange, like he did every other means of primitive socialist accumulation, as a weapon of social conflict. Although expanded reproduction of socialist production relations could not proceed without it, by the same token it must be transcended as soon as possible. This could only happen if Soviet industry could attain the same productivity of labor as the capitalist West. Eventually the conditions of labor and exchange between the city and the countryside would have to be equalized. If they were not, the political instability engendered by those social forces who constantly pressed for an end to the constraints the Soviet state placed on their economic activity would threaten to rock the system to its foundations. In *The New Economics* Preobrazhensky argued that state prices must fall, but only in line with rises in labor productivity. Non-equivalence would persist, but only because the drop in state industrial prices would not reflect the full saving in production costs brought about by increased efficiency. The bedrock of this process was obviously the industrialization of the country, the re-equipping of its industry, the collection of the rural unemployed around collective state industrial production as the new proletariat, and the increased leisure and standard of living, the *sine qua non* of socialism, which such industrialization would, for the first time, make possible.⁸

Preobrazhensky therefore cites non-equivalent exchange *and its supersession* as the two dominant characteristics of equilibrium in the period of primitive socialist accumulation. What would be the effect of a realxation of this "first condition of equilibrium," as Preobrazhensky termed it in VKA 22? Suppose, Preobrazhensky says, that the gross output of both departments of the state sector combined is 12

billion chervontsi, divided up as follows:

8c + 2v + 2 surplus product

Of this 12 billion, it exchanges 3 billion in means of production, means of consumption, and state-provided services, such as transport, with the peasant sector⁹ for an equal amount of peasant-produced raw materials and other means of production, means of consumption, and agricultural products for the export fund. This exchange shows that as far as the inter-relations between S and P are concerned the conditions of expanded reproduction are satisfied. It is clear that this balance is based on non-equivalent exchange.

What if it weren't? Suppose instead that state industry evaluated its products at world market prices, which are much lower due to the technological superiority of Western capitalism over the more backward Soviet economy. State prices would fall, let's say, by half. This would not change anything for internal exchange within S. There money and price no longer function as they do under capitalism; *within* the state sector prices are more units of accounting, means of measuring plant or trust "profitability" (*khozraschet*) and a means of distributing resources within the state sector than anything else. Any uniform drop in prices would affect all enterprises in both departments to the same degree and goods would exchange in the same proportions as before.

Where this would make a difference, according to Preobrazhensky, would be where exchange between departments I and II was not in balance, and the deficit of the department in question (more probably department II, which has a heavy dependence on peasant raw materials) had to be made up via exchange with the peasant sector. Then the balance we had before would be disturbed. The department which had to engage in direct exchange with P would only be able to acquire half the products it could formerly, meaning either a huge deficit in money terms, or an inability to reproduce its productive capital in the necessary physical

proportions.

In reality the situation is not so simple. One look at the reproduction scheme between pages 305-306 shows us that both departments of S must exchange a certain portion of their products with the private economy in order to obtain needed commodities. Each and every individual exchange which took place would now bring to the state sector only half as many goods from P as before. SI would not be able to reproduce its variable capital, nor that part of c which consists of means of production produced by P. The imbalance would hit department II even more seriously, since it has such a large dependence on raw materials in the replacement of SIIc.

In gross terms, the state economy's going over to equivalent exchange, *whose prices are set by the operation of the law of value*, would mean that it would suffer a shortage of 1.5 billion. Yet the surplus product of S equals only two billion, and much of this consists of non-productive consumption. The deficit will eat away the entire accumulation fund, much of the fund of non-productive consumption, and even part of the existing stock of fixed capital. "Overall, this would mean total breakdown of the process of expanded reproduction, and, as long as significant non-productive consumption is maintained, it precludes the possibility of even simple reproduction at the preceding year's level."¹⁰

The simplicity of the example does not alter the importance of the result. The economy's technology and social structure have fixed exchange between S and P in fairly definite proportions. The abolition of non-equivalent exchange would seriously disrupt these proportions, and in a way that would make it impossible for the state sector to obtain the necessary material elements of its productive capital. This is even more true when we consider that not only would S's prices fall, but those of the products of the private sector (which are kept below

the world market level by the monopoly of foreign trade) would rise. Consequently the disproportion would worsen from both directions: The state's production would sell more cheaply, while peasant products would be more expensive. Preobrazhensky's conclusion is well-founded:

Given a discrepancy between world industrial prices and domestic industrial prices in the USSR, that is, when domestic prices of Soviet industry are much higher than world prices, an economic equilibrium that will ensure expanded reproduction in the state sector can only be brought about on the basis of non-equivalent exchange with the sectors of private production. This means that, given this sort of price discrepancy, the law of primitive socialist accumulation is the law that can maintain the equilibrium of the entire system, above all in its relations with the world economy. This must of necessity operate until we have overcome the economic and technological backwardness of the economy of the proletarian state as compared to the advanced capitalist countries.¹¹

II. Under-accumulation in the State Sector

The example Preobrazhensky used in the previous part of the discussion is largely hypothetical. Although he took a fairly accurate figure for total production in S, its breakdown into c, v, and surplus product is simply illustrative, showing what movements would take place if the preconditions of reproduction were not fulfilled. To this end he retained this first example when he sought to demonstrate the effects of insufficient accumulation in the state sector.

If we accumulate one half the surplus product of state industry, i.e., one billion chervontsi, then four-fifths, or 800 million, will go to increase c, and 200 million to augment v. The product for the next year will be:

$$8.8c + 2.2v + 2.2s = 13.2$$

Preobrazhensky further presumes that equilibrium within the system as a whole will be secured if exchange with the private sector grows proportionately, to 3.25 billion.¹² If, on the other hand, accumulation were to fall short of this figure, due to an increase in non-productive consumption, or to an incorrect prices policy, and total only 700 of the first year's surplus product, then we would have:

$$8.56c + 2.14v + 2.14s = 12.84$$

We have a relative shortage from before of 240 million in means of production, and of 60 in means of consumption, or 300 in all. Production as a whole will fall 360 million chervontsi short of our first example. Quite clearly a part of this shortage will fall upon petty production, whose exchange with S is equivalent to almost one quarter of the latter's output. In other words, P would experience a deficit of state-produced goods to the amount of 90 million. Preobrazhensky is primarily concerned here with what this shortage of 90 million will mean for P's future economic development. Although we will examine the effects of this goods famine in greater detail both in the next section of this chapter and in the ensuing chapters of this thesis, for the moment we can trace out the effects it will have on expanded reproduction in both the state and petty-commodity sectors.

Taking first of all peasant demand for means of consumption produced in S, if, as Preobrazhensky postulates, two thirds of the total deficit takes this form, it will lead to a decline in personal consumption in P and a going over to *in natura* consumption of the peasantry's own products. This weakening of exchange relations between P and S can only lead to a retardation of the former's development, since it encourages the peasantry to produce by its own primitive methods substitute goods for those it would have purchased from SII. This in turn will reduce the export fund, which can only come from the state's purchase of a certain portion of peasant output. If the marketable share of that product contracts, the export fund--and potential socialist accumulation--must do so as well. Preobrazhensky also mentions the strengthening of the role of the private middleman, due to the aggravation of the divergence between retail and wholesale prices the goods famine brings about. We need not go into this particular aspect of the matter, as he deals with it at great length in other writings.¹³

What is more serious is the other part of the 90 million deficit of state-produced goods. These have the form of means of production, and their absence can only undermine the state's attempts to modernize peasant agriculture. This would prove an even more immediate cause of the retardation of expanded reproduction in P, and its long-term effect would be an eventual shortage of peasant-produced commodities needed by the state sector, mainly raw materials.

If we look at the example again, it is obvious that if peasant production expanded its exchangeable commodity-product from three billion to 3.25, and if the state could not keep pace with this growth, we have only two possible results. One would be the accumulation of unsold stocks in P, with a subsequent cutback of production and/or an increase of its *in natura* consumption. The other would be a series of sales from P to S without corresponding purchases, with a consequent increase in monetary accumulation within P. Even though we know from Preobrazhensky's other discussions of this topic¹⁴ that such monetary accumulation (being deposited in Gosbank) would be a potential source of transferring values from P to S (and hence a source of primitive socialist accumulation), we must also keep in mind that the purchases *that do not take place* would have been for state-produced means of production, principally for agricultural machinery and other implements that would improve technique in agriculture. Thus we already see that the goods famine is a severe, artificial impediment to expanded reproduction in P, compared to the possibilities that *would* exist if accumulation in the state sector had not slackened off.¹⁵

This leads Preobrazhensky to two conclusions: 1) That the volume of accumulation in the state sector is not arbitrary, but is subject to rather strict laws of proportionality; and 2) that any disturbance in the state sector's ability to maintain the necessary minimum level of accumulation does not retard merely the state sector, but the petty

production sector as well.¹⁶

From here Preobrazhensky launches into a theoretically important discussion of the question of "over-production." Is such a phenomenon possible in the backward, developing economy of the USSR?

To begin with, we have to decide what we mean by the term "over-accumulation." If by "over-accumulation" we mean a relationship between production and consumption throughout society such that new means of production put into operation in both departments lead in the final analysis to so sharp an increase in the output of means of consumption that these goods cannot be absorbed by the consumer market at existing prices, as a result of which the corresponding accumulation in department I proves to be useless--well, then, such a phenomenon is quite well known in capitalist economy and must inevitably lead to a sales crisis, the ruin of numerous enterprises in both departments, a forced lowering of prices, and a fall in the rate of profit.¹⁷

It is certainly true that the state sector may produce a greater quantity of means of consumption than can be sold. Does this mean that we have over-production of the capitalist type? As soon as we look at the sources of this disproportion and the ways it can be rectified, we see that this is not the case.

Preobrazhensky

In *From NEP To Socialism*/posed a similar question. There he saw little difficulty in overcoming this type of "over-accumulation," since he considered that it came solely from a misassessment by the state of its wages and prices policy. If means of consumption were accumulating unsold, then a rise in wages and/or a lowering of industrial prices would solve the problem.¹⁸ This is far from the whole story, and Preobrazhensky recognized this in VKA 22. A relative surplus of state-produced means of consumption may mean that the expansion of these goods has exceeded the level permitted by the given technical base of the economy. The state can lower prices and raise wages only within certain limits, and these are dictated by its ability to lower costs. Anything beyond this would be artificial and disrupt the balance of exchange between the socialist and private sectors. In this case the over-production of means of consumption would signify a *maldistribution*

of the productive forces of the society. What is more, this is itself a product--and a sign--of too slow a process of technical re-equipment of state industry. This disproportion does not exist in the realm of exchange between the state and private sectors, nor does it come from "over-production" in SII. It stems from an improper distribution of social labor within the state sector and will persist until the state sector rearranges its productive capital in favor of the production of means of production. This alone would provide an economically justified rise in the consumption fund of both SI and SII, and a lowering of output prices throughout the state sector.

This argument requires some clarification, both in its own right, and because of the obvious connection it has with what Preobrazhensky was to argue in the early thirties. Marx, in Volume II of *Capital*, and Preobrazhensky, in VKA 17 and *Zakat Kapitalizma*, argued that such shifts of productive capital are possible only if ample reserves of means of production and means of subsistence are on hand. Otherwise the transfer of capital will precipitate a crisis. Marx further specified the problem as stemming from an imbalance in the retirement and replacement of fixed capital. In other words, reproduction is also a temporal process. Even if the necessary material elements of reproduction are produced, and they all exchange at the necessary values and in the correct proportions, if the momentary needs of each department do not all *correspond in time*, then the circuit will be broken nonetheless. It is not enough just to say that the productive resources of the state sector are improperly allocated and that this/^{is}an aggravating factor in the goods famine (which is the real, underlying actuality of "over-production" in the USSR). Even if all other conditions of equilibrium were satisfied, the Soviet economy would still come up against the pressing historical fact of its backwardness and the decimation of its fixed capital base. In the period after War Communism, the state economy

could expand rapidly merely on the basis of bringing idle plant and equipment back into operation and utilizing existing capital once again at full capacity. There was a great deal of slack of this kind. So long as it existed the potential crisis of insufficient production of means of production could remain somewhat disguised.

With the end of this period of "restoration" the Soviet economy had stretched its existing capacity to the hilt. No further expansion could occur without the construction of new plants and new machines. This begins the period reconstruction. Preobrazhensky here called attention to the fact that an increase in the production of means of consumption requires the previous production of means of production worth many times the amount of the additional output in whose production they will eventually be employed. Yet these means of production themselves take time to construct, as do the plant and equipment to produce them. All of this demands a one-way withdrawal of values from the accumulation fund which will not yield any values--not even to cover their replacement--for some years to come. The result will be an inadequate supply of means of production and a retardation of the growth of SI. Furthermore, this will also slow down the process of lowering costs of industrial means of production, thus making them less accessible to SII and to both departments of P.¹⁹

The implications of this observation are immense, and Preobrazhensky did not accord them adequate attention, by any means. It is quite obvious that planning in the state sector must take this temporal discontinuity of expanded reproduction in department I into account and plan in the present for its needs of fixed capital in the future. The longer this process is delayed the more serious and chronic the deficit of means of production will be in the years to come, and the greater the impediment that under-accumulation represents for needed expansion in the peasant sector. Thus the accelerated accumulation in the state's

production of means of production is a political priority of the first order. This means that Preobrazhensky is only partly correct when he states that we do not have over-accumulation in Marx's sense, but "simply the material impossibility of harmoniously coordinating the development of all aspects of expanded reproduction *with respect to time*," and that this is a problem inherent in the transition period itself.²⁰

This is true, but only conditionally. The *technical* fact that new plant and equipment will not produce means of production for "three to four years after the start of their construction" is not what characterizes the Soviet Union in this period. Preobrazhensky himself pointed this out later on in the same example. The reason this problem exists in the first place is that the Soviet economy must replace massive amounts of fixed capital *all at once*. Under Soviet conditions there can be neither a balance between retirements and replacements of fixed capital, nor adequate reserves to anticipate these replacements and the needed accumulation of fixed capital from year to year. The very nature of the problem says that department I of the state sector will tie up and absorb large quantities of social labor without producing any goods in return. We can talk of "over-accumulation" only in this very special sense, that the reconstruction period demands for a country as poor in capital as the Soviet Union a tremendous investment of material and human resources in the production of means of production. This investment will in its turn cause a temporary disproportion in the exchange between SI and the combined departments II of the state and private sectors.

We have already indicated how this would work in our discussion of the reproduction of fixed capital. We have only to imagine that the share of accumulation going to increase the stock of fixed capital in department I grows. Then, even if the size of circulating constant capital and variable capital increased (as they must, though not in the

same proportions, since depleted fixed capital stock is being replaced and the total stock built up), the amount of production in I available for exchange with other departments will fall. Proportionality would only be possible if productive capital were transferred from department II to department I. If this is not possible there will be a shortage of labor power, not to mention raw materials, which must come from relatively backward agricultural production. The whole accumulation process will be bottled up--the only possible short-term solution being the increased exploitation of labor power. Now, if we add to this picture the fact that this new investment will have a rather long gestation period and will yield no values for some years, we see that the exchange fund of department I will lag even further behind the growth of department II. We will have an apparent over-accumulation in II, which, as Preobrazhensky emphasized repeatedly, represented a real deficit in department I and an inability on its part to replace its productive capital.

This was, in fact, Stalin's solution. Consumption was cut drastically, while the rate of exploitation of labor power underwent a forced rise, not the least through the militarization of labor in the camps. This was a solution that Preobrazhensky attacked in the draft article to *Problemy Ekonomiki*, which we have already referred to on previous occasions. It may seem a paradox that Preobrazhensky could warn of "over-accumulation" in department I in the Soviet Union. Yet the argument is perfectly consistent. The massive transfer of resources into heavy industry soon outstripped the ability of other sectors to keep up. This "over-accumulation" was only relative. The means of production were genuinely needed in the absolute sense, but they could not be utilized because proportionality in the economy as a whole could not be maintained. Preobrazhensky called for a shift of resources back into department II and a rise in consumption as the only way in which

department II could retain proportionality with department I. Yet at the same time he recognized that this proportionality was itself unsustainable, given both the backwardness of industry (and its inability to compete on the world market) and the pre-industrial character of agriculture (which means that agricultural production could not keep up with the growing demand for its products that any industrialization drive would call for). We are back in the old circle. Industry cannot develop without a transformation of agriculture, while the revolution in the countryside cannot take place without access to modern technology and large-scale industry. Hence the attack on Preobrazhensky in 1932 for allegedly advocating a revolution in the West as the only way out of this dilemma. His argument is an explicit denial of the possibility of socialism in one country, and his critics lost no time in picking this up.

In another part of VKA 22 from the one we are currently dealing with Preobrazhensky again stressed the temporal dimension to expanded reproduction in the USSR.

It is quite obvious that expanded reproduction of technical crops, since it requires means of production from the state sector, is most intimately connected in its development with the conditions of reproduction and accumulation in state heavy industry. But, on the other hand, expanded reproduction in department II of the state sector is intimately connected with progress in the expanded reproduction of technical crops in the peasant economy, from which it obtains its raw materials. Thus, as a result, expanded reproduction of department II of the state sector requires *the prior* expanded reproduction of department I of the private sector--specifically, that part of it which produces technical crops--while expanded reproduction of technical crops requires *the prior* expanded reproduction of the part of department I of the state sector that provides it with the necessary additional means of production. Thus both state light industry and peasant production of technical crops have a common interest in seeing that accumulation in heavy industry, which must always *precede* the expanded reproduction of these branches, be as rapid as possible.²¹

What we have established so far, however, says that attempts to effect such accumulation in department I of the state sector will *exacerbate* the goods famine in the short run, and hence *retard* the growth of agri-

culture. The temporal *discontinuity* in the replacement and accumulation of department I's constant capital, primarily its fixed capital, would, with each cycle of accumulation, temporarily disrupt the access of other departments to industrial means of production. Hence the temporal *sequence* of expanded reproduction, which places department I of the state sector at the center of the process, is broken.

We should note that this marked a major change of emphasis from Preobrazhensky's argument in *From NEP To Socialism*. There, as we observed in our Introduction, he also argued that the Soviet Union would soon run into a dead end in its economic development if left to its own resources. A revolution in the West was the only alternative he could envisage, given capitalist hostility to the Soviet regime. Yet the breaking point of the economy was seen as agriculture itself, whose primitive technique would stifle attempts at expanded reproduction in the state sector as soon as the latter had completed the tasks of restoration and embarked on positive accumulation. Now, however, the argument is different; Preobrazhensky has located the problem one step further down the line, and finds the basic economic contradiction within the state sector and its inability to both restore its fixed capital and sustain the kind of growth that could alleviate the stumbling block of peasant agriculture. In both cases the *political* conclusions are the same: The need for immediate assistance from the Western proletariat. But this, along with the altered political climate from 1923, explains why the argument in VKA 22 is more pessimistic. The impasse could only be resolved by access to the world division of labor and the *ability to control the country's relations with the world market in a socialist direction*. And this, Preobrazhensky demonstrated time and again, was not politically on the cards.

III. *The Goods Famine and the Soviet Union's Relations With the World Market*

To complete our examination of the general structure of the goods famine we turn to that part of VKA 22 where Preobrazhensky showed how the shortage of industrially-produced means of production is actually reproduced in each new period of accumulation, due to the historically-given distribution of the productive forces, and how this compels the Soviet Union towards maximum inter-relations with the world economy. Much of this conclusion is already implicit in what we have said so far --starting from Marx's analysis of the replacement of fixed capital and the role of "foreign trade" in making up any imbalances in the material composition of reproduction, to Preobrazhensky's account, detailed in the previous section, of how harmonious accumulation is impossible in all sectors simultaneously.

We start with a scheme for expanded reproduction in the state sector. Total output is the same as in our first examples, 12 billion chervontsi, but Preobrazhensky has broken production down into its respective departments, with a more realistic division of the productive capital between its constant and variable components.

$$\begin{array}{ll} \text{I. } 2100c + 1400v + 1400s = 4900 & \text{Total production} = 12,000^{22} \\ \text{II. } 3550c + 1775v + 1775s = 7100 & \end{array}$$

We should note that the organic composition of capital is *lower* in department I than in department II--three to two, as opposed to two to one--which is the reverse of the schemes for concrete capitalism in VKA 17, which reflected the normal state of affairs under capitalist production. We will return to this point later on, however. For accumulation, Preobrazhensky assumes that half the surplus product in each department is accumulated, and half goes to non-productive consumption of the Soviet state. For department I this equals 700, for department II, 887.5. He introduces one complication. He assumes that one third of the consumption fund of I is reproduced via exchange with the

petty-commodity sector, or 700 [one third of $(v+s/x)$]. Likewise, one half of IIc also exchanges with P, or 1775. He does not construct a scheme which includes P, since Preobrazhensky postulates that exchange with P is fixed for each department in terms of a percentage of its output. Still, we can simplify his argument a little if we add to his scheme for the state sector one which shows the balance of exchange with P. We must keep in mind that these are not reproduction schemes *per se*, but simply show the active balance between the two sectors.

If P shows the following balance of exchange with S:

PI. ---c + 1775 consumption fund
 PII. 700c + ---- consumption fund

then we will have the following for reproduction *within* S:

SI. ----c + 933v + 467 consumption fund
 SII. 1775c + ---v + --- consumption fund

There is quite clearly a deficit within the state sector of 375 in means of production, and a surplus of the same amount of state-produced means of consumption.* The disproportion emerges even more clearly if we take expanded reproduction for the next year. SI will accumulate 700, of which 420 will go to increase c and 280 to increase v. SII will accumulate 887.5, of which 591.7 goes to c and 295.8 to v. The capital for the year will appear as:

SI. 2520c + 1680v + 840 consumption fund
 SII. 4141.7c + 2070.8v + 1035.4 consumption fund

Again we assume that production within P has expanded in such a proportion that its exchange with S has remained stable in percentage terms--i.e., SI realizes one third of its $(v+s/x)$ and SII one half of its c with P. Our balance of exchange will then be:

PI. ---c + 2070.8 consumption fund
 PII. 840c + ----- consumption fund

which leaves the following to be exchanged within S:

SI. -----c + 1120v + 560 consumption fund
 SII. 2070.8c + ----v + ---consumption fund

*There is an error in the VKA, which lists the deficit as 455.

The deficit of means of production now equals 390.8, i.e., it has grown larger than when we began. Preobrazhensky attributes this "sharp and continuously rising shortage of means of production in our state sector" to the following factors: 1) The interruption of foreign capital invested in Soviet industry; 2) the decline of non-productive consumption in S, as compared with the level of personal consumption of the old bourgeoisie (this would lower the share, s/x , of SI's consumption fund that can exchange against SIIc); 3) the failure to replace fixed capital in previous years; 4) the consequent withdrawal of means of production for new construction which does not yet yield any output; 5) the general necessity of a more rapid accumulation in SI, brought about by the need to rapidly industrialize the country.

We can actually learn a great deal more from these schemes than Preobrazhensky tells us, particularly if we compare them with those of VKA 17 (see above, Chapters 3-5). First off, we have a relative over-production in IIc. And yet the organic composition of capital is higher in SII than in SI. How is this possible? We know from our previous study of concrete capitalism that, if $SIIc/v$ is higher than SIc/v , there will be a tendency towards over-accumulation in SI, not SII, which will eventually necessitate a transfer of capital from I to II. Clearly this is not the case in the Soviet economy of the transition period.

The reason that IIc far exceeds $I(v+s/x)$, and that the distance between them is actually growing, is that the initial volume of capital in II is so much larger than in I. The mass of variable capital in II is so great that, even though it has a higher organic composition of capital, it produces so much surplus product that the growth of IIc exceeds that of $I(v+s/x)$. The tendency, however, will be towards a gradual slowing down of accumulation in SII, and a reduction of the deficit of means of production.

This situation is almost exactly analogous to the one in VKA 17,

where Preobrazhensky takes a higher organic composition of capital in department II in order to overcome its own relative over-accumulation (see above, p. 169 and p. 200). There we saw that *initially* IIc would continue to grow faster than $I(v+s/x)$, because more of s goes to a IIc that is already so much larger than the part of I's commodity-product against which it is exchanging. Soon, however, the relatively slower growth of IIv would retard the rate of growth of IIs, and accumulation as a whole in II, including the growth of its constant capital, would lag behind that in department I. The same will happen in our present example. After a few years the increase in the goods famine would stop, and the discrepancy would begin to contract. Eventually we would even have over-accumulation in department I.²³

This does not actually nullify the validity of Preobrazhensky's conclusions. In the first place, the tendency for accumulation in department I to catch up with, and then surpass that in department II would take an inordinately long period of time to work itself out. The deficit would not even begin to contract for three years, much less eliminate itself. The political and social consequences of this would be unacceptable for the Soviet state. If it did not overcome the goods famine rapidly this would cause significant disruption of the state's relations with the countryside. It would aggravate existing scarcities and accelerate the process of class differentiation in favor of those forces hostile to the proletarian dictatorship.

Far more important is the fact that the assumptions upon which we base these extrapolations are, quite frankly, invalid. The preponderance of capital in SII, and its higher organic composition of capital are the effects of the backwardness of the country. For expanded reproduction to take place along the lines we traced out we have to assume that the economy will retain this same technical makeup. Furthermore, we also have to assume that P will grow proportionately with S , other-

wise SI would not realize one third of its consumption fund, and SII one half of its constant capital in P in each separate year. This assumption is incompatible with the system we have just described. Even on its own terms, P cannot expand without an adequate growth of means of production from the state sector.²⁴ Its own level of technology is too primitive to permit it to expand at the same rate as the industrial sector. If the goods famine was not rapidly erased then P could not sustain expanded, or probably even simple reproduction. This is even more true when we consider that this is still peasant agriculture, whose expansion is technically limited, no matter how great the supply of means of production from SI. For agriculture to keep pace with an expanding industrial sector, it would have to be transformed and put on a collective basis. Any or all of the above-mentioned circumstances would be sufficient to cause P to lag behind S. Then SI could not renew its variable capital or maintain the workers in the military and state apparatus. Even more serious, SII could not replace all of its constant capital. The system would break down. Thus the very fact of a goods famine of state-produced means of production violates the premise of a proportional growth of P.

This still does not exhaust the problem. Accumulation and industrialization will not only mean that department I will grow faster than II. As SI accumulates it will at the same time change its technological foundations. It will not replace old, worn out fixed capital with machines of the same efficiency. It will replace them with machines which embody all of the technological improvements that have taken place since the time the original ones were put into operation. In addition, accumulation by its very nature means that machines will replace workers on an increasing scale. As a result, as department I restores and reconstructs its industrial infrastructure, its organic composition of capital will rise, and rise rapidly. Fairly soon it will overtake

the organic composition of capital in SII, and then we will have the identical disproportion to what we outlined in VKA 17--there will be over-production in department II, and a deficit of means of production. If this "switch point" should occur before the previous tendency has worked itself out, i.e., if SIc/v becomes larger than $SIIc/v$ while there is still a shortage of means of production from state industry, then the goods famine will grow worse. Even if it comes later on in the process of economic development, we will still have the same tendency, towards an over-accumulation in department II.²⁵

Theoretically we might make up this deficit by transferring it on to the peasant sector: We could rearrange the productive forces in P so as to increase output in PI. This, however, has rather limited possibilities. Aside from the fact that the under-production in the state sector's department I would hinder any increase in the output of PI, we have this further complication. Growth in PI is an obvious condition for expanded reproduction in the state sector as a whole. But this growth, even if it was possible in the right magnitude, could not make up SII's deficit in its material form. As we will show in the next chapter, the peasant sector cannot provide either department II with means of production such as machines, cement, steel, artificial fertilizer, or any of the myriad of means of production that can only be produced within industry. In this sense the demands of department II of the state sector for the means of production produced in industry, on the one hand, and for those produced in agriculture, on the other, are additive, and not complementary. Accumulation in SII, while dependent upon the provision of industrial implements of labor, plant, etc., from SI, will automatically bring with it an increased demand for raw materials and other products emanating from PI.

Nor can we make up the deficit by transferring capital from SII to SI. The Soviet state has the political task to raise the standard of

living of the working population, as we argued rather extensively in our Introduction. The acquisition by the working class of a new consciousness and the working out of a new culture depend upon the state's ability to raise the standard of living of the working class. Any need to suppress this level of subsistence, while necessary for the country's industrialization, contradicts this basic demand. While some reallocation of productive forces from SII to SI is possible and necessary, it could never be sufficient to make up the shortage of means of production--not, that is, without rather dire political consequences.

As a result we have uncovered a further contradiction inherent in the accumulation process. To our initial conclusion--that the need to replace such a large part of the country's fixed capital all at once will reduce the quantity of means of production that can actually function *in the present*--we must add the discovery that industrialization brings with it an increase of the organic composition of capital in SI as compared to SII, and that in so doing it leads to a tendency towards relative under-accumulation in the state's production of means of production. In order to reverse this movement and overcome the deficiency in SI the economy would have to possess a flexibility in its reserves of fixed and circulating capital that it does not have. Once more we are left with the conclusion that the USSR cannot erase the goods famine of means of production without aid from other industrialized countries.

What if the Soviet Union had access to the world division of labor? Foreign trade would certainly not be a panacea for the country's ills. It would not substitute for the need to industrialize the economy, to subordinate petty production, and establish the groundwork for planning. Yet none of these tasks can be carried out unless the entire economy can meet its demand for means of production. The question is whether or not the Soviet state can accomplish this with the meagre resources

of the domestic economy. This is not just a technical question, but one of the balance and development of class forces--i.e., it is political. It is in this context that we must view the Soviet Union's relations with the world economy: As an attempt to gain access to the advanced division of labor of the international economy on terms that would permit the preservation of the political and social character of the October Revolution.

In this and other parts of his writings Preobrazhensky showed that neither department of the state sector could afford to wait for the state's department I to develop its capacity to provide adequate supplies of means of production. For department II foreign trade will cover its current shortage right away, as soon as it imports foreign-produced means of production. More important, foreign trade will allow the state sector as a whole to get around the difficulty that for department I to produce these means of production it would first have to construct the plant and equipment to do so. This, as we have seen, takes time and withdraws critically needed resources from the state's accumulation fund. As a result the foreign market can permit the Soviet economy to relieve the temporal discontinuity in the reproduction of its fixed capital. It is needless to add that by ameliorating the crisis in this way the entire state sector forestalls a breakdown in its general exchange relations with the countryside.

Preobrazhensky adds that foreign trade will also serve as a primary channel for transferring values from the private to the state economy--i.e., as a vehicle for primitive socialist accumulation. If the state has a deficit of 400 million chervontsi in means of production (our example showed a deficit of 390 in the first year), it can export agricultural products of P, say means of consumption, worth 200 million. With the foreign currency it obtains it can purchase means of production which cost 200 million at world market prices, but which would

cost 400 million if produced internally in the Soviet Union. The export of peasant surpluses thus becomes a means for accumulation in the state sector. Conversely, we also see how the abolition of non-equivalent exchange would completely disrupt this process, wiping out the differential between world market prices and state procurement prices for peasant grain.²⁶

Finally, foreign trade can help make up deficits in certain material elements of production, e.g., particular raw materials, which the Soviet economy either cannot produce for technical reasons, or whose production is too costly or quantitatively inadequate.²⁷

All of these reasons prompt Preobrazhensky to conclude that the Soviet Union's close--and controlled--relations with the world capitalist market are an essential lever of flexibility for the economy's continued growth:

Thus we arrive at the conclusion that the third precondition for equilibrium in our system is the closest possible link with the world economy, built upon the very distinctive nature of our exports and imports. When there is a general deficit of domestic production of means of production, in particular when heavy industry is underdeveloped relative to the demands of the domestic state and private market and relative to the overall rate of industrialization necessary for the country, *our planned import of means of production has to be of such a volume and material composition as to serve, so to speak, as an automatic regulator of the entire process of expanded reproduction, without ceasing to be a source of accumulation.*²⁸

That this world economy was a capitalist one presented other problems. To trade on the world market, the Soviet Union had to exchange value equivalents for whatever capitalist-produced means of production it would import. That means its agricultural production had to be of sufficient size that, taking non-equivalent exchange into account, it would equal the deficit of means of production in the state sector in value terms. In other words, the disproportions had to be of a material, and not absolute quantitative nature. If the state could export 200 million in grains or raw materials and import 400 million in means

of production, this means that the deficit in the production of department I of the state sector had to equal 400. In value terms the system as a whole would, again allowing for non-equivalence, be in equilibrium, in the sense that we have derived the basic relationships for both simple and expanded reproduction under concrete capitalism (and implicitly for the Soviet economy) in previous chapters. Then it would merely be a case of exporting means of production that existed in the right quantitative, but wrong qualitative form, and importing the corresponding amount of the ones that were needed.

But the Soviet economy did not enjoy such equilibrium. It was not simply a question of peasant raw materials being effectively traded abroad for industrial equipment. Peasant production was inadequate, and the state's own needs too great, for the foreign market to play the role of equilibrating the accumulation process within the Soviet economy. It could be a lever of accumulation, but it could not overcome the extensive shortages that were immanent to the Soviet system. Even if the Soviet Union could have overcome the political obstacles on the part of Western capitalism to its engaging in foreign trade, this would not have been enough. What it needed was *aid*, pure and simple. And this would not be forthcoming from any capitalist country. Only the Western proletariat would provide it.

The following chapters will show, among other things, why participation in the world division of labor on the basis of market exchange could not overcome the goods famine, and why Preobrazhensky's main political conclusion--the impossibility of socialism in one country--was irrefutable.

NOTES TO CHAPTER 10

1. See above, p. 153.
2. VKA 22, p. 29 (Spulber trans., p. 126).
3. In the discussion which follows we introduce our own designation of SI and SII for the two departments of the state sector and retain K and P for the capitalist and petty production sectors respectively.
4. Non-productive consumption, as Preobrazhensky points out, refers strictly to the relation of this type of consumption to production. Here he retains Marx's notion of the term, where productive consumption is that which immediately enters into production (wearing out of means of production, the consuming, i.e., exploitation of labor power--as distinct from the consumption of the laborer, which is individual consumption). Against this stands individual consumption, which sustains the laborers and capitalists. In the sense used here, however, Preobrazhensky is linking the distinction of productive from non-productive consumption to that made by Marx between productive (that which creates surplus value) and non-productive (that which does not) labor. These categories, we should note, are devoid of moral connotations, except to the extent that we speak of class morality, i.e., those norms of behavior associated with the divergent historical interests of conflicting classes. This is why Preobrazhensky emphasizes, quite correctly, that non-productive consumption may still be *socially necessary*. The Soviet regime will continue to need some form of state apparatus, a military, etc., yet these parts of the population do not add material values to society's wealth, but rather withdraw values from it. In theory, of course, the category of non-productive consumption will disappear under socialism, just as our meaning of productive labor will be transformed away from that of Marx to refer to socially useful labor and nothing more.

Not all of the non-productive consumption in Soviet society was socially necessary, however. The values which private middlemen withdrew in the course of domestic trade were neither productive nor socially necessary. Nor would many of the privileges accorded to bourgeois specialists or appropriated by the bureaucracy, over and above what was needed to maintain their particular forms of labor power or induce them to work, be considered socially necessary either (we are speaking, of course, of the period prior to the consolidation of power by Stalin and the bureaucracy).

5. *From NEP To Socialism*, p. 81.
6. The above discussion is drawn in large part from that in VKA 22, pp. 29-35.
7. See above, pp. 75-6, Note 5. We should particularly draw attention to the reference there to Preobrazhensky's debate with Larin in *Ekonomicheskie Krizisy pri NEP'e*. Preobrazhensky attacked Larin's demand for a blanket milking of the peasantry by lowering agricultural prices and raising those of industry. This, Preobrazhensky maintained, had created a situation where the peasantry did not even have enough money on hand to pay its taxes, and its incentive to produce was stifled. He argued instead for a policy of raising

peasant prices, along with a lowering of industrial prices. But both of these could only come about if they were justified by savings in industrial production costs, accompanied by a rise in the productivity of labor, and by an expansion of the foreign market, which would open up the prospect of marketing larger sums of peasant produce abroad and hence the possibility of allowing the peasantry to benefit, at least in part, from this improved marketing situation.

8. The problem of non-equivalent exchange was not unique to the Soviet Union. As early as 1920, Gramsci made the following, extremely prescient observation about the tasks of a proletarian revolution in Italy and its policy towards the peasantry:

"Italian capitalism has its deepest roots and the seat of its hegemony in Northern Italy, in the industrial centers of Northern Italy. The Communist revolution, which in Italy presents itself as a revolution in industrial technique, as a problem of the equalization of the conditions of agricultural labor and the conditions of industrial labor, will have its major seat in the North. The class of factory workers will be confronted with the tremendous problem produced by the War: how can it succeed in building a State organization that has the means to industrialize agriculture and is able to provide the peasants with the same conditions of labor as the workers, so that it will be possible to exchange one hour of agricultural labor with one hour of industrial labor, so that the proletariat is not destroyed by the countryside in the exchange of commodities produced in absolutely non-comparable conditions of labor? This problem, which the capitalist industrialists are unable to solve, and which, if it is not resolved, will smash the bourgeois State, can be resolved by the workers, by a workers' State in Italy--as it has been resolved and is being resolved by the Russian workers' State. It will be resolved by the urban industrial workers who will become the principal agents of the Communist revolution."

Antonio Gramsci, *Soviets in Italy*, Institute for Workers' Control Pamphlet Series No. 11, pp. 27-8.

9. Throughout Preobrazhensky takes the capitalist and petty-commodity sectors combined, both because of the lack of adequate statistics for the capitalist sector and for analytical simplicity. It is clear that the main relationship he is concerned with in VKA 22 is that between state industry and peasant production.
10. VKA 22, p. 37 (Spulber, p. 135).
11. *Ibid*, p. 37 (Spulber, p. 135). Original emphasis.
12. Exchange with peasant production should rise proportionately with the rise in S's total product, that is, by 10%, to 3.3 billion chervontsi.
13. See *From NEP To Socialism*, pp. 22, 52, and *The New Economics*, pp. 98-103.
14. See above, p. 211, Note 14.
15. This, of course, reflects the contradictory nature of the period of

primitive socialist accumulation. Momentary growth in the peasant sector must be sacrificed for the industrialization of the state sector, which alone can ensure that agriculture expands in the future on a new technological and social basis. This case is similar to that of the wage fund of the workers in state industry, the expansion of which must also be retarded in the interests of industrial accumulation--not without equally devastating political effects.

16. VKA 22, p. 39 (Spulber, pp. 137-39).
17. *Ibid*, pp. 39-40 (Spulber, p. 138).
18. *From NEP To Socialism*, pp. 38-39
19. VKA 22, p. 41 (Spulber, pp. 139-40). For Preobrazhensky's treatment of this problem within the general context of the accumulation of fixed capital under capitalism (in *Zakat Kapitalizma*), see above, p. 231, and p. 239, Note 11 (the latter also refers to the relevant passages in *Capital*).
20. VKA 22, p. 42 (Spulber, pp. 140-41). Original emphasis.
21. *Ibid*, p. 52 (Spulber, pp. 152-53).
22. For his figures for the percentage breakdown of the product between departments I and II, Preobrazhensky cites *Perspektivy Razvertyvaniya Narodnogo Khozyaistva SSSR na 1926/27-1930/31 gg* (*Perspectives for the Development of the National Economy of the USSR from 1926/27-1930/31*), Gosplan SSSR, pp. 123-24. Preobrazhensky also states that the overall level of output in the state sector is very close to the figure he gives here (14.35 billion), but gives no source. The same is true of his figure for the proportion of the output of each department of the state sector that goes towards exchange with the peasant sector.
23. Taking accumulation for succeeding years, we would find that the deficit will increase in absolute terms up to year three, after which it will start to go down.
24. The notion that SI would continue to provide P with an additional one third of each year's newly produced means of production, while running a systematic deficit within its own sector is untenable. At the very best the burden of the shortage of means of production would be distributed over both sectors, primarily by the allocation of credits through the state bank; but in reality the peasant market for means of production would suffer severely.
25. The question of whether or not we would have "prices of production" in the Soviet system is quite difficult to resolve. Industry operated according to certain profit criteria, well enough. But it would be hard to actually conclude that there existed an average rate of profit, and that this rate determined the distribution of social capital in the state sector. This is precisely where we see one of the fundamental ways in which the proletarian revolution undermines the law of value--the distribution of productive forces in the state sector will be carried out largely according to plan, even if that plan is not a fully-conscious, socialist one, but is shaped by the need to modify state production according to

the dictates of the external market and the need to reconstruct state industry. Yet prices will not be the same as value. We must quite frankly admit that we do not at this point know how to resolve this problem. The deviation of prices from values within the state sector will come from two poles simultaneously: The profit and cost accounting of each individual enterprise (*khozraschet*), which will vary depending on the state of the industry, the conditions of its existing plant and equipment, ability of individual managers to enforce labor discipline, etc., on the one hand; and the *planned* deviation arising from the increasing control that the state planning organs are able to exercise over production and allocation. The best we can do is make the provisional *abstraction* that the deviation of prices from values is already reflected in the reproduction schemes, whose figures reflect non-equivalent exchange (an assumption that Preobrazhensky makes as well, though without taking up the question of prices of production and the tendencies that cause the deviation of prices from values in the Soviet economy). What makes this assumption unsatisfactory is that, while perhaps giving a fairly accurate picture *within* any given year, it says nothing about how the year's surplus product will be accumulated and divided up between branches of industry. In terms of tracing out the distribution of social labor, however, and the movement of real values between departments, the schemes will certainly detail all the basic tendencies of the system. If we assume that all deviations of prices from values are *planned*, and that state procurement and disposal prices are a vehicle for arranging the social capital in each production year, then the essential problem does not change--we can define the tendencies within the economy and state what conditions of proportionality dictate by way of transfers of capital and productive forces from one branch or department to another. It is only where the distribution of the productive forces and price-value relations are determined by the retention of capitalist organization of production that difficulties arise, and it is from these that, in the interests of simplification, we must abstract.

26. This argument (VKA 22, p. 46) is dealt with in greater detail in *The New Economics*, pp. 104-05.
27. VKA 22, p. 47 (Spulber, pp. 147-48).
28. *Ibid*, pp. 47-8. Original emphasis.

CHAPTER 11

THE CIRCULATION AND REPRODUCTION OF THE INDIVIDUAL COMPONENTS OF THE PRODUCT IN BOTH SECTORS

We now take up the question of circulation and the way in which the separate components of each sector's product are reproduced. A mixed commodity-socialist economy like the USSR is still a market economy, but of a modified sort. Clearly, as Preobrazhensky argues amply in *The New Economics, From NEP To Socialism*, and other writings, the market changes its form radically from what it is under capitalism. Exchanges within the state sector obey none of the regularities of the market in the classical sense, and state enterprises are increasingly freed from the complication of having to both produce goods in sufficient quantities for use in other branches of production and by other enterprises, and having to realize these goods--and their value--through sale on the market. Here the market, which begins to exist in an increasingly attenuated and external form, gives way to the distribution of state resources according to a plan. At the other extreme, exchanges solely within the private economy very definitely reflect an almost "pure" market situation. In this realm the state can modify and influence the character of the market only to the extent that it intervenes politically or increases the scope and weight of its own trading apparatus. We also have a huge grey area inbetween, where the state and private economies enter into mutual exchange with each other. Using an analogy with Trotsky's description of NEP, we might say that the task of the state sector is to widen its influence in this middle area. In so doing, it will eliminate the sphere of exclusively private economy, and, by drawing the latter into contact with the state sector, will transform and undermine this middle area as well.

So far we have examined expanded reproduction mostly from the point of view of these "exchanges" within the state economy. We have dealt

with the interaction between S and P only in gross terms. Following Preobrazhensky, we assumed constant proportions of exchange between the two sectors because we only wanted to show how certain disproportions, mainly the goods famine of state-produced means of production, arose from within S itself, and how this in turn would affect reproduction in general terms in both S and P. Preobrazhensky now moves past this level of analysis to a more specific examination of the mutual exchange between P and S.

The fourth condition of equilibrium of our economic system is proportionality in the distribution of labor, in particular, proportionality in exchange between the state economy and the entire private economy within the country, both with respect to the value of that exchange at given price levels and *with respect to its material composition*. Here we assume equilibrium of value exchange to be understood in a conditional sense, that is, in the sense of *an equilibrium of non-equivalent exchange*, or exchange as the mechanism of socialist accumulation.¹

Here we move from a straight value analysis (whose implications we have already seen to be immense) to an analysis that deals with the physical-material composition of reproduction, and how it complicates --and, in the USSR, exacerbates--the problem of expanded reproduction.

To this end Preobrazhensky introduced a second scheme, which showed production in P. We must say that for all practical purposes it is irrelevant both to what he wished to demonstrate about the circulation process and to the argument he wanted to construct from it. We might be able to use the scheme we constructed in Chapter 2 to show the necessary relationship between the production and exchange of fixed versus circulating capital (see above, pp. 131-34), or even Preobrazhensky's first scheme of the mixed economy on page 153. But even these will not do, since they only deal with simple reproduction, and at a fairly abstract and elemental level. These schemes reveal *all the essentials of the problem*, but not the intricacies which come when we move on to expanded reproduction or consider exchange between *all departments of all sectors*.

In order to present the fullest possible picture of the inter-relation between the exchange circuit and reproduction in the Soviet economy, we have constructed another scheme which combines the essentials of the ones we have just mentioned, along with those we constructed in Part III to show the expanded reproduction of fixed capital, on the one hand, with Preobrazhensky's scheme which we inserted between pages 305-306. The scheme has two sectors, and is broken down into departments I and II for each. For the constant and variable capital in both departments of S, and for the constant capital and the consumption fund in both departments of P, we have used the subscripts (g) (for the Russian, *gosudarstvenniy*, or "state"--this being to avoid confusion with "s" for surplus value) and (p) to designate that portion which is realized in (i.e., sold to, and purchased from) S and P respectively. For the surplus product of S we use the subscript (a) to indicate the part which is accumulated, and which has only indirect importance at the present stage of our analysis. The notation $s/x(g)$ refers to the consumed part of the surplus product which is realized within S, and $s/x(p)$ to that part exchanged with P. With the surplus product of P, (a) indicates the part that the petty-commodity sector accumulates (again, in the conditional sense that we can apply the term to petty production), and (ex) to the part that is expropriated by the Soviet state, either for the fund of non-productive consumption or for the fund of socialist accumulation.

$$SI. [c_g + c_p] + [v_g + v_p] + [s(a) + s/x_g + s/x_p]$$

$$SII. [c_g + c_p] + [v_g + v_p] + [s(a) + s/x_g + s/x_p]$$

$$PI. [c_g + c_p] + [cons_g + cons_p] + [s(a) + s(ex)]$$

$$PII. [c_g + c_p] + [cons_g + cons_p] + [s(a) + s(ex)]$$

If we were actually performing a numerical analysis of expanded reproduction, the existence of the category $Ps(ex)$ would complicate matters somewhat. We would have to include that part of it which went

to the fund of socialist accumulation in the new c and v of SI and SII; similarly, we would have to add the remainder, which goes to support the fund of non-productive consumption, to the consumption fund of the two departments in the state sector. We can partially get around this difficulty if we remember that, aside from direct payments, such as taxes, the state absorbs much of the product alienated from P via various forms of non-equivalent exchange, mainly its policy of planned procurement and disposal prices. To this extent we could eliminate $s(ex)$ from our calculation, since it would already appear in either $s(a)$ or s/x of the state sector. This would not, however, allow us to account for those portions of the peasant product that are alienated directly. Unfortunately we cannot deal with this question at any length without overstepping our analysis; we must first establish the basics of the circulation process before we can introduce complications. Although we will make a few observations about the reproduction of $Ps(ex)$ later in this chapter, we will by no means be able to exhaust the problem.²

Before we go on to discuss the general characteristics of the exchange circuit, we should issue a cautionary reminder. It is clear from this scheme that the conditions of simple and expanded reproduction are much more narrowly defined due to the specific proportions of *each part of the product of each department* which must exchange with other departments. We should not, however, become prisoners to our own construction which, no matter how great its complexity, still remains an abstract representation of concrete social processes and relations between human beings. While it may seem that the conditions of proportionality are extremely rigid, in reality even the Soviet economy of the 1920's would possess a good deal of flexibility. The exchange relationships could vary with changes in the state's procurement policy, its issuing of different types of agricultural credit, the peasantry's attitude towards hoarding or marketing a greater or lesser share of its

harvest, the opening up of new lands, the stability of the currency, or any of a whole range of variables. The significant thing about the transition period is that, as the state sector increases its influence, this flexibility grows and the variables come more and more under the conscious control of the working class. Marxism tells us that people are free to act consciously and in a purposeful way, but that their thoughts and actions are always constrained by nature, which is historically given and which they attempt to place under their control. Both society and the way people view that society are parts of this nature. Therefore thought and ideology are every bit as much material elements which help determine human action as anything else--providing we keep in mind that ideas themselves are a specific form of social relations and as such are inextricably connected with the relations of production.

The purpose of any analysis of something like the reproduction schemes is to demonstrate what some of these constraints are at any given moment. They help tell us the bounds within which people act. Such limits will exist under socialism, with the key difference that then human beings can confront them consciously and alter them in a purposeful direction. Under capitalism, with its innate anarchy and the reified consciousness it imposes upon people, this is not possible, except in the most minute degree. Here our analysis throws into relief the contradictory nature of the Soviet Union and the impossibility of the transition period leading to this conscious control of nature without the intervention of the Western proletariat. This is true at the level of economics and at the level of the development of class consciousness. As we argued in our Introduction, the two are inseparable and form parts of the totality of Soviet society which was--and remains--contradictory to the extreme.

In the discussion of the reproduction of the individual elements of our scheme we will stick fairly closely to Preobrazhensky's argu-

ment. In a few cases the analysis is fairly straightforward, and we will offer nothing more than a brief, critical summary of his views, repeating what Preobrazhensky said only for the sake of the completeness of our own theory. In other cases, however, this is not possible. In this part of VKA 22 Preobrazhensky attempted to trace out the process of circulation for each of the component parts of reproduction in the departments of P, and in this way revealed the inter-relations that exist within the system as a whole. This is just what Marx did in such detail for pure capitalism in Volume II of *Capital*. Preobrazhensky, in order to do this for the Soviet economy, had to break new ground, and to us this constitutes the great importance of this section of the article. But, on the other hand, it also meant--particularly given the obviously hasty nature in which all of the VKA articles were written and the political climate of the time--that he was to infer conclusions from his premises without adequately elaborating how he reached them, just as we saw in the preceding chapter, where he generally failed to properly apply his findings from VKA 17 to his analysis of the goods famine. So once again we will have to spend some time, to fill in what we think is needed, and to use Preobrazhensky as a starting point to construct what we think is a more coherent picture of the problem of circulation in an historically new economy.

Two cases are of exceptional note. The first is the internal exchange of means of production between SI and PI; the second is the internal exchange of means of consumption between SII and PII. Both of these add further major conditions of equilibrium beyond the central exchange of the combined consumption fund of departments I for the combined constant capital portion of departments II, and we will go into them in some detail, especially as regards their implications for the goods famine. Let us now turn to the reproduction of the material elements of department I of the petty-commodity sector.

The Reproduction of PIc: The difficulty of expanded reproduction in department I of the peasant sector emerges as soon as we look at the reproduction of its constant capital. By now we have clearly established that a crisis can result in any market economy strictly within the sphere of circulation. We have also seen in our study of simple reproduction in a mixed economy that a crisis can ensue if the material conditions of reproduction are not met. In this section we will first see how a breakdown in the exchange circuit can prevent this realization of the material product, even when all of the goods demanded for continued production are in fact produced in the correct proportions. We will show that if there is an imbalance in the exchange between PI and SI, that reproduction can only take place through a very complex circuit which involves all departments of all sectors. Specifically, if PI sells less to SI than it requires in return, and if SI has actually produced the means of production that PI needs, then PI must acquire a money equivalent of its deficit of means of production. It does this only if one of the departments II purchases less from SI than it sells, and if this same department then purchases more from PI than the latter buys in return. The fact that it must be the same department II which mediates the transaction between PI and SI is due to the fact that now all exchange must conform to the materially specific needs of production in all four departments.

After we have traced out the path of circulation under "ideal" conditions, that is, where we assume that the problem is strictly one of circulation, and that the means of production PI needs have actually been produced, we will apply our findings to the conditions of a goods famine of industrially-produced means of production. We will again find that the disproportionality in the system can only be relieved by access to the world market.

Preobrazhensky notes that a substantial part of PIc will be repro-

duced within the department itself, e.g., seeds, cattle, feed, animal products, sheep for production of wool, etc. By the same token another part of P_{Ic} can only be obtained from department I of the state sector (e.g., metal and coal, agricultural machines, artificial fertilizers, rail and water transport, etc.). And here we have a problem: SI buys considerably less from PI than the other way around. SI requires less in means of production of agricultural origin, than the petty-commodity sector needs in machines and other industrially-produced means of production. The very nature of this imbalance dictates that it will be difficult to overcome. If PI needs means of production it can obtain them *directly* only from SI, which produces them. What is more, it can only exchange its own products *against S_{Ic}*, that part of SI's product which goes to replace its constant capital. All other exchange that SI carries out with P is with P_{II}, that is, for means of consumption to replace its variable capital and to sustain the administrative apparatus and other non-productive workers. In other words, PI cannot acquire the means of production it needs by exchanging its surplus of means of production against either S_{Iv} or S_{I_s/x}, since PI's product exists in the wrong natural form.

How then is PI to realize its surplus of P_{Ic} and get the industrial means of production it needs? Clearly the only possible solution would be for PI to dispose of its surplus in other departments, which also use raw materials and other agricultural products as means of production. If it sold more to S_{II} and P_{II} than it subsequently purchased in means of consumption, it would have a hoard of money with which to purchase the means of production it could not obtain directly from SI. This circuit, as we have said, is quite complex and demands that the money PI receives from other departments equal the money it requires for its purchases from SI. As far as our analysis goes, we come up against the difficulty that Preobrazhensky worked none of this out, but

merely arrived at this conclusion, seemingly out of thin air. Yet this is a crucial aspect of the goods famine and must be examined in more detail.

In order to analyze this circuit of exchange we first have to assume, as we mentioned in our introductory remarks, that the goods famine is not a problem in terms of society's physical output of means of production, in other words, that SI has actually produced the goods PI needs, but that PI cannot obtain them because of the specific imbalance between what PI and SI need to buy from each other. In this way we can show how *the goods famine can arise out of the process of circulation, out of the fact that this is a market economy*. Then, after showing how this disproportion operates under "ideal" conditions, when production is adequate on both sides, but exchange cannot take place, we can then analyze the case where the shortage of means of production of SI places a physical limit upon expanded reproduction in PI.

To illustrate this more easily, let us fill in some figures--which are completely hypothetical--for our reproduction scheme on page 339.

SI. $(5000_g + 500_p)c + (2000_g + 2000_p)v + [2000_a + (1000_g + 1000_p)]s$

SII. $(2500_g + 1500_p)c + (1250_g + 1250_p)v + [1250_a + (750_g + 500_p)]s$

PI. $(1000_g + 2000_p)c + (1000_g + 1000_p)\text{cons. fund} + \text{surplus product}$

PII. $(3000_g + 1000_p)c + (1750_g + 2000_p)\text{cons. fund} + \text{surplus product}$

The quantity of means of production which SI must exchange in one form or another equals 6500. The means of production the other three departments require from SI also equals 6500. Thus there is no goods famine *taking the system as a whole*. We further assume that accumulation takes place at the end of the year, so that we do not have to break the figures for the accumulated part of each department's surplus product down into c and v. This would unnecessarily complicate our scheme without changing its essence.

Our first scheme (p. 339, above) showed that $SIc(p)$ must equal

PIc(g). In our present example this is not true. SI requires only 500 in means of production from P, while P needs 1000 from S. The first step in the exchange circuit will be if SI purchases 500 in means of production from PI for money. It is more reasonable to assume that SI advances the money for exchange, because it has the resources of Gosbank at its disposal, whereas for PI to advance the money would presume a hoard accumulated over a period of years, something more difficult, though clearly not unrealistic. This being the case, PI will then use this money to purchase 500 in means of production from SI. So far we have merely "cleared the accounts" of what can be mutually exchanged directly between SI and PI. As things now stand, SI has obtained all that it needs in constant capital to begin production again, while P is still short of 500 in machines, tractors, and other industrial means of production. In addition, it has unsold stocks of 500 worth of raw materials and intermediate goods of agricultural production.

How is this shortage to be realized? As we pointed out above, PI cannot exchange any of its surplus against SIv or SIs/x because they exist in the wrong physical form. PI could acquire what it needs from SI if exchange took place as follows:

SI must first of all realize its variable capital. It does this in two ways. First, it exchanges 2000 in means of production with SII for 2000 means of consumption. It does this directly, without money, through the system of state accounting and allocation of resources. Second, it exchanges 2000 in means of production with PII for the same quantity of means of consumption of peasant origin. This exchange, however, must take place on the market, and is therefore transacted via the medium of money. As things stand now, SI has obtained all that it needs to renew its variable capital, both in physical and monetary terms. It has all the means of consumption its workers must consume, and the money it would have advanced to PII has returned to it as soon

as PII purchased 2000 in means of production from SI. As far as SII is concerned, it has renewed a part of its constant capital equal to 2000c(g). It must still realize 500c(g) and 1500c(p). PII has realized 2000c(g) and still has to renew 1000c(g) plus 1000c(p).

The major part of these outstanding balances are exchanged against the fund of non-productive consumption of SI. For PII this is easy enough. It sells means of consumption worth 1000 to SI, and with the money it receives it buys 1000 in means of production. PII has realized the remainder of its demand for means of production of SI [equal to 1000c(g)], and SI has obtained the 1000 means of consumption of petty production its non-productive workers required. Exchange between SI and SII presents a problem, however. SI needs 1000 in means of consumption produced by state light industry, but SII needs only 500 in state-produced means of production. Furthermore, of the 2500 SIIc set aside for exchange with SI, 2000 have already exchanged against SIV, leaving only 500 for further exchange with SI. One look at our scheme tells us that SII actually does have the means of consumption to sell to SI, but to do it SII would have to dip into the products it had set aside for exchange with PI. As things stand now, this will work out. SII will sell 1000 in means of consumption to SI in exchange for 500 in means of production plus a credit at the state bank worth 500 chervontsi. SI has now advanced 500 in money, but still has 500 in means of production left unsold which SII did not need. SII has now realized all 2500 of its IIC(g). It has 1000 in means of consumption plus 500 chervontsi left over for exchange with PI.

But where is PI to find the means of production to sell? The exchange of 1000 means of production is a fairly simple matter. SII purchases these 1000 for money, and PI then uses the latter to buy 1000 in means of consumption. PI has received all that it needs in physical form from SII (1000). SII is not as well off. It has disposed of the

entire physical equivalent of its constant capital, but still has 500 in money left to exchange; and, what is more serious, it still needs 500 in peasant - produced means of production. Perhaps PI could take these from what it has earmarked for exchange with PII. This is not likely, since there is no reason that PII would then issue PI the means of consumption it needs on credit, in anticipation that PI would somehow eventually be able to supply all that PII needs in peasant-produced constant capital. So, let us assume that PI holds off completing its exchange with SII, and proceeds right away to acquire the means of consumption it needs from PII. It does this by selling means of production worth 1000, in exchange for the same quantity of PII's means of consumption. How do things stand up till now?

SI has realized all of its constant and variable capital. It has acquired all of its fund of non-productive consumption but in the process has had to advance 500 in money, which it must get back, and has 500 in means of production left unsold and sitting on its hands.

SII has realized all of its IIc(g) plus 1000 IIc(p). It has a money reserve of 500 plus a need for 500 in means of production from PI.

PI has realized its entire consumption fund. However, it still has 500 in peasant means of production left which it could not exchange with SI; not only that, but it needs 500 in means of production from SI which it did not have money to buy.

PII is the only department that is all right. It has realized its entire demand for means of production, both from SI and PI, and it has disposed of all of its exchangeable means of consumption.

Things will work out if PI takes the means of production it has set aside for exchange with SI--but which it could not sell--and sells them to SII. SII will then have all the means of production it needs from PI. PI will then have 500 in money which it can use to purchase the 500 in means of production that SI still has on its hands. PI will

then have its full constant capital component of $1000c(g)$. The money which SI advanced, when it purchased more from SII than it sold, has returned to it, via PI. The circuit is complete.

The only reason that we can reproduce $PIc(g)$ in this instance is because: a) SII sells more to SI than it requires from it in return; b) SII buys more from PI than PI needs from SII; and c) these two amounts are equal. It is not enough that $SI(v+s/x)$ plus PI's consumption fund equal $SIIc$ plus $PIIc$. Within that equality we have another. $SIc(p)$ must equal $PIc(g)$ (as we have shown in Chapter 2). If not, then we can only attain equilibrium if the surplus of what SII sells to SI equals the surplus of what PI sells to SII, and if this in turn equals PI's deficit of means of production from SI. Our present scheme satisfies all of these conditions.

If we arranged the figures differently, however, then circulation would be impossible to complete. If we set $SII = (3000_g + 1500_p)$ and $PII = (2500_g + 1000_p)$, the total demand of $SII + PII$ for state-produced means of production stays as before. So do all of our other figures. Now, however, it is PII which sells more to SI than it buys. It therefore must take part of its IIc , which it had set aside for exchange with PI, and then sell these 3000 means of consumption to SI. It buys only 2500 in means of production in return, and thus has 500 in money left over. In physical form PII has only 500 in peasant means of consumption to exchange with PI. Yet PI requires 1000 means of consumption from PII. We can push off the problem by making some further exchanges. Let PII take its 500 in money and 500 in exchangeable means of consumption and purchase 1000 means of production from PI. PII will then have all the means of production it needs from both SI and PI. But PI will have only 500 of its consumption fund which must come from PII, and 500 in money. Only PII has nothing left to sell.

What about SII? SII realizes all of its need for industrial means

of production by exchanging its 3000 $I_{Ic}(g)$ with SI for 3000 $SI[v+s/x(g)]$. SII still requires 1500 in means of production from PI, while PI needs only 1000 in means of consumption from SII. We can perform this exchange just as we did before. PI can sell to SII its 1000 consumption fund(g) plus the 500 means of production that SI would not buy. For this, however, SII advances 1500 in money. In this way SII realizes its entire I_{Ic} and PI has 1500 in money. With 1000 of this money it purchases the 1000 in means of consumption it needs from SII.

Now we have quite a problem. PI does not have one hoard of money, but two. It has 500 from PII and 500 from SII. It can take one of these hoards and purchase the means of production it wants from SI and which SI still has available. Yet it still has 500 in money left over. What is more, PI has a physical deficit of 500 in means of consumption from PII; and SII has 500 in unsold means of consumption which PI will not buy, in addition to having 500 in advanced money which it does not get back. The only way we could re-establish equilibrium would be if PI would change its purchasing habits and use this 500 in money to buy industrially-produced means of consumption and would cut down on its demand for products of PII by the same amount. This is the only solution, so long as we remain within the confines of the system we have described. No matter how many different ways we might try and conduct the various exchanges, we will always have a hoard of money somewhere in the economy and an equal mass of means of consumption which cannot be sold because they are in the wrong physical form.

We therefore arrive at an important relationship. If $PI_{Ic}(g)$ is greater than $SI_{Ic}(p)$, PI can only realize its deficit if the department II which sells more to SI than it purchases in return is *the same department* that buys more from PI than PI buys back from it.

Circulation follows an extremely intricate path here. As Marx said about capitalist reproduction, each discrete purchase and sale

creates an additional point of potential disruption. This is equally true of the mixed market system of commodity-socialism we are describing. Even in our first example, where all the necessary conditions were satisfied, if there had been a failure to transform commodities either into other commodities or into money at any place along the line, then PI could not have obtained the means of production it needed from SI; conversely SI would have had unsaleable stocks, which would have appeared as "over-production" in spite of the economy's poverty. In our second case, although PI could, at least under some arrangements of the various exchanges, realize $PIc(g)$, the circulation process would break down somewhere else. We have not even considered the case where the petty-commodity sector might interrupt the circuit of exchange by increasing its consumption of its own products, or by hoarding money and making up certain physical deficiencies in its elements of production by cutting its fund of consumption (we should not forget that many peasant agricultural products can serve alternatively as means of production or means of consumption). We have taken the system "on its own terms," so to speak, and seen that disruptions can occur even if all the natural components of production in all departments are produced in the proper proportions.

In such a case as our second example, we could overcome the problem by exporting the surplus means of consumption of whatever department had them, and by importing means of consumption of the necessary type (depending upon which would most readily facilitate the completion of the required exchanges). This closely relates to some of the difficulties that arise in the reproduction of the consumption fund of both departments II, and we will put off any further consideration of this until then. Foreign trade would be a very definite way out of the dilemma if the breakdown of circulation had resulted in a shortage of means of production. The state could have purchased PI's surplus means

of production and exported them, either for foreign currency or for additional means of production; it could either have given the latter to PI, or issued an agricultural credit directly right at the start, which would have allowed PI to buy what it needed from SI without any delay.

It is obviously much easier for the state to correct disproportionalities that arise out of circulation than a capitalist economy. The centralized credit system would help alleviate "over-production" by making SI's surplus goods immediately accessible to P. Conversely, a temporary inability of SI to realize some of its fund of non-productive consumption, or a temporary accumulation of unsold stocks would not cause the same cutbacks in production and a general crisis as it would under capitalism. The matter would be different if took a more historically realistic scheme, where the goods famine arises directly out of production in SI. There, if SI buys less from PI than the latter needs from SI, even if all the essential exchanges took place between SII and SI, and between SII and PI, PI could not realize the $I_c(g)$ portion of its constant capital, because the means of production simply *would not exist*.

We can illustrate this case very briefly. All we need to do is re-arrange SII_c from $(2500_g + 1500_p)$ to $(3000_g + 1000_p)$. Then we have the same example we first derived in Chapter 2, where all the conditions of simple reproduction were satisfied, except for the internal exchange in the respective departments I. A more interesting example would be if we kept $SII_c(p)$ the same, and simply increased its constant capital by adding means of production from SI. Then SII_c would equal $(3000_g + 1500_p)$. In this case all of SI's fund of non-productive consumption is realized, that is, it acquires the necessary quantity of means of consumption from SII, and sells their equivalent in means of production in exchange. It has no stocks of unsold means of production. If that happens, SII could purchase 1500 means of production in

p without too much trouble. It would merely buy the 1000g of PI's consumption fund plus the 500 of its constant capital it could not realize in SI. Then PI would have 1500 in money and would purchase 1000 means of consumption from SII, leaving it with the same money hoard of 500 it had before. *Only this time SI does not have the means of production to sell.* PI has an accumulation of money which it cannot use to purchase anything. In this case PI will have to cut back production, due to an insufficiency of industrial means of production. SII's supply of raw materials will not keep pace with the demands of accumulation. If PI's output of means of production exceeds the demands of all three departments and it has exportable surpluses, then we can, as we noted before, employ the world market as a means of acquiring the means of production PI must have. If these surpluses are inadequate, then the goods famine will persist until either SI or PI can raise its output beyond the level demanded by other departments.

It is extremely interesting to note the effect of non-equivalent exchange here. *It tends to exacerbate the crisis.* If prices on state products were lowered, it would be far easier for PI to purchase a greater quantity of means of production from SI for the same amount of its own commodities. Non-equivalence means that SI purchases the component of its fund of non-productive consumption that comes from P relatively cheaply, and sells its products at relatively high prices. It gets more from P than it gives in exchange. This is certainly a contradiction of the Soviet economy at this period in its development. It cannot abandon non-equivalent exchange, because the entire mechanism of accumulation in the state sector, and the latter's effort to subordinate petty production rest on it. By the same token, non-equivalent exchange helps deepen the goods famine and weaken the position of the proletarian state: It hampers expanded reproduction in the peasant sector and aggravates the social and political discontent among those class forces

whose interestes would be better served by the overthrow of the Soviet regime.³

The Reproduction of the Consumption Fund and Surplus Product of PI:

The reproduction of both these categories is fairly free of complications, and we will add little to what Preobrazhensky had to say on the matter. The consumption fund of PI exists in the physical form of means of production--and it must exchange these against IIc of all three sectors (see the reproduction scheme between pages 305 and 306). If we look at our own scheme on page 339, we see one aspect of the consumption fund which Preobrazhensky does not mention. This^{is}/simply that the more PI contracts its personal consumption, while maintaining the same absolute volume of *what it produces for exchange*, the easier it will be for it to make up any deficits it encounters in its acquisition of means of production from SI. It should be sufficiently obvious from our previous discussion that this would allow PI to sell more to PII and to SII than it purchased in return, thus enabling PI to acquire the monetary hoard it needs to purchase means of production from SI. We need not dwell on this point at great length, except to add that it is true only if all of the other prerequisites are satisfied: E.g., that PI can obtain these means of production, either through foreign trade and Vneshtorg, or via the roundabout process of circulation that characterizes the Soviet economy.

The surplus product of PI is a little more complex. It divides into three parts: Non-productive consumption (taxes, the portion that goes to maintain the state apparatus, expenditures on trade, etc.); the part expropriated for the fund of socialist accumulation; and the fund of accumulation within PI proper. PI's product which goes towards non-productive consumption cannot be alienated in direct form, since it exists as means of production, which cannot be personally consumed--the

one exception being peasant-produced raw materials for military-related industry which can immediately enter production. Therefore this portion of the surplus product must be exchanged against IIc in the various sectors. In real terms, of course, the state would obtain most of this product through non-equivalent exchange, where it would enter as means of production in department II of the state sector, and in this way contribute to the latter's production of means of consumption for the state's non-productive workers; or alternatively, the state would obtain an *equivalent* for this part of PI's surplus product indirectly through exchange with other departments. The only other question of interest is the accumulated part of PI's surplus product. It must go to augment both the constant capital and consumption fund of PI, and each of these in turn will necessitate a quite variegated circuit of exchange to allow PI to obtain all these elements of reproduction in the correct natural form. We will take up the question of the reproduction of the expropriated part of the surplus product, PIs(ex), separately at the end of this chapter.

The Reproduction of PIIc: According to Preobrazhensky the constant capital of PII has the peculiarity of being reproduced largely within its own department. This is because so much of it consists of natural by-products of peasant agricultural production of means of consumption (Preobrazhensky enumerates such things as: Seeds, manure, feed, breeding livestock, etc.). Earlier, in VKA 17, Preobrazhensky claimed that it was PII which was the most insulated from whatever disproportionalities might arise in the process of reproduction. Being technologically the most backward, it could compensate for many of the difficulties it might encounter in marketing its production by altering its consumption fund and relying more or less upon its own production for its needs, as the situation would demand.⁴ This is no less true in the present instance.

This may in turn pose very definite difficulties in the realization of the products of all the other sectors which depend upon PIIc, either directly or indirectly, to mediate their mutual exchange--that is, those departments that must first realize part of their product through exchange against PIIc. Most immediately affected would be SI and PI, which must renew part of their variable capital and consumption fund, respectively, in exchange for means of consumption of peasant origin. In view of the relationship we derived for the reproduction of PIc(g), which depends on rather strict proportionality between the demands of SII and PII for means of production from PI, on the one hand, and PI's deficit of means of production from SI, on the other, we see the importance of the failure of the Soviet state to progressively industrialize agriculture and undermine the basis of petty production. Only by eliminating petty production, and placing agriculture on a collectivized, modern footing could the state sector free itself from dependence upon the fluctuations and irregularities common to department II of the petty-commodity sector.

The other part of PIIc presents little trouble analytically. It consists of means of consumption and PII must exchange it against the consumption funds of SI and PI, which have the shape of means of production. The mechanics of this process have been dealt with, albeit indirectly, in the course of our discussion of the reproduction of PIc.

The Reproduction of the Consumption Fund of PII: The reproduction of PII's consumption fund presents the same theoretical problems as the reproduction of PIc(g). There we saw that as soon as we introduced mutual exchange between departments I of both S and P, reproduction could only take place through an intricate series of exchanges. This sharply increased the possibility of crisis in the economy, so much so, that if the respective demands of SII and PII for state- and peasant-produced means of production were not of the appropriate proportions,

exchange could not completely take place and we would have a hoard of money and a stock of unsold means of consumption in the system. In the case where we examine the mutual exchange between SII and PII for means of consumption we obtain the identical result, with the crucial exception that we have a stock of unsold *means of production* wherever we have an interruption of circulation, and so a cutback of production in one of the departments II is necessary.

A glance at Preobrazhensky's scheme tells us that the major part of the consumption fund of PII is reproduced *in natura* within PII itself. Nevertheless, it must still enter into limited exchange with SII. In the scheme we produced on page 345 we had mutual internal exchange between these two departments; not only that, but SII purchased from PII exactly what PII bought from SII--1750 in both cases. Suppose that instead of the imbalance between SI and PI our scheme showed one between SII and PII. It would look like the following (we eliminate the accumulated portions of the surplus products for simplicity):

SI. $(5000_g + 1000_p)c + (2000_g + 2000_p)v + (1000_g + 1000_p)s/x$
 SII. $(3000_g + 1000_p)c + (1250_g + 1250_p)v + (1000_g + 250_p)s/x$
 PI. $(1000_g + 2000_p)c + (750_g + 1250_p)$ consumption fund
 PII. $(3000_g + 1000_p)c + (1750_g + 2000_p)$ consumption fund

Here SII needs only 1500 in means of consumption from PII, while the latter needs 1750 from SII, as before. We can relieve the disproportion the same way as with $PIc(g)$, i.e., through a complicated process of circulation which involves all the departments in the economy. SII will purchase 1500 means of consumption from PII for money; PII will purchase 1500 means of consumption from SII. PII clearly has 250 means of consumption left unsold, and has a deficit of industrially-manufactured means of consumption of the same amount. Exchange then takes place precisely as we saw it earlier.

SII requires 1000 means of production from the petty-commodity

sector, from PI. It buys these with money. Since PI needs only 750 of SII's means of consumption, this transaction is only possible because PI has 250 unsold means of production left over from its exchange with PII. Once PI buys the means of consumption it needs from SII, it has 250 in money left over. As to PI's exchange with PII, PI needs 1250 of PII's means of consumption, which the latter must sell in order to replenish the part of its constant capital that comes from PI. The difficulty is that PII has a total *c* of 4000, and has already sold 3000 of these commodities to SI (which needed them to renew part of its variable capital and fund of non-productive consumption). It can still provide PI with what the latter needs, because it has 250 of unsold means of consumption which it could not dispose of in SII. It sells a total of 1250 to PI, and in return gets 1000 of peasant means of production, which it can use to restore the rest of its constant capital, plus 250 in money, which PI had received from SII. Finally, PII can use this money to purchase the 250 in means of consumption from SII: a) Because it has acquired this money through other transactions; b) because SII still has 250 in means of consumption available from when PI did not purchase the full equivalent of what it had sold to SII. Everything then turns out all right. All the necessary goods have been exchanged, and the money that SII advanced when it made a purchase from PI without a subsequent sale, has returned to it.

As in the case of the disproportionality in the exchange of means of production between PI and SI, the exchange only works out because *the same department* mediated the transactions between SII and PII. In this case it was PI. PI sold more to SII than it bought, and bought more from PII than it sold. It was only because of this that PII could obtain the money it required to buy from SII the goods it could not purchase through direct exchange. If we had located the disproportions differently, say PI still had to purchase more from PII than it sold,

but that it was SI which bought less from SII than the latter purchased in return, then circulation could not have been completed. Because the discrepancies between purchases and sales involved goods of different physical forms, we would have a money hoard in SII and unsold means of production in PI. Worse still, this money hoard in SII would represent a deficit in means of production from SI.⁵ Even in our first example we see that the solution involves the other departments I shifting away from consumption of state-produced means of consumption towards those of PII--after all, PII can only obtain the money it needs if it increases its sales of means of consumption to other departments.

There is one crucial difference between internal exchange between the two departments I and that between the two departments II. In the former, we could make up the disproportion through foreign trade. We could export PI's surplus production and import agricultural machines from the West; and we could do this even if the goods famine of SI's products was fairly severe, *so long as PI had the agricultural surpluses which the state could procure and market abroad.* In theory we could do the same thing here. The state could simply purchase PII's unsold product on credit or by issuing notes, and market it abroad for the means of consumption that SII could not produce in sufficient quantity. Preobrazhensky was quick to warn, however, that this may be technically possible, given the nature of our reproduction schemes and the world market demand for grain, but it is not economically or politically feasible for the specific economy of the USSR.

Because the state sector suffers a chronic deficiency of means of production it cannot afford to use a large part of the export fund to import means of consumption. First of all, given the shortage of state-produced means of consumption it could only acquire PII's surplus production by first advancing either money to PII (which the latter could not immediately use) or, more realistically, by advancing funds to the import fund, with which the state could purchase the needed means of

consumption abroad. The share of the import fund set aside for foreign means of production would diminish, and the goods famine of means of production would persist longer and more sharply than would otherwise be the case. Second, the state does not enjoy the luxury of being able to devote any significant part of the import fund to means of consumption, even if no advances were necessary. Preobrazhensky mentions the theoretical possibility that the foreign currency received by the state when it marketed PII's products abroad could go to both means of production and means of consumption--this is especially true if the state acquires the latter at cheaper world market prices and sells them more expensively domestically. As Preobrazhensky points out, however, such a solution only partially mitigates the problem, but does not eliminate what it. It still implies slowing down the rate of accumulation in SI from/ would be possible if these funds were not diverted into the purchase of means of consumption. Consequently, PII's marketable production will run systematically ahead of SII's ability to satisfy PII's demand for means of consumption of the state sector. We will then have a goods famine of means of consumption, and PII will begin the familiar process of going over to *in natura* consumption of its own products and decreasing its production for the market. The only compensation for the Soviet state is a purely negative one. The state can fix procurement prices and keep them stable. It can, says Preobrazhensky, keep them stable at a low level largely because P has marketable production that it cannot sell; in short, this is the "result of the obstruction of the development of agriculture in the sphere of production of means of consumption, an obstruction which stems from the underdeveloped nature of our industry and inadequate actual accumulation within it,"⁶

The Reproduction of the Surplus Product of PII: The reproduction of PII's surplus is virtually identical to that of PI. The only exception

is that it exists in the natural form of means of consumption of peasant origin, largely grains and other farm products, as well as certain goods of handicraft industry. This fact means that as far as the fund of non-productive consumption is concerned, the state can alienate a large part of these goods directly. In terms of the accumulated part of PII's surplus product, it will be reproduced just as PIIc and the consumption fund, with the same peculiarity that a great deal of the portion that goes to increase constant capital is reproduced within PII itself.

The Reproduction of Non-Productive Consumption: In discussing the reproduction of the various constituents of production of the individual departments we have pointed out how non-productive consumption functions differently for each. For the departments of P it consists of means of production or means of consumption which are lost to the non-productive population. This would include expenditures on private trade, as well as the part of the petty-commodity sector's product that the state alienates to support the Soviet administrative apparatus, the military, and other non-productive workers. This fund of non-productive consumption is lost to P, when it could have gone either to increase its accumulation or to raise the level of consumption of the petty producers.

In the state sector non-productive consumption functions differently. It replaces the category s/x in capitalist expanded reproduction, and consequently embodies certain contradictions. To illustrate this Preobrazhensky chose Marx's initial scheme for expanded reproduction. Like the case where the organic composition of capital rises, ^{is} this/an inadequate example, since the organic composition of capital is unequal in the two departments, and this obscures the effects of a change in the division of SI's surplus product between what is accumu-

lated and what is personally consumed.

Preobrazhensky wanted to show that if the share of non-productive consumption fell in the state sector (which was to be expected with the elimination of the capitalist class and the Tsarist bureaucracy), and thereby increased the portion of the surplus product that is accumulated, then this would exacerbate the goods famine in the short run. The reasons are virtually identical to those associated with a rise in the organic composition of capital. In department I it would lower the consumption fund; at the other end, in department II, it would raise the demand for means of production. Yet we must emphasize that this is entirely a short-term disproportion, which arises *solely* from the new arrangement of the productive capital in the state sector that this fall in the consumed part of s brings about. If the fall in the percentage of s going to non-productive consumption was uniform in both departments (say, from 50% to 25%), and if their organic compositions of capital were the same, then their respective rates of accumulation and growth will be the same as well. This much we know from our algebraic presentation of accumulation in Chapter 4 (pp. 169-71, above). By way of illustrating the present problem, let us take Marx's original scheme, and adjust the capital in department II, so that the organic composition of capital is equal in the two departments (as we did on p. 171, above). At the same time, let us divide up the surplus product (assuming it is a scheme for the state sector) between s/x and $s(a)$ in the proportion of 1:3. Production in the state sector will then be:

$$\begin{array}{l} \text{I. } 4000c + 1000v + 250s/x + 750s(a) \\ \text{II. } 1500c + 375v + 93.75s/x + 281.25s(a) \end{array}$$

$I(v+s/x)$ has fallen to 1250; IIc is unchanged at 1500. If we were to carry out accumulation and production in the following year we would have:

$$\begin{array}{l} \text{I. } 4600c + 1150v + 287.5s/x + 862.5s(a) \\ \text{II. } 1725c + 431.25v + 107.8s/x + 323.4s(a) \end{array}$$

$I(v+s/x) = 1437.5$. $IIC = 1725$, so there is a rather massive deficit of 287.5. What would be necessary would be a rearrangement of the productive forces in the state sector as a whole, so that proportionality was re-established between $I(v+s/x)$ and IIC . Then, given the conditions we have assumed, i.e., equal organic compositions of capital and equal, though larger, rates of accumulation, proportionality would be maintained with each successive period of expanded reproduction.

What is important is to note that a decrease in the state's non-productive consumption is a progressive step for the economy. Yet, as with the process of accumulation needed to restore its depleted fixed capital, in the short run it aggravates existing shortages of means of production. However, as Preobrazhensky himself noted, this dislocation would be temporary. It would be a necessary phase in the reconstruction process that would strengthen the economy's ability to provide these essential means of production in the future.⁷ To show this we need only examine what would take place over a series of years if non-productive consumption fell in department I, while everything in department II stayed as before. Initially $I(v+s/x)$ would, as we observed, fall to 1250, 250 short of IIC . We already know what department I will look like after accumulation and a year's production. Department II, on the basis of a rate of accumulation of 50%, will have $s(a)$ equal to 187.5 and will devote four-fifths of this (150) to augment IIC , bringing the latter to 1650. The deficit is actually reduced to 212.5. In the following year, maintaining these respective rates of accumulation in each department, we would have:

- I. $5290c + 1322.5v + 330.6s/x + 991.9s(a)$
- II. $1815c + 453.75v + 226.87s/x + 226.87s(a)$

The deficit falls still further to 161.9. Thus we see that this disproportion, which would persist for some years, lays the basis not only for eventually overcoming it, but for increasing the supply of means of

production from there on.

In his own discussion of this question Preobrazhensky added that this increased accumulation in the state sector will cause further complications with regard to the state sector's relations with the countryside. For by increasing accumulation in the state sector's department II, the rise in accumulation brings with it an increased demand for raw materials, which will soon outpace the capacity of department I of the peasant sector to keep up. Now, the crisis in supply of industrial means of production arising from *this particular* cause will be abated over time. This is not so with regard to the supply of raw materials. The fall in non-productive consumption in the state sector will have no effect on accumulation in P, except to the extent that the state's long-term output of machines, fertilizers, and other means of production needed in the countryside, will allow the easier and more rapid modernization of agriculture in the future. Yet the logic of the situation indicates that the bottleneck in the *general* supply of means of production coming from agriculture, mainly raw materials, will become quite severe. As with other factors we have seen to worsen the goods famine, the state would inevitably have to alleviate at least part of its shortage of means of production for its own department II by cutting back its production for agriculture. Thus, at precisely the moment when, given a tendency for accumulation in SII to go up, the output of industrial crops must increase, the state sector's department I will have to cut back the amount of means of production it can make available to the peasantry.

As with non-equivalent exchange, the state sector could ease the problem by reducing the share of its non-productive consumption covered via alienation of values from the peasantry. This would give the latter more resources for accumulation. This solution would soon undermine whatever short-term benefits it might produce. In the first place,

it would mean the *de facto* abandonment of the policy of primitive socialist accumulation, without which the state economy would be doomed to stagnation and eventual disintegration. Second, it could only stimulate expansion in P at the expense of accumulation by the state economy off of the countryside. What the state gained by increasing its own rate of accumulation it would lose by reducing another, equally vital source of accumulation. The result would be that production in P would expand, well enough, while that in S would remain very much the same. Now, if P's output cannot be *exchanged* for products of state industry, then the petty producers will soon stop devoting their increased surplus to accumulation and expansion of production, and will put it towards their own *in natura* consumption. The state will lose part of its socialist accumulation fund, and agriculture will not boost its own production, since its increased output would be unmarketable.⁸

By the same token, an actual increase in the share of non-productive consumption in the state sector would--again temporarily--ease the goods famine. It would blunt accumulation in department II, while momentarily raising the exchange fund of department I. But all of this would stifle the growth of the state sector as a whole in the long run. This result is perfectly consistent with others we have found. Along with the need to maintain non-equivalent exchange and to restore the economy's stock of fixed capital, the tendency towards reducing non-productive consumption in post-capitalist society⁹--which is necessary and progressive--only heightens the crisis in the short term.

The Reproduction of the Part of the Surplus Product of the Peasant Sector Expropriated for the Fund of Primitive Socialist Accumulation
[Ps(ex)]: When we began our discussion of the circulation process and drew our reproduction scheme on page 339, we stated that the inclusion of the category Ps(ex), the part of the surplus product of the petty-

of commodity sector alienated for the fund/socialist accumulation, would add a great deal of complexity to any numerical analysis. As such we had to momentarily abstract from any consideration of it until a later stage. We did this by assuming that all of the alienated surplus product of P was obtained through non-equivalent exchange, and was already taken into account by our figures. This is only a simplifying assumption that we must now abandon. First of all, the presumption that non-equivalent exchange can be perfectly reflected in the state's procurement and disposal prices, which we would use in any concrete numerical analysis of reproduction, is not entirely valid. We must continue to use this abstraction, however, because to go beyond it would mean having to fully develop the question of whether or not, and to what extent prices of production are applicable to the Soviet system. We have already stated the problems involved in this regard, and will not repeat them.¹⁰

Secondly, as we stated when first mentioning the subject, some of the expropriated surplus product is alienated directly. We ignored this fact in order to more clearly demonstrate the basic tendencies of the circulation process. Having done this we are now in a position to drop this part of our original abstraction, at least to the extent of qualitatively describing what effect the inclusion of this portion of $P_s(ex)$ will have upon expanded reproduction.

If we look at the reproduction scheme on page 339 we see that $P_s(ex)$ will actually be added to the equations for S. It can in principle be divided up into the three basic categories of reproduction in each department of S. Some can go directly to maintain the non-productive workers of S, i.e., will go immediately into the fund of consumption in each department. To this extent we have our usual distinction between the surplus product alienated from PI, which has the material form of means of production, and that obtained from PII, which exists

in the shape of means of consumption. The goods received from $PIs(ex)$ --either *in natura* or via a monetary equivalent (e.g., as taxes)--can function directly as means of production to expand the output of means of consumption to be consumed by the non-productive workers of the state sector. For SI they will represent an addition to the exchange fund, s/x ; for SII they can serve directly as means of production. To the extent that the alienated products do not exist in the proper physical form they can be exported, and the needed goods--probably means of production--imported. The goods received from PII can function directly as means of consumption for the non-productive workers of both SI and SII. Once again, should they not all be in usable physical form we will have them exported and the required goods imported.

The part of $Ps(ex)$ that is accumulated is far more interesting, for the possible uses of this portion of the alienated product each bring different results with them. Like any other aspect of the non-productive consumption fund, any increment to it will in the short run help relieve the goods famine of means of production, by increasing SI_s/x . This is clearly true in our case here. The accumulated portion of $Ps(ex)$ is quite another story. It will have to be divided up between SI and SII, and between c and v . If the bulk of this fund goes to SII, then this can only exacerbate the goods famine, because SII_c will rise while the exchange fund of SI will stay relatively the same. On the other hand, to the extent that SII_v as a whole rises, it will raise the demand among workers in that department for commodities produced in PII and will thus mollify the goods famine of industrially-produced means of consumption. This puts us back in the same old contradiction--the fact that the goods famine of means of consumption cannot be solved except at the expense of aggravating the goods famine of state-produced means of production, and vice versa.

If the accumulated share of $Ps(ex)$ is primarily devoted to SI,

then we have just the opposite result. It will ease the goods famine of means of production from SI (again, only by first exporting the products of peasant agriculture and importing technologically advanced means of production from the West), since part of the accumulated values will go to increase SIv. Perhaps more important is the fact that the portion that goes to augment SIc can, at least in theory, go a long way towards alleviating the contradiction we saw earlier--that is, that so much of SI's constant capital had to be completely renewed at one time, that there would be a discontinuity in this process, and a massive quantity of values would have to be invested in this replacement without yielding any output in the short term.

We should note that the fundamental contradiction we detailed in the previous section, when we outlined the reproduction of the fund of non-productive consumption, is mirrored almost exactly in the reproduction of $Ps(ex)$. Obviously if a given quantity of the alienated peasant surplus product goes to increase the fund of non-productive consumption in SI, this will do far more *in the short run* to overcome the goods famine of means of production than if this same amount were accumulated. In the latter instance only a small fraction would enter into SI's exchange fund, the part that went to increase SIv. This is true even when we consider that the absolute growth of SIc will bring with it an automatic rise in that department's demand for means of production originating in PI--which will help relieve the imbalance of exchange between these two departments: The bulk of the additional increment in SIc produced within that department will consist of industrial fixed capital, so that it will have to purchase more raw materials, etc., from PI.

By the same token, if the portion of $Ps(ex)$ that goes into SII is used mainly to expand that department's consumption fund, e.g., to raise the wages of its workers or to increase the fund on non-productive

consumption, this will, by purely negative means, hold down SII's demand for new state-produced constant capital. Conversely, if accumulation in SII has priority over any increase in its fund of consumption this will, as already noted, only worsen the shortage of state means of production.

It is when we look at the relation between $Ps(ex)$ and expanded reproduction in P that we see the contradictions of the Soviet system most sharply. If this part of P's surplus product were not alienated for the fund of socialist accumulation then a great deal of it would go to expand production in both departments of P. This is a basic aim of the Soviet system--to promote the growth of agriculture. Yet we found earlier that this is only true if this growth of P does not outstrip that of S, for then it would greatly upset the balance in the economic relations between the two sectors which would, in political terms, mean a dangerous disruption in the balance of social forces within the country. This finds its economic expression in the fact that an expansion of P without a simultaneous growth of SI would only worsen the situation as regards the goods famine of means of production. P's demand for state-produced constant capital would go up with no increase in supply to match it. But this is only one symptom of the general dilemma that confronts the Soviet economy: *Industry cannot expand except at the expense of agriculture. As such this aspect of the reproduction schemes merely summarizes in algebraic form what Preobrazhensky had more completely described as the law of primitive socialist accumulation.* The state sector must accumulate, and in order to do so it must alienate values from the petty-commodity sector. In our schemes the category $Ps(ex)$ can serve this function, but it need not necessarily do so. This, as we have shown in the present discussion, is a function of the size of $Ps(ex)$ and its division between consumption and accumulation, on the one hand, and between the production of means of con-

sumption and means of production on the other. A long-term solution demands an emphasis upon accumulation and the production of means of production. Here, for instance, the expropriated surplus product can serve as a means of transferring social capital from production of means of consumption to that of means of production. If $PIIs(ex)$, or a large part of it, were exported, and means of production imported, this is precisely what we would have. In all cases it serves as a vehicle for transferring values from P to S.

Yet a policy in favor of industrial accumulation must be consciously adopted. As we will show in more detail below, this means foregoing short-term remedies. Conversely, an accent upon using $Ps(ex)$ to increase consumption and production of means of consumption would represent a "solution" to the goods famine dictated by the immediate needs of the peasantry and would condemn the country's overall economic and social development to permanent distortion.¹¹

Conclusion

Preobrazhensky summarized the results of his analysis of the circulation and reproduction of the component parts of the product of each sector in the following relationships:

If in the Soviet economy IIC of the state sector plus IIC of the private sector, minus the means of production which department II of the combined private sector obtains within its own department, is equal to v plus the non-productive consumption of department I of the state sector, plus the consumption fund and the non-productive consumption fund of department I of the combined private sector, then: 1) When department I of the combined private sector suffers a deficit of means of production of department I of the state sector, the disproportion may be eliminated only on the basis of ties with the world economy; 2) that part of the consumption fund of department II of the combined private sector which consists of means of consumption from state light industry must equal the part of the wages fund of department II of the state sector which consists of means of consumption purchased from department II of the private sector with wages--that is, the part that to a very great extent consists of means of consumption of peasant production; 3) if internal exchange of the consumption fund of department II of the combined private sector against a corresponding portion of IIV of the state sector reveals an excess of demand on the part of the private sector, the disproportion may be solved

either with the aid of ties with the foreign market, or by redistributing the national income in such a way as to provide resources for additional development of department II of the state sector--a solution which, however, would require an even more rapid development of heavy industry; 4) if the disproportion in the economy cannot be solved in any of these ways, a goods famine arises throughout the private economy, affecting both means of production and means of consumption produced in the state economy.¹²

We should examine this passage in more detail. Preobrazhensky's first conclusion is that if the general condition of equilibrium--that society's aggregate I_{lc} equals its aggregate fund of consumption $[(v+s/x)$ in Marx's schemes]--is satisfied, and if $SI_{lc}(p)$ is less than $PI_{lc}(g)$ (i.e., department I of the state sector requires fewer means of production of peasant origin than the other way around), then the deficit can only be made up if the Soviet economy has access to the world market. We now know that the relationship is even more precise than Preobrazhensky specified. If the disproportion arises solely within the sphere of circulation, then it can be overcome only if *one department purchases more from PI than PI buys in return*, and if this difference equals the amount of PI's deficit with SI. If the goods famine of state-produced means of production stems from an insufficiency of production within SI, then it can only be liquidated through foreign trade *if adequate exportable surpluses already exist in the peasant sector*. In other words, the goods famine need not originate solely within the realm of production. If the department II which mediates exchange between PI and SI does not purchase enough means of production from PI so that the latter has a sufficient hoard of money, then, even though SI may have produced the right quantity of means of production for the society as a whole, all of the necessary exchanges will not take place and PI's deficit will persist. In this case, however, it is considerably easier for the state to intervene and eliminate the crisis through the planned use of agricultural credit.

His second conclusion is that, in the terms of our reproduction

scheme on page 357, the part of PII's consumption fund which it obtains from SII, must equal the portion of $SII(v+s/x)$ which comes from the peasant sector. If it does not, then the same rules of circulation apply as with PI-SI, providing that the necessary means of consumption exist, and that the problem arises only in the process of circulation. PII can obtain the needed means of consumption only if one of the departments I purchases less from SII than it sells to it, and buys more from PII than the latter buys back. If the various differentials of purchase and sale are not concentrated within one department I, then somewhere within the system a hoard of money will confront unsold means of production from one of the departments I, with a corresponding deficit of means of production from the other department I in one of the departments II. Once again, so long as the problem is one of circulation, the state can intervene via a judicious credit policy and through its access to the world market.

Related to this, Preobrazhensky's third conclusion is historically contingent. Foreign trade is not a viable way out of this particular dilemma in the USSR's present circumstances. This is because any excess means of consumption it exports will not fully--or even predominantly--go to import industrially-produced means of consumption from the West. The foreign currency the state obtains from such exports will have to go overwhelmingly towards the import of means of production for departments I of both S and P.

We should also mention the contradictory role we have found both non-equivalent exchange and non-productive consumption to play. The maintenance of non-equivalence and the diminution of non-productive expenditure are two of the bedrocks of the state's policy of accumulation. Yet each aggravates the goods famine in the short run. This is no accident, nor an artifact of our schemes of expanded reproduction. The process of accumulation involves a great number of difficulties and

contradictions for the state sector precisely because it takes place on the foundations of a backward economy which does not possess adequate material resources for industrialization. This fact, plus the dominant weight of petty production--which, if left to itself, would spontaneously develop along different lines than in a mixed commodity-socialist economy--mean that any *short-term* equilibrium can only be attained at *the expense of the state sector's future growth and by reinforcing the entire legacy of backwardness that the state is trying to overcome.*

We have seen other ways in which the process of accumulation exacerbates the economic crisis in the immediate period. Our analysis suggests that left to itself, industrialization under conditions of proper proportionality--not to mention the constant political advance towards the socialization of society--is impossible. What remains is to apply what we have discovered so far, both in terms of the general tendencies of accumulation and the specific movements of the elements of the industrial capital of the different sectors--to an analysis of expanded reproduction and to our previous analysis of the accumulation of fixed capital. There we will see that the basic conditions of exchange under the circumstances of the Soviet goods famine directly contradict the conditions of accumulation.

NOTES TO CHAPTER 11

1. VKA 22, p. 48 (Spulber, p. 148). Emphasis added.
2. About this problem, Preobrazhensky noted the following: "For the time being we will disregard the question of how to calculate reproduction which is complicated by the alienation of the surplus value of the capitalist sector and the surplus product of the petty bourgeois sector into the socialist accumulation fund. This is a methodological problem of major importance. Its solution brings up the question of the relationship between domestic prices and those on the world market." (VKA 22, p. 32, fn). We have given a detailed discussion of this problem on pp. 365-70, below.
3. There is a difference between offering state-produced means of production cheaply to the peasant sector, via planned use of agricultural credit, and abandoning non-equivalent exchange. The former is essential to any policy of industrialization and modernization

of agriculture, but would only be possible on a sustained basis if the general structure of non-equivalence is preserved as a source of primitive socialist accumulation. For an earlier discussion of how the elimination of non-equivalent exchange could relieve the goods famine in the short run, see "Ekonomicheskie Zametki III," p. 76.

4. VKA 17, p. 43.

5. Suppose we alter the scheme so that PI purchases more from PII than it sells, but it is SI which purchases less from SII than vice versa:

SI. $(5000_g + 1000_p)c + (2000_g + 2000_p)v + (750_g + 1000_p)s/x$
 SII. $(3000_g + 1000_p)c + (1250_g + 1250_p)v + (1000_g + 250_p)s/x$
 PI. $(1000_g + 2000_p)c + (1000_g + 1250_p)$ consumption fund
 PII. $(3000_g + 1000_p)c + (1750_g + 2000_p)$ consumption fund

PII has 250 unsold means of consumption which it must exchange for money somewhere in the economy, so that it can then purchase 250 in means of consumption from SII, which it cannot obtain through direct exchange. This much is the same as before. Only this time SII has a deficit not of peasant means of production, but of those of state industry. It sells only 2750 of its 3000 IIc(g) to SI, since the latter needs only that many means of consumption from SII. SII cannot make these up, let's say, by selling more means of consumption to PI than the latter will provide in means of production, because exchange between the two is now in balance.

Similarly, PII can meet PI's demand for means of consumption of peasant origin only if we assume that PI has a hoard of money it can advance, since it will buy 1250 from PII but sell only 1000 means of production back to it. But then PI will still have 250 unsold means of production. PII can use the money it obtains from PI to purchase the extra means of consumption it needs from SII, which has them available as a result of the imbalance in its exchange with SI. What we have left over is that SII has money worth 250 and a shortage of the same amount of means of production of state industry. PI has 250 unsold means of production and has advanced 250 in money which it cannot get back. Reproduction cannot continue on the old scale. SII would have to alter the technical makeup of its production, lessen its demand for industrial means of production and increase its productive consumption of means of production from PI, i.e., SII would have to assume a relatively more backward form of production.

6. VKA 22, p. 56 (Spulber, pp. 156-57).

7. *Ibid*, p. 59 (Spulber, p. 161). "...the transition to a lower level of non-productive consumption and to a higher level of accumulation...inevitably alters the proportions of exchange between departments I and II, increasing department II's demand for means of production and decreasing their temporary supply. In that case, the country's economy becomes more progressive from the standpoint of the development of the productive forces, the surplus product grows throughout society, the aggregate gross and net output of society grows faster, and accumulation grows more rapidly; but the actual transition onto the new path--the growth of

the relative share of department I--has to cause a temporary disproportion throughout the economy." (Original emphasis).

8. This case is identical to the growth in the peasant budget after the Revolution and the elimination of the peasantry's old obligations to the state and the landowning class. The peasantry had more monetary resources, while the supply of commodities on whose purchase this money could be spent declined with the war and the Civil War. Thus there was less incentive for the peasantry to increase its output. For Preobrazhensky's analysis of this phenomenon as a major source of the goods famine, see "Ekonicheskie Zametki I--O Tovarnom Golode" ("Economic Notes I--On the Goods Famine"), in *Pravda*, December 15, 1925.
9. In reality we must make certain modifications in the assumption that non-productive consumption will fall with the overthrow of the capitalist regime. Preobrazhensky cautions that the Soviet state will continue to have considerable non-productive expenses, although these will tend to decline over time as the administration becomes more efficient and the needs of defense go down with an end to the country's capitalist encirclement. But these points were well into the future, even hypothetically--and as we know they remained as such in the real historical development of the USSR. Nevertheless, Preobrazhensky had uncovered an important tendency in the economy. If non-productive consumption declines as compared with the pre-revolutionary level, this will demand a new division of social labor from before (independent of those factors which also call for a new kind of proportionality from what pertained under capitalism). Yet there is no denying that the fall in non-productive consumption had quite definite political prerequisites--primarily the defeat of the bureaucracy and the evolution of proletarian democracy.
10. Pages 335-36, Note 25.
11. If we recognize that the policy of drift which the Stalin-Bukharin group followed in the 1920's, with its concessions to the short-term interests of the peasantry (in particular, the better off peasantry), meant the persistence of the goods famine; and that this perpetuated the economic dislocations of the period and forestalled those actions which could have helped overcome the backwardness of the Soviet Union--policies which would have been both of an economic and political character--then we must see Stalin's "solution" and the consequent history of the USSR as just such a permanent distortion.
12. VKA 22, pp. 56-7 (Spulber, p. 158).

CHAPTER 12

THE ACCUMULATION OF FIXED CAPITAL UNDER CONCRETE CAPITALISM

When Preobrazhensky took up his analysis of expanded reproduction under concrete capitalism it was in order to see how capitalist penetration of the petty-commodity sector afforded the former a greater ability to overcome some of its inherent tendencies towards economic stagnation. He did this strictly at the level of a value analysis, and abstracted from the fact that the capitalist and petty commodity sectors produce qualitatively different kinds of products. Later, in VKA 22, he took up this question of the material exchange between sectors, but only at a fairly simple stage, and not within the context of expanded reproduction. Even here we had almost completely to reconstruct the analysis, using our own tools and deriving conclusions that Preobrazhensky himself had been unable to reach.

There is still one major gap in the analysis--not just Preobrazhensky's, but our own--that we have to fill in. Material disproportionalities must originate from somewhere and will be reproduced in a particular way. We have already seen one way this occurs in the reproduction of fixed capital. Conversely, if expanded reproduction is to proceed smoothly, society must account--to the extent that its level of technique and its specific social relations permit--for the manner in which particular use values enter into, and emerge from the processes of production and consumption. This we have also done in part, in our analysis of the replacement of fixed capital under simple reproduction and in our discussion of the goods famine and the reproduction of the product of the various sectors, in Chapter 11. We will see further that, in solving the problem of the accumulation of fixed capital under both concrete capitalism and in a commodity-socialist economy like the USSR, all departments of both sectors are affected, and that not

only their gross production, but its material composition, must constantly adapt to the need to maintain equilibrium in the system as a whole. Out of necessity we abandon the separation we have made up to now between our analyses of the volume of expanded reproduction, on the one hand, and that of the material aspects of exchange, on the other: Each imposes certain conditions on the process of expanded reproduction, which must be met *simultaneously* if economic activity is to go on without disruption.

For this part of our investigation we have slightly modified Preobrazhensky's scheme for "concrete" capitalism from VKA 17 (see above, Chapter 5, p. 194).

$$\text{KI. } 5000 \text{ fixed capital:} \\ 2000(500_f + 1500_c)c + 500v + 250s/x + 250s(a) = 3000$$

$$\text{KII. } 3000 \text{ fixed capital:} \\ 1200(300_f + 900_c)c + 300v + 150s/x + 150s(a) = 2000$$

$$\text{Total production in the capitalist sector} = 5000$$

$$\begin{array}{ll} \text{PI. } 1500c + 1500 \text{ consumption fund} = 3000 & \text{Total production} = 6150 \\ \text{PII. } 1050c + 2100 \text{ consumption fund} = 3150 \end{array}$$

We have broken KIc and KIIc down into their fixed and circulating components, assuming the same proportions as in our examples in Part III. Similarly, we have raised the organic composition of capital in KII, so that it is equal to that in KI. This will eliminate those disproportions that would have arisen from unequal organic compositions of capital, and will allow us to trace the effects of the accumulation of fixed capital in their "pure" form.

For the moment we leave out of account mutual exchange between KI and PI and between KII and PII. This assumes that there is no qualitative difference between the means of consumption produced by KII and PII. As for KI and PI, we assume that KI produces means of production that will serve both as fixed and as circulating constant capital, while PI produces only circulating capital, at least so far as its ex-

change with K is concerned. Both KI and PI are self-sufficient in constant capital, i.e., they produce all of their own means of production. It will be noticed that we have not broken PIc and PIIc down into fixed and circulating components, nor have we assumed any stocks of fixed capital in either department of P. This is realistic if we assume that P's technique is relatively backward and that its implements of labor all wear out and must be replaced within a year. Thus to speak of "fixed" capital, as of any form of "capital" *per se*, is entirely conditional when dealing with the petty-commodity sector. We can speak of fixed capital in a contingent sense, insofar as certain implements of labor will have a longer period of turnover than the commodities they produce, i.e., their value remains fixed, at least in part, outside the process of production and the immediate circulation of commodities. But on a yearly basis we have no distinction between fixed and circulating capital in the petty-commodity sector, as their periods of turnover are the same.¹

Later, in Chapter 13, we will modify these assumptions, and allow P to acquire means of production from the industrial sector (K or S), some of which will be fixed capital and whose lifetime will be greater than one year. There we will be able to trace out how, in the process of giving K or S greater ability to overcome its own imbalances, P's technique changes and creates a growing interdependence between department II of the industrial sector and PI on the one hand, and between PI and KI (or SI) on the other. These mutual inter-relationships of the different departments of each sector upon the material products of each other constitute the very crux of the Soviet goods famine, and our results provide a striking confirmation of Preobrazhensky's analysis in VKA 22.

Returning to our scheme on the preceding page, the changes we introduced into Preobrazhensky's original figures do not change the basic

conditions of equilibrium between the two sectors. Within K there is a deficit of means of production of 450, which is exactly offset by a surplus of means of production in P of the same amount. In the same way, if we carry out accumulation and extend production in K and P we get the same problem as in VKA 17: The growth in P is not enough to balance the rising shortage of means of production within K.

Accumulation in KI will see, out of $KI_s(a) = 250$, 178.6 go to new fixed capital, 53.6 to additional $KI_c(c)$, and 17.9 to increase KI_v . In KII the accumulation fund equals 150, and so 107.1 go for fixed capital, 32.1 for circulating constant capital, and 10.7 for addition to KII_v .

At the end of the year this gives:

KI. 5178.6 fixed capital:
 $2071.4(517.8_f + 1553.6_c)c + 517.9v + 259s/x + 259s(a)$

KII. 3107.1 fixed capital:
 $1242.8(310.7_f + 932.13_c)c + 310.7v + 155.4s/x + 155.4s(a)$

The deficit between II's demand for means of production and $I(v+s/x)$ has grown to 562.3. If P grows by two per cent, as in Preobrazhensky's example in VKA 17, then we have:

PI. $1530c + 1530$ consumption fund = 3060
 PII. $1071c + 2142$ consumption fund = 3213 Total production = 6273

P's balance for exchange with K rises by only nine, to 459, which falls way short of even the rise in K's deficit of means of production. Even if we follow Preobrazhensky's example further, and let all of the rise in P go to PI, this is not nearly enough:

PI. $1561.5c + 1561.5$ consumption fund = 3123
 PII. $1050c + 2100$ consumption fund = 3150 Total = 6273

The quantity of means of production PI would have available to exchange with KII would still equal only 511.5, leaving an overall shortage of better than 50. The rise in PI's exchange fund is only half of the growth in KII's shortage of means of production from KI.

We will recall that at this point Preobrazhensky solved the prob-

lem of under-accumulation in KI by effecting a transfer of productive resources within P, in such a way that the growth in PI was sufficient to offset the persistent under-production in KI. This sort of simple rearrangement of capital in the petty-commodity sector, which, as Preobrazhensky cautioned, would do only so long as we stayed inside the bounds of a simple value analysis, will no longer suffice. We must remember that KII's deficit is overwhelmingly one of fixed capital, which can only come from KI. There is no increase in PI that can alleviate this shortage, given its specific material form. But what if we allow KII to decrease the share of its constant circulating capital that comes from KI and purchase more of it from PI? Then perhaps there will be a rearrangement of production within P alone that, along with a parallel alteration in the *use forms* of the means of production produced by KI, would permit the capitalist sector to obtain all of the means of production it needs and in the correct material proportions.

Suppose that in our initial scheme on page 377, KI consists *in natura* of 125 fixed capital and 375 circulating constant capital, and that KI's/x is made up of 62.5 fixed capital and 187.5 circulating constant capital. In this case KII's deficit in material terms is 112.5 in fixed capital and 337.5 circulating constant capital. Assume further that in the next period some of KI's production is for advance orders on the part of KII, so that it begins to adapt the material composition of its output to KII's actual needs, say, fifty per cent of new $I(v+s/x)$ constituting machines, buildings, etc., and other means of production which will enter into KII's production as fixed capital, and fifty per cent being raw materials, intermediate products (e.g., steel, cloth, etc.) which will serve for KII as the circulating part of its constant capital. Therefore, of the 26.85 which makes up the additional $KI(v+s/x)$, about 13.4 will be fixed capital and 13.4 circulating. If we add up these figures we find that at the end of the

first year's production II requires some 407.1 in either new or replacement fixed capital and 932.1 in circulating constant capital. KI's supply of fixed capital, on the other hand, is 200.9, and its supply of circulating capital is 575.9. The total deficit then, equals 206.2 fixed capital and 356.2 circulating constant capital.

Let all of this 356.2 deficit in circulating capital come out of the 459 that PI has available for exchange with K. This leaves approximately 103 in raw materials, etc., which can function as elements of circulating capital in either KI or KII. If PI sells this 103 to KI, then the latter no longer has to reproduce this much circulating constant capital *in natura* within its own department, as part of KIc. For the moment let us assume (the implications of this assumption we will deal with presently) that with a modicum of difficulty KI has the reserves necessary to switch its production of this *value equivalent* of the circulating constant capital it obtains from PI to the production of fixed capital. It would then have 103 in fixed capital available for exchange with KII. In this way KII's deficit would be reduced to 103.2, or about 103.

Thus production in P must shift, so that it increases in PI and declines in PII, while satisfying these two conditions: a) There is an overall growth in P of 2%, and b) there is a marketable surplus of 206 in raw materials that PI can exchange with KI, or 562 in all.² We can determine the relative sizes of PI and PII with these two equations:

$$\begin{aligned} (1) \quad & PI + PII = 6273 \\ (2) \quad & 1/2 PI - 1/3 PII = 562 \end{aligned}$$

PI must equal 3183.6 and PII 3089.4, giving:

$$\begin{aligned} PI. \quad & 1591.8c + 1591.8 \text{ consumption fund} = 3183.6 \\ PII. \quad & 1029.8c + 2059.6 \text{ consumption fund} = 3089.4 \end{aligned} \quad \text{Total} = 6273$$

PI's consumption fund exceeds PIIc by 562. If PI sells 356 of this to KII to replace all of the constant portion of its circulating capital, then PI will have 206 left over to sell to KI. KI would then have this

same volume of newly produced fixed capital to sell to KII, thus making up the entire deficit.

To see how exchange would work out, we must break our scheme down further into the various components of each department's product that are exchanged with different sectors. This scheme is similar to those we used in Chapter 11, and the process of exchange in fact proceeds along similar lines.

$$\text{KI. } 2071.4(517.8_{f-k} + 1347.6_{c-k} + 206_{c-p})c + 517.9(133.9_f + 384_c)v + \\ + 259(67_f + 191.9_c)s/x + 259s(a)$$

$$\text{KII. } 1242.8(310.7_{f-k} + 576_{c-k} + 356_{c-p})c + 310.7v + 155.4s/x + \\ + 155.4s(a)$$

$$\text{PI. } 1591.8c + 1591.8(1029.8_p + 562_k) \text{ consumption fund}$$

$$\text{PII. } 1029.8c + 2059.6 \text{ consumption fund}$$

We have introduced the additional subscripts, k and p, to indicate those parts of the product whose reproduction depends on purchases from more than one sector. Thus KI reproduces all of its own fixed capital and 1347 of its $Ic(c)$. Another portion of $Ic(c)$, however, equal to 206, can only be reproduced if KI is able to purchase it from PI. Similarly, with KII, except here we must remember that there is an additional 96.4 in fixed capital that was accumulated by KII, but whose value (90% of the initial addition to the fixed stock) has not entered into its product. As for P, PI, although it reproduces all of its own constant capital, must purchase 562 of those means of consumption that make up its consumption fund from KII. PII, on the other hand, has all of its product reproduced entirely within P.

KII needs to acquire 407.1 in fixed capital, and has set aside the same amount of means of consumption out of its annual product to purchase it with. KI, however, neither has that much fixed capital for sale (it has not produced it), nor does it require that much in means of consumption to realize $KI(v+s/x)$. This, of course, was the basic

problem we set out to solve. KI and KII can make straight exchanges of 200.9 fixed capital from KI against the same amount of means of consumption from KII; they can do the same for 576 in constant circulating capital. With these exchanges KI has obtained all of the means of consumption it requires for both its workers and consumption of its capitalists. KII, however, still has 206 and 356 in means of consumption on its hands, destined for exchange against fixed and circulating capital respectively.

Looking at PI, it quite obviously realizes 1029.8 of its consumption fund via mutual exchange with PII. The other part of the consumption fund, 562, must be purchased from KII, and will be a little more difficult to reproduce. 356 of this 562 will not be much of a problem, as KII must purchase that much in raw materials from PI, and PI can use the money KII advances for this purpose (assuming that KII makes the first purchase in the exchange) to buy 356 in means of consumption. PI can reproduce the other 206 of its consumption fund in the following manner: KI produces only 1347.6 of its 1553.6 $KIc(c)$. The other 206 it must obtain from PI. This is, however, a purchase without a corresponding sale on the part of KI, since PI produces all of its own means of production. From this sale of raw materials, and other forms of circulating constant capital, PI receives 206 in money which it uses to buy the means of consumption it needs from KII. But where do these means of consumption come from? We recall that at the very beginning of the circulation KII had 407 in means of consumption set aside to exchange for that much fixed capital. Of this it could exchange only 200.9 with KI. This meant that it had 206 in means of consumption that could not be realized unless one of the departments of P bought them. This is what PI now proceeds to do, as it requires means of consumption of just that amount.

So far we have KI which has realized all of its $I(v+s/x)$ and has

managed to acquire all of the raw materials it needed from PI. In terms of the use values it must have to begin production again next year, it has reproduced all of its constant capital as well. But in the process it has had to advance 206 in money for the purchase of means of production from PI, which it did not get back because PI made no return purchase from KI. Parallel with this KI has 206 in fixed capital left unsold, for it had produced these to be exchanged for raw materials from PI--fixed capital, then, that PI did not need and hence did not purchase. PI, too, made a purchase without a subsequent sale, but this was to KII, when it bought 206 more in means of consumption than it sold means of production in return. As for PI, it has realized its entire consumption fund, although by a somewhat roundabout circuit of exchanges. It has sold all of the means of production it had produced for exchange and has acquired all that it needs in means of consumption. It advanced no money for any of the exchanges, and has no surplus funds left over from one-way sales-without-purchases. This leaves us with KII. This department has obtained all of the means of production it needs to reproduce its KIIc(c); conversely, it has managed to sell all of the means of consumption it had produced to replace that portion of its constant capital. What is more, it has *sold* all of the means of consumption that made up its exchange fund for new and replaced fixed capital. The difficulty here was that all of these means of consumption were intended for sale to KI, so that KII could receive back all of the fixed capital it needed; only KI, as we saw, needed only a portion of these, equal to 200.9. The other 206 were sold to PI, which required a greater value of means of consumption from KII than it was able to sell to it in means of production. This leaves KII with a shortage of 206 in fixed capital, and a hoard of money of an identical amount.

In sum, after all the exchanges so far we are left with KI, which

has 206 unsold means of production which can function only as fixed capital, and which has advanced 206 in money which it has not been able to get back; and KII, which has a hoard of 206 in money over and above what it advanced towards its various exchanges and a simultaneous shortage of 206 in fixed capital. Clearly enough, KII uses this money to purchase the fixed capital KI has not yet sold. Then KII has reproduced all of its constant capital plus its stock of accumulated fixed capital, while KI gets back the money it advanced. All other material requirements of reproduction are satisfied.

Observations

The example we have just investigated is not, of course, an entirely accurate historical picture of developing capitalism. Production in the petty-commodity sector was greater than in K, and we presumed parallel growth in both sectors. In part this was because it made our exposition a good deal simpler: If we had presumed that P's production was falling, i.e., that capitalism was constantly encroaching upon petty-commodity production, this would not have changed the nature of the problem or its solution. In another sense this way of constructing our example is extremely important. Preobrazhensky took the figures he did for K and P in VKA 17 because this reflected the realities of specifically Russian capitalism, out of which the Soviet economy had come. There the problem was precisely one of how agricultural and industrial production would grow in tandem and in mutual inter-connection with each other,^{and} how the one's growth was conditioned upon that of the other.

In reality we would not have had all of the rearrangements of the social capital taking place solely within P. If the physical proportions in our schemes had not worked out exactly as technically demanded, then we would have needed to transfer capital and productive resources

both from PII to PI and from KII to KI. If, for instance, PI had not been able to provide for all of the 356 in circulating capital of peasant origin *plus* the 206 needed by KI, we would have required a shift of means of production and labor power into KI so that the latter could have boosted its output of both types of constant capital. This was indeed the case with the Soviet goods famine, which we will examine in the next chapter.

What our schemes do accurately reflect is the growing tendency for developing capitalism to increase its dependence upon raw materials and other elements of its circulating capital that are produced by other modes of production. Only in this way was department I of the capitalist sector able to satisfy KII's demand for fixed capital: Not only by pushing off some of the latter's total demand for constant capital onto PI, but because in expanding its own production it increasingly required these sorts of raw materials as well. Eventually, of course, capitalism subordinated these areas of petty production and brought them within its own sphere of production relations. And in this case, as capitalism would absorb more of the petty-commodity economy, while at the same time achieving a level of technique that demanded greater quantities of raw materials and new methods of extracting and processing them, we would see that *more and more of the adjustments necessary for economic equilibrium would have to take place within capitalism itself*. Thus with capitalism's development comes an ever-greater need to structure its production towards the demands of the future, along with a chronic, if not growing inability to do so. This in turn mirrors the future course of events in the Soviet Union under NEP, which we will take up in more detail below. There we will see that there could be no stable equilibrium based on mutual growth of the peasant and state sectors, but that sooner or later the state sector would have to oust petty production altogether. To the extent that the disproport-

tions we have uncovered are inherent in any system of production that has not completely freed itself from the law of value and worked out entirely new methods of allocating its labor power, the state sector would have to bear a larger and larger weight of the economic adjustments that had to be made to maintain expanded reproduction within the system as a whole. Under the dictatorship of the proletariat--even in a transition period as highly contradictory as was that of the USSR--this can only mean one thing: *The replacement of spontaneous regulation of economic events by planning.*

Our schemes also demonstrate how it is impossible to solve the problem of expanded reproduction of the various material elements of productive capital without also solving the problem of their exchange. By starting from an analysis of expanded reproduction we in fact derived the very schemes for the exchange of the different material components of that reproduction that we investigated in our last chapter. The same rules we arrived at there apply here. We could solve our problem of the accumulation of fixed capital only because, in addition to having all the discreet use values that make up each department's constant capital *produced* in the correct proportions, they were capable of being *exchanged*, i.e., realized as money. Here it was department II of the capitalist sector that, in effect, acted as mediator of an unequal exchange between PI and KI. KI purchased more means of production from PI than vice versa,³ and if these two departments were able to acquire the right kinds of means of production and means of consumption they required it was because one department II, and only one department II, mediated this exchange. It was every bit as important for KI to obtain the circulating constant capital it had to have from PI--and without which it could not have continued production even on the old scale, much less expand it in line with KII's increased need for fixed capital--as it was for KII to have the fixed capital of which it was short.

If it had been PII, instead of KII that had needed fewer raw materials from PI than the latter needed means of consumption in exchange, then even though KI could still have obtained the means of production from PI it needed, the rest of the circuit would have broken down. PI's exchange with KII would have been in balance, and even though PI would have had a hoard of money (from KI) it would not have passed this money on to KII. On the contrary, PI would have been short a certain quantity of means of consumption of a particular type and would have had a sum of money it could not spend; while KII would have still had to go without the fixed capital it desperately needed from KI: Not because they had not been produced, but because exchange could not take place in the right circuit. That it should have been KII that mediated this unequal exchange was in the nature of our problem. For at the same time PI was mediating an unequal "exchange" between KI and KII, that is, an "exchange" between the elements of their constant capitals, where KII required means of production from KI but could not obtain them because it only had for exchange a product KI could not use in its present physical form.

Finally, our example reaffirms our previous conclusion that the problem of the accumulation of fixed capital could be solved only if there is a growing shift within the overall social product towards the production of means of production as a whole, and, within that production, an increasing emphasis on the production of fixed capital. At the start of the process we saw that the use form of KI's constant capital was identical with the value relations of the means of production that went into it, i.e., one fourth fixed capital and three-fourths circulating capital. At the end this proportion had to change to 32.5% fixed and 67.5% circulating capital. This change would be demanded with each and every year of accumulation, even if total production in KI did not have to exceed what it could obtain off its own accumulated

surplus value.⁴ But this is seen even more strikingly when we drop our assumption that P purchases no fixed capital from the industrial sector, and where the deficit of fixed capital emanates not just from KII, but from every other department of the economy which must purchase these types of means of production. For the analysis of this question, however, we will leave the realm of concrete capitalism and deal with it in the context of the goods famine in the Soviet economy during the period of primitive socialist accumulation.

NOTES TO CHAPTER 12

1. "On the average, the larger the fixed capital in proportion to the total capital, the longer is its *relative* (not absolute) period of reproduction; and the smaller it is, the shorter its *relative* period of reproduction. Implements form a much smaller part of handicraft capital than machinery does of machine-production capital. But handicraft implements wear out much more quickly than machinery." *Theories of Surplus Value*, I, p. 243. Original emphasis.
2. The marketable surplus of PI = 459. If it sells 356 to KII, and the remaining 103 to KI, there must be a further 103 also made available for sale to KI, since the overall deficit within K is 562.
3. This is the reverse of the situation we had in Chapter 11, when discussing exchange in the Soviet system. There department I of the state sector purchased fewer means of production from the countryside than vice versa. We will show in our next chapter that this is a basic contradiction within the Soviet economy.
4. Again we must caution against confusing the *value composition* of Ic with the material form of its product. Also, it will be noticed that we tailored the distribution of the different products of KI unevenly between KIc, KIv, and KIs/x. This was for simplicity. We know KI must produce 407 in fixed capital, or 32.5% of its total output. If we had distributed this ratio accordingly over all the categories of I's product it would have made no difference in the solution to the problem, though it would have rendered the explanation of how exchange would have to take place unnecessarily more difficult than it already is.

CHAPTER 13

THE GOODS FAMINE IN THE USSR

In the last chapter we assumed that all of the constant capital in the peasant sector was reproduced in the course of a single year, and that neither department of P purchased any means of production from KI. The inter-relation between the two modes of production was very much one where the petty-commodity sector adjusted its production so as to provide the capitalist sector with vitally needed means of production. In doing this petty production afforded capitalism a leeway it would not have otherwise had, which allowed it to restructure its own output and thereby satisfy all of the material preconditions of expansion. Whether or not the petty-commodity sector actually grew did not really affect the nature of the problem or its solution. The fact that we allowed P to grow in our example merely meant that the transfers of productive resources within that sector had to be less severe than if we had assumed production/ⁱⁿP contracted. This condition is unrealistic and must now be dropped. In its real course of development capitalism had to extend its supply of raw materials. It had first to penetrate those non-capitalist areas of the world where these raw materials could be produced, and then to subordinate that production to capitalist methods and technique. None of this, of course, occurred in pure form. Capitalist methods of production would be introduced into essentially primitive social and economic formations, and although the coherence of these societies would be broken down, they did not themselves become capitalist, but remained subordinated by those capitalist powers that had originally dominated them. If British capital establishes an electronics plant in Brazil, we must include its product under K and not P in our schemes, even though that factory will exist in the midst of a society where there are large, even dominant vestiges of petty produc-

tion. The workers will depend on the peasantry for much of their means of consumption, and the factory itself may need a substantial portion of its raw materials from non-capitalist farms. Many of the workers will be only one or two generations off of the countryside, bringing with them habits and ways of thinking that will break down in the course of their proletarianization. The tendency of capitalism is to transform all production into capitalist production--but not capitalist production or social relations all of the same type. Trotsky's combined and uneven development was not a Russian phenomenon but an imperialist one.

In the period following the Revolution the Soviet Union confronted this problem in a rather different form. Its dominance over petty production was in no way guaranteed by any sort of economic superiority enjoyed by the state sector. Quite to the contrary, peasant agriculture prevailed over state industry, at least in weight if not in importance. More to the point, the very condition of economic growth in the state sector was the development of agriculture a) as a source of raw materials for both departments in the state sector, b) as a source of means of consumption, so that the standard of living of the working class and the population as a whole could rise, c) as a source of exportable commodities with which the Soviet Union could obtain means of production it could not itself produce. But, as we elaborated in Chapter 10, this development in agriculture also had preconditions, primarily the prior growth of the industrial sector. The state economy was caught in an insoluble dilemma. For agricultural production to rise it had to be transformed; it had to cease being peasant agriculture and become socialist. In economic terms--and this was by no means a strictly economic question, as we have argued throughout--the most pressing difficulty the society faced was the poverty and narrowness of its industrial base, primarily its poverty of plant and equipment. Here the

problems of accumulation of fixed capital we have outlined so far take on a particularly extreme form. Expanded reproduction is not a question of the perpetual re-establishment of "equilibrium" between the various branches of production; for the initial disproportionalities were so great that equilibrium could not be established except through a radical transformation in/whole fabric of the economic and social structure. Preobrazhensky devoted his last articles to proving this point and demonstrating the inevitable necessity of a revolution in the West and massive aid to the Soviet Union. It is interesting that none of the exposition we have laid out so far, nor that which follows--all of which we consider to be quite new in terms of the analysis of expanded reproduction--actually obviates or contradicts Preobrazhensky's conclusions.

Let us take our original scheme for P. Only now we make a distinction between those means of production that P produces itself and those which it purchases from the state sector. For the sake of simplicity we assume that PI's own production consists entirely of circulating capital, while all that it obtains from SI is fixed capital. This will not amount to very much relative to PI's total constant capital, but it necessitates that we now distinguish between the relative times of turnover of the two types of means of production. We assume, then, that all those means of production produced by PI, whether they be implements of labor or raw materials, are reproduced within the year, but that the fixed capital purchased from SI has the same lifetime as any other fixed capital produced within the state sector, i.e., ten years. This being the case, P would look as follows:

PI.	1000 fixed capital:	
	$1500(100_f + 1400_c)c + 1500$	consumption fund = 3000
		Total = 6150
PII.	500 fixed capital:	
	$1050(50_f + 1000_c)c + 2100$	consumption fund = 3150

If we again let total production grow by two per cent and distribute it

proportionately between PI and PII, we must now calculate how much of PI's 60 and PII's 63 new product must go to their stocks of fixed capital. The simultaneous equations we need to determine these figures are quite simple, since we've no distinction between variable capital and surplus value. If t stands for the total growth in production, x for the portion that goes to the stocks of fixed capital, and y the part that goes for new circulating constant capital, then for PI

$$(1) x + y + (.1x + y) = t$$

$$(2) 1.4x - y = 0$$

$x = 25.6\%$ of t , and $y = 35.8\%$ of t

And for PII

$$(3) x + y + 2(.1x + y) = t$$

$$(4) 2x - y = 0$$

$x = 13.9\%$ of t , and $y = 27.8\%$ of t .

Total production in P is then:

PI. 1015.4 fixed capital:

$$1523(101.5_f + 1421.5_c)c + 1523 \text{ consumption fund} = 3046$$

PII. 508.8 fixed capital:

$$1068.4(50.9_f + 1017.5_c)c + 2136.8 \text{ consumption fund} = 3205.2$$

PI's surplus does not simply equal its consumption fund less PIIc.

Part of PII's constant capital, plus all of its additional fixed capital are realized in SI, as part of $SI(v+s/x)$. PI therefore has to reproduce only 1017.5 of PIIc. This leaves 505.5 available for exchange with SI. This does not really help overcome the aggregate shortage of means of production, since the production of those means of production that will replace PII's used up fixed capital now falls upon SI. Taking production in S as the same as K in the previous chapter, we have an "internal" deficit of 562 in means of production between SI and SII. We now have to add to this 50 fixed capital as a replacement for last year's PIIc(f), plus another 8.8 that PII has accumulated. So the total demand on SI for means of production--at least as far as $SI(v+s/x)$ is concerned--is 620.8. For the economy as a whole there is a shortage

in means of production of 115.3. Once again we must rearrange production in P, so that PI has enough means of production that it can sell to S to allow SI to adapt its own production of fixed capital to meet society's increased demand. Only now we have to remember that PI and PII represent the values of the annual products of these two departments, and do not include the value of fixed capital that has not passed as wear and tear into PIc and PIIc. This is a new constraint we have to include in working out the shift that will have to occur within P towards increased production in PI.

If x is the value of PI's additional annual product that must go to increase its purchases of fixed capital from SI, and if x' is the same value for PII, then we can express the total products of PI and PII by the following equations:

$$(5) \text{ PI} = 2[.1(x + 1000) + 1.4(x + 1000)] = 2(1.5x + 1500)$$

$$(6) \text{ PII} = 3[.1(x' + 500) + 2(x' + 500)] = 3(2.1x' + 1050)$$

The condition we have to satisfy is that PI's consumption fund less PIIc(c) equals SII's deficit of means of production plus the depreciation fund from PII [PIIc(f)] plus the new fixed capital in PII (x').

This gives us:

$$(7) (1.5x + 1500) - (2x' + 1000) = 562 + 50 + x'$$

which rearranges into:

$$(7-a) \quad 1.5x - 3x' = 112$$

Now, we also know that our total additional product in P equals 123. From equations (1) through (4) we know that PI's share of this equals 3.9x, and PII's 7.2x'. So we have another equation for the total accumulation in terms of x and x':

$$(8) \quad 3.9x + 7.2x' = 123$$

Solving equations (7-a) and (8) we get $x = 52.2$. This is what we must add to the fixed capital stock in PI. Solving for x', however, we get a somewhat surprising result: $x' = -11.2$. That is, we must cut pro-

duction in PII by so much that its stock of fixed capital actually diminishes. This does not have the same meaning for a peasant economy as it would under capitalism or for the state sector of a commodity-socialist or even socialist economy. The production of raw materials and food stuffs can and will take place on one and the same peasant farm, and their processing can be carried out, if not in the same handicraft workshops, at least in those which would require very little modification to handle one or the other type of commodity. If PII's fixed capital falls by 11.2, this means nothing more than that out of the total peasant working day the amount of labor power devoted to the production of raw materials and other means of production has risen at the expense of that going to produce means of consumption. The same agricultural machines that before were used to produce food crops and other consumer goods are now applied to the production of means of production.

Even so, as our equations are set up this negative result for x' introduces a serious artifact. Equation (7) states that the marketable surplus in PI's consumption fund must allow for the addition to PII's fixed capital. If means of production are actually shifted over to production of means of production PII obviously does not require any new fixed capital from SI, and the latter does not have to produce any for that purpose. A negative value for x' , however, implies, at least according to equation (7), that SI actually can cut production by that amount, which it does not do, and would not do unless these means of production were re-employed by SI itself. The result would be that the difference between PI's consumption fund and $PIIc(c)$ would underestimate the actual social demand for fixed capital. To eliminate this artifact we have only to recognize that the negative value for x' on the left hand side of equation (7) has a real economic meaning--it allows us to determine PII's reduced technical requirements for circulating capital due to its smaller application of fixed capital; but on the

right hand side of the equation it makes no sense at all--the additional fixed capital PII requires from SI is zero. SI does not cut its production because PII has transferred fixed capital to PI. These means of production still exist, but in another sphere of agricultural production. They must be replaced over time, and their employment will give rise to a surplus product in PI that will call forth an even greater output of fixed capital from SI in the future. Finally, we should note that as these means of production fall within department I of the petty-commodity sector their depreciation is covered out of SI_c , and no longer from $SI(v+s/x)$. Taking all of these considerations into account we can reformulate equation (7) as follows:

$$(7-b) \quad (1.5x + 1500) - (2x' + 1000) = 562 + .1(x' + 500)$$

which is the same as

$$(7-c) \quad 1.5x - 2.1x' = 112$$

Solving equations (7-c) and (8) we get $x = 56.3$ and $x' = -13.1$. Department I of the petty-commodity sector will add 56.3 to its fixed capital stock. Of this 43.2 are newly acquired in the course of accumulation and 13.1 are already-existing fixed capital taken over from the production of food-stuffs and other means of consumption. Conversely, PII will see its own stock of fixed capital decline by this same 13.1.

Knowing the values of x and x' allows us to determine production in PI and PII and its material composition:

$$\begin{aligned} \text{PI. } & 1056.3 \text{ fixed capital:} \\ & 1584(105.6_f + 1478.4_c)c + 1584 \text{ consumption fund} = 3168 \end{aligned}$$

$$\begin{aligned} \text{PII. } & 486.9 \text{ fixed capital:} \\ & 1022.5(48.7_f + 973.8_c)c + 2045 \text{ consumption fund} = 3067.5 \end{aligned}$$

We can take the gross figures for production in the state sector from page 382, above. In order to reveal the process of exchange, the circuit that each part of the separate commodity-capitals travels in order to be realized, we will have to introduce some critical modifications--a consequence of the fact that department I of the state sector is no

longer producing fixed capital just for SII, but for both departments of P as well.

SI. 5178.6 fixed capital:
 $2071.4(517.8_{f-g} + 1154.5_{c-g} + 399.2_{c-p})c + 517.9(101.4_{f-g} + 32.5_{f-p} + 384_{c-g})v + 259(50.8_{f-g} + 16.2_{f-p} + 191.9_{c-g})s/x$

SII. 3107.1 fixed capital:
 $1242.8(310.7_{f-g} + 576_{c-g} + 356_{c-p})c + 310.7v + 155.4s/x$

PI. $1584(105.6_{f-g} + 1478.4_{c-p})c + 1584(973.8_{c-p} + 610.2_{c-g})\text{cons fd}$

PII. $1022.5(48.7_{f-g} + 973.8_{c-p})c + 2045 \text{ consumption fund}$

One look at the scheme tells us that for SII to realize the entire fixed capital portion of its constant capital and accumulation fund all four departments must be involved in the process of circulation. Take $SI(v+s/x)$ first. In the example we set for concrete capitalism we assumed that neither PI nor PII purchased fixed capital from SI. As a result all of $SI(v+s/x)$ went towards satisfying the material requirements of SII for fixed and circulating constant capital. Now the situation has changed. PI and PII each have a small stock of fixed capital, part of which wears out each year and has to be replaced. In addition they have accumulated new fixed capital which, like the part that is up for renewal, can only come from SI. Therefore we have rearranged $SI(v+s/x)$ to reflect this fact. Because of the material form of its product, PI cannot realize any of its fixed capital against the consumption fund of SI. It can only exchange means of production for means of production--i.e., a part of PIc (plus its accumulation fund) exchanges against a portion of SIc . This is not the case with PII. PII must replace 48.7 of worn out fixed capital, for which it has set aside a like quantity of means of consumption for exchange against $SI(v+s/x)$. Conversely, SI has produced 48.7 in fixed capital for use in the cultivation of food crops, which represent an equivalent of 32.5 of SIv and 16.2 of $SI s/x$. In return SI receives 48.7 in means of consumption that it either cannot or need not obtain from SII. Since in the present

example PII's stock of fixed capital has declined, with some of it being transferred over to the production of raw materials, there is no accumulation of fixed capital to worry about. What is left of that fraction of $SI(v+s/x)$ that exists physically as fixed capital, amounting to 152.2, is exchanged with SII, and we will deal with it in a moment.

The part of $SIc(c)$ that is reproduced within PI deserves some attention. Although they are indistinguishable from a material point of view, we must divide it into two distinct components. One, equal to 254.8, will go to make up the deficit of fixed capital in SII, which that department cannot get directly through exchange against $SI(v+s/x)$; we have described its circulation on pages 382-85, above. These are means of production which were to be sold to PI, in exchange for the latter's raw materials, and which became available for sale to SII when PI did not follow up its own sale to SI with a compensating purchase. The other part of $SIc(c-p)$ consists of means of production, worth 144.4, which will go to replace PI's used up fixed capital and add to its fixed capital stock. They exchange against the constant capital and fixed capital accumulation fund of PI. Thus we see that in their function, and in their role in the process of circulation these two subdivisions within $SIc(c-p)$ are economically, as well as conceptually, discreet.

All of this means--not unexpectedly--that the total demand for fixed capital has risen sharply. As it stands, we have let all of PII's fixed capital needs come out of $SI(v+s/x)$, so that the entire deficit from that end falls on SII. As a result SII lacks 254.8 in fixed capital, instead of 206, as before. SII can make this up only under two conditions: a)PI purchases 254.8 more from SII than the other way around, and b)PI buys 254.8 less from SI in fixed capital than SI buys from PI in raw materials and other means of production that replace

part of $SI(c)$. There is the further condition that these unsold means of production in SI actually have the use form of fixed capital. Anything else would not solve the problem. SI could easily have 254.8 in means of production lying around as a result of a purchase-without-sale. But unless they exist physically as machinery and buildings for manufacturing enterprises in SII, or of tractors, ploughs, etc., for state farms, they will not be of much use. If these superfluous means of production were durable and could be stored without loss of utility or becoming out-dated, then perhaps SI could cut down its production of intermediate materials in the next period and switch over to greater output of fixed capital. We ignore for the moment the feasibility of such shifts. We know that they constantly take place under capitalism, though in a haphazard and turbulent way, and that they must take place --and be planned for--under socialism. We also know that this presupposes the pre-existence of ample reserves of fixed and circulating capital and excess productive capacity. We have dealt with this before and will return to it below. What is important here is the fact that even if these kinds of rapid adjustments were possible, in the present case they could only occur after the fact, after the economy had to suffer through serious shortages of fixed capital for at least a year, that is, after a real bottleneck, if not stagnation, in the process of expanded reproduction.

Regardless of how we distribute their respective demands, the fact remains that SII and PII together require 455.8 in fixed capital while there is only 200.9 in all of $SI(v+s/x)$. The only possible way to make this deficit up is out of $SI(c)$, which necessarily brings with it an extremely complex circuit of exchanges involving all departments. $SI(c)$ must contain 254.8 fixed capital over and above its own needs and those of PI. Otherwise there would just be a mutual exchange between SI and PI, and no fixed capital would be freed for sale to the departments

that produce means of consumption (in the present example, SII). This, however, does not finish the story with SIc. In addition to the 254.8 fixed capital it must also have on hand another 144.4 which do go for mutual exchange with PI. The latter must have these means of production in order to replace 100 of its old stock of fixed capital, to restore 1.3 of the fixed capital taken over from PII, and to add to its stock 43.1 in fixed capital which has been accumulated (remembering that we can only speak of accumulation in a conditional sense when talking about the peasant sector). If SI's total production remains fixed, if SIc stays at 2071.4, the only way that SI can have these means of production available is if it alters the material composition of its constant capital replacement fund, so that a greater share of it can function as fixed capital in the other three departments. *Its own demand* for circulating constant capital does not decline by any means. The value of fixed and circulating capital in SIc stays at 25% and 75% respectively. But now it must produce less of its own raw materials. It must acquire them from somewhere else, from the petty-commodity sector, so that it can transfer this production to that of fixed capital. All we have to do is compare the share of fixed capital in SI's total product with what it was under pure and concrete capitalism. Under pure capitalism, where we assumed that capitalism solved the problem of under-accumulation of fixed capital strictly internally, by shifting capital from department II to department I, the breakdown of I's product between fixed and circulating constant capital was 25% and 75% in that order. This corresponded to the value composition of $c(f)$ and $c(c)$ in IIc. With each year of accumulation this percentage would change, in favor of the production of fixed capital. If we take the scheme on page 298, we see that, after transferring capital from department II to department I, the share of fixed capital in the value of I's total product rises to 29.5%. Contrast this, however, with the

situation under concrete capitalism, where we assumed that petty production did not use fixed capital in its own production, but that it adjusted its output of raw materials and other means of production to permit KI to go over to the increased manufacture of fixed capital. There the share of the latter in KI's product rose to 32.5%. Now, in our analysis of a commodity-socialist economy, where we take into account that peasant agriculture is in the process of gradual modernization through the acquisition of heavy agricultural machinery, we see that SI's production of fixed capital must rise even further, to over 39%. Once again, this took place without the transfer of any capital from SII to SI, or from P to S. Fixed capital is the sole part of the social product that comes from only one department. SII, PI, and PII each have different technical requirements, and SI's production of fixed capital must conform to all of them if expanded reproduction is to proceed smoothly. The requirements of expanded reproduction have dictated a highly specific division of labor between state and petty production of means of production on the one hand, and, within the state sector, between the production of fixed and circulating capital, on the other.¹

What would this mean for the Soviet economy in its period of primitive socialist accumulation? In assuming that both the state and petty-commodity sectors grow, our scheme accurately describes Soviet conditions, at least in its basic outlines. Still, this is true only generally; it abstracts from certain specific problems of the Soviet economy that we must now take up.

We have a situation of mutual dependence between the various departments. This interdependence is not without hierarchy, however. It is true that both departments of the state sector rely increasingly upon PI for their supplies of raw materials. But when we made the assumption that petty production begins to purchase fixed capital from

SI, we introduced a fundamental structural change into the entire economy. For this brings with it a growing dependence on the part of peasant agriculture upon the state sector. This is not the same kind of dependence as when SI or SII have to find their raw materials in the petty-commodity sector. The state economy can eventually extend its breadth so as to provide most of its own raw materials and other circulating constant capital. In fact, if it does not, its own existence will be threatened. The reverse is not true. PI can never produce its own fixed capital. Once P starts to replace its own implements of labor with those of state industry, this transforms the character of its production to its roots. Its dependence on state industry is not based on trade--the crucial thing is certainly not that P must find vital markets in S, or rely on state trading organs to sell certain of its products and purchase others. This is above all a dependence on *technique*, which will recast the organization of labor power in the countryside. To acquire fixed capital from the state sector is no one-time venture. If P introduces some fixed capital into its production now, it must inevitably demand greater quantities with each passing year.

In VKA 22 Preobrazhensky concluded that there was actually a temporal sequence to expanded reproduction in the USSR. There he stated that, if department II of the state sector was to continue to develop, it could not outstrip its raw materials base, i.e., department I of the peasant sector. This department, however, had *different* conditions of reproduction than SII, in that it represented a more backward mode of production, which (given its existing level of technology and its particular social relations) would hamper its rate of growth. PI could not keep pace with SII without the *prior* acquisition of means of production from department I of the state sector, that is, without an accelerating movement towards mechanized, and sooner or later, collectivized agriculture. Quite clearly the precondition of *this* development

in PI is the *primary* expansion of state production of means of production.

For the purposes of illustration, let us take accumulation and production for another year. Only now let us say that as P begins to replace its own, more primitive tools with modern ones from SI, it grows not by two per cent, but by five. This is not unrealistic when we keep in mind that the fixed capital P puts into use does not consist solely of machines, but will also include fertilizers and improved seeds from state farms or agricultural laboratories. There are also a number of elementary improvements in the methods of cultivation that require no new outlays of capital at all, but rather the dissemination of this knowledge by trained agronomists and the political intervention of party cadre to encourage the peasantry to reorganize their farms and habits of work, and to apply new techniques. The latter can deeply affect the manner in which human labor is applied to agriculture and, although the reproduction schemes cannot possibly reflect them, they will greatly raise the level of production in the short run.

Beginning with the state sector, the accumulated part of SI's surplus product is equal to 259, so that it will add 185 to its fixed capital, 55.5 to its circulating constant capital, and 18.5 to SIv. SII, whose accumulation fund is 155.4, will divide it as follows: 111 to new fixed capital, 33.3 to circulating constant capital, and 11.1 to SIIv. In P, we assume that total production grows by five per cent, and that it divides up proportionally to the size of the two departments. How this new "capital" will break up between the different kinds of means of production is easily calculated from equations (1) through (4) on page 393. Our total scheme is then:

SI. 5363.6 fixed capital:
 $2145.5(536.4_f + 1609.1_c)c + 536.4v + 268.2s/x + 268.2s(a)$

SII. 3218.1 fixed capital:
 $1287.2(321.8_f + 965.4_c)c + 321.8v + 160.9s/x + 160.9s(a)$

PI. 1096.9 fixed capital:
 $1645.5(109.7_f + 1535.8_c)c + 1645.5 \text{ consumption fund} = 3291$

PII. 508.2 fixed capital:
 $1066.8(50.8_f + 1016_c)c + 2133.6 \text{ consumption fund} = 3200.4$

Total production in P = 6491.4

SI(v+s/x) comes to 804.6, while SII must replace its entire 1242.8 of constant capital from the year before and add another 144.3 in means of production through accumulation. This makes SII's total demand for means of production equal to 1387.1. There is a deficit of 582.5.

Since SI is the only supplier of fixed capital, we must also take into account the demand for these particular means of production from PI and PII. PI must replace 105.6 used up fixed capital from last year's production and add 40.6 for the coming year. Likewise, PII has to replace 48.7 fixed capital and add 21.3. PI obtains its fixed capital via exchange against SIc, and so we can leave that aside for the time being. PII, on the other hand, can only acquire the 70 fixed capital it needs if it can sell means of consumption of the same value; in other words this part of PIIc exchanges directly against SI(v+s/x) and so we have to include it in our figure for SI's general deficit of means of production. This brings the total shortage to 652.5.

In terms of values PI--whose consumption fund is 629.5 more than PIIc(c)--can cover nearly all of SI's shortage (96.5%, in fact). We would need only a minor reordering of production within P to raise PI's surplus to the requisite level. From the point of view of use values the picture is quite different. Once again department I of the state sector is obliged to devote an even larger portion of its working year to the production of fixed capital.

To calculate the final arrangement of production in P we adjust

equations (5) through (8) to fit the conditions imposed by another year's accumulation in S and the corresponding five per cent growth in P. PI's consumption fund less PIIc(c) must equal the internal deficit of means of production within S plus the fixed capital replaced and added in PII. Thus we have:

$$(5') \quad PI = 2[.1(x + 1056.3) + 1.4(x + 1056.3)] = 2(1.5x + 1584.5)$$

$$(6') \quad PII = 3[.1(x' + 486.9) + 2(x' + 486.9)] \\ = 3[(.1x' + 48.7) + (2x' + 973.8)]$$

from which we get

$$(7') \quad (1.5x + 1584.5) - (2x' + 973.8) = 582.5 + 48.7 + x'$$

which gives

$$(7-a') \quad 1.5x - 3x' = 20.5$$

As total production in P from the previous year was 6235.5, a five per cent growth would yield a new product equal to 311.8. So we have for equation (8')

$$(8') \quad 3.9x + 7.2x' = 311.8$$

solving for x and x' we find that $x = 48.1$ and $x' = 17.2$, so that P is then:

$$PI. \quad 1104.4 \text{ fixed capital:} \\ 1656(110.4_f + 1545.6_c)c + 1656 \text{ consumption fund} = 3312$$

$$PII. \quad 504.1 \text{ fixed capital:} \\ 1058.4(50.4_f + 1008_c)c + 2116.8 \text{ consumption fund} = 3175.2$$

$$\text{Total production in P} = 6487.2$$

This shift of productive resources from PII to PI has caused production in PI to rise by 21 and that in PII to fall by just over 25. Production as a whole has dropped in comparison with the figures before rearranging it, due to the extra fixed capital that PI has had to add to its stock, and whose full value does not pass into the annual product. In order to follow the course of exchange we must break the total scheme down into its various material parts.

$$\begin{aligned}
 \text{SI. } & 2145.5(536.4_{f-g} + 1182.6_{c-g} + 426.5_{c-p})c + 436.4(99.3_{f-g} + \\
 & + 43.9_{f-p} + 393.2_{c-g})v + 268.2(49.6_{f-g} + 22_{f-p} + 196.5_{c-g})s/x \\
 \text{SII. } & 1287.2(321.8_{f-g} + 589.7_{c-g} + 375.7_{c-p})c + 321.8v + 160.9s/x \\
 \text{PI. } & 1656(110.4_{f-g} + 1545.6_{c-p})c + 1656(1008_{c-p} + 648_{c-g}) \text{ cons fd} \\
 \text{PII. } & 1058.4(50.4_{f-g} + 1008_{c-p})c + 2116.8 \text{ consumption fund}
 \end{aligned}$$

SI(v+s/x) has 148.9 fixed capital available for exchange with SII, which is actually lower than the year before. This is because we let PII's entire demand for fixed capital come out of SI's consumption fund. In reality the state sector would probably be disposed to cover its own needs first, at least to the extent possible, but allowing PII's whole fixed capital requirement to be disposed of right off does not change the essentials of the problem and makes its exposition a bit easier. In any case, SI(v+s/x) totals 804.6, of which 148.9 is fixed capital for SII, 65.9 fixed capital going to PII, and 589.7 is circulating constant capital for SII. SII, as we know from the scheme on page 404, requires 421.7 in fixed capital and 965.4 to reproduce SIIc(c). Thus it has a deficit of 272.8 fixed capital and 375.7 in raw materials and other forms of circulating constant capital that must now come from PI. PI in turn has set aside 648 of its consumption fund which must be realized via sale to the two departments in the state sector. If 375.7 of this goes to make up the rest of SIIc(c), then 272.3, or virtually the entire shortage of fixed capital, is left over. Circulation proceeds as before. PI sells these 272.3 in raw materials, etc., to SI, and with the money it receives it buys the means of consumption that form part of SII's fixed capital renewal and accumulation fund. This in turn permits SII to purchase the rest of the fixed capital it needs to carry out expanded reproduction. Finally, PI must itself obtain 153.7 fixed capital (105.6 worn out existing stock, 48.1 for its expansion), for which it must sell a like number of raw materials to SI. This brings the fixed capital component of SIc to 426.5.

Once again, the share of fixed capital in SI's product [excluding SIs(a)] has risen, from 39% to 39.9%. Although this is not as steep an increase as before, it is enough that if the proportion of fixed capital had stayed the same there would have been a shortage of 20.

This example shows that as the growth of the peasant sector accelerates with the modernization of agricultural technique, the economy as a whole becomes increasingly self-sufficient *in terms of the values produced by the different departments*. PI is quantitatively able to cover nearly all of SII's deficit of means of production. Only PI's surplus production, over and above what it must produce for PII, does not exist in a form that is entirely suitable for SII. Some of PI's raw materials SII will need to make up what it cannot obtain from the state sector. The remainder, however, must be sold to SI, which in turn must sell an equivalent amount of fixed capital back to SII. That is, SI's production of its own circulating constant capital must *relatively* fall, and its output of fixed capital must rise. This is the basic condition of expanded reproduction in a commodity-socialist economy such as the Soviet Union in the 1920's.

For department I of the petty-commodity sector to grow at this required rate it must have access to a constantly increasing supply of agricultural machinery from state industry. If, for instance, department I of the state sector was not able to shift its production over from circulating capital to fixed capital fast enough, or in the necessary proportions, then the state could have acquired PI's excess means of production for export and used the foreign currency thus acquired to purchase these elements of fixed capital abroad. This would alleviate some of the problem, but not all. PI must still have this surplus production, and to do this, and at the rate sufficient to keep pace with the demands of accumulation in the state sector, it has to continually transform its technological base. *No matter how we approach*

the problem we cannot escape the conclusion that the lynch pin of the entire process of economic development in the USSR is the abundance of fixed capital and the prior expansion of state production of means of production.

NOTES TO CHAPTER 13

1. For the sake of clarity, let us quickly describe how circulation would take place. SI has a balanced exchange with PII, as well as with SIIc(c). It has a deficit of fixed capital with SII = 254.8. Imagine that it immediately exchanges 144.4 with PI to cover the latter's fixed capital requirements. This leaves, out of the total means of production worth 399.2 destined for exchange with PI, 254.8. These exchange exactly as in our previous example. SI buys this much additional raw materials from PI. PI effects an equal exchange (= 356) with SII. It takes the 254.8 in money received from SI and buys an additional, equal amount of means of consumption from SII, to cover its entire consumption fund. SI, as we know, had these 254.8 available for sale due to the imbalance in its original exchange with SI (its deficit in fixed capital). Thus SII takes the money--initially advanced by SI--and purchases the fixed capital it needs from SI, which the latter had produced for sale to PI, but which PI did not need, and hence did not purchase.

CONCLUSION

At the close of VKA 22 Preobrazhensky gave a summary of what he considered the primary contradictions in the Soviet system. We should not see these as simply the conclusions drawn from this single article, but rather as Preobrazhensky's final assessment of the state of USSR in the light of all of his previous analysis of the various aspects of the transition period.

We have only to present the very broadest outlines of the foundations of dynamic equilibrium in the economic system of the USSR in order to show the totality of economic and social contradictions that are inevitably revealed by our development towards socialism under the conditions of our isolation.

Accumulation based on non-equivalent exchange versus the necessity of eliminating this non-equivalence--together with the lack of correspondence of these processes in time.

Accumulation at the expense of the surplus product of the workers versus the inevitability of a systematic growth of wages.

The necessity, in the interests of reducing the "birth pains of industrialization," of the fastest possible integration into the world division of labor and an increase in foreign credit versus the growing hostility shown towards the USSR by the entire capitalist world.

Accumulation at the expense of peasants who produce industrial raw materials and of the peasantry in general versus the necessity of stimulating expanded reproduction of these raw materials as much as possible.

Accumulation at the expense of peasant exports of articles of consumption versus the necessity of stimulating these exports under conditions of an extremely slow reduction of industrial prices.

The economic necessity of having the peasant economy produce more for the market versus the social necessity of materially maintaining the part of the peasantry that produces least for the market--namely the poor peasants and the weak groups of the countryside.

The necessity of lowering prices on the basis of the rationalization of production versus the struggle with growing unemployment.¹

Aside from the contradictions Preobrazhensky enumerates here, we have, in the course of our analysis, uncovered further contradictions within the transition period in the USSR, which we can distinguish as operating at two different levels. First, we have those tendencies at work

within the process of accumulation and which affect that process in its most general dimensions.

1. Because so much of the country's fixed capital must be replaced all at once, and because this requires a great investment of social labor with no ensuing production from this fixed capital for several years in the future, accumulation in department I of the state sector actually leads to under-production in that department in the short run.

We know that expanded reproduction does not just depend on the proper proportionality between its material elements *at the moment*. The reproduction of these component parts of the social product must also *correspond in time*. Any major variation in the rate of replacement of fixed capital in any of the departments will cause serious disruptions in the process, bringing with it either the threat of crisis or stagnation. What was the situation in the Soviet Union at this time? As we have already noted, after the Civil War, when the country moved from its period of restoration, where it concentrated on bringing previously abandoned plant and equipment back into operation, it could grow fairly rapidly and without major replenishment of its capital stocks. Once this phase of the transition period was complete, however, and the economy had to undertake the reconstruction of its now almost totally amortized and worn out fixed capital, the whole temporal proportionality was disrupted. Entire blocks of fixed capital were now used up, demanding replacement, over and above normal additions from accumulation. This, as Preobrazhensky described it, necessitated a one-way withdrawal of productive resources, both means of production and labor power, from the economy without any return of values back into circulation for some time to come. This went way beyond the normal problem of gestation of fixed capital construction, since it applied not just to new plant and equipment, but to the renewal of already-existing means of production which had to be replaced in the here and now,

lest there be a total collapse.

Taking our example from Chapter 13, suppose that in our initial scheme the state had had to deplete its stock of fixed capital from 5000 to 4000. It could maintain production at the old level if it increased the amortization of its fixed capital, provided ample supplies of raw materials and other circulating capital existed. This, as we have shown in Chapter 9, would have the same effect as drawing reserves of fixed capital into production. Now, at some point this depleted plant and equipment must be replaced, in addition to the normal wear and tear of any particular year's depreciation. This could, as Preobrazhensky argued in VKA 22, absorb virtually all of the accumulation fund in the state sector. In our hypothetical example, we could easily imagine that this 1000 in totally-consumed fixed capital must be replaced in, say, five years--i.e., at the rate of 200 per year. Thus, out of the 250 accumulation fund in department I of the state sector, we must withdraw 200 right away, before any other accumulation takes place. This leaves only 50 for the normal additions to fixed and circulating constant capital, and to variable capital in SI. Instead of $SIc(c)$ equalling 1553.6, it would total only 1510.7; instead of $SI(v+s/x)$ being 776.9, it would be only 755.4. The deficit of means of production would make itself felt both in terms of SI's exchange with SII, and its exchange with PI. $SIc(c-p)$, for instance, would now be 386.7, so that either PI or SII--and probably both together--would be short means of production by this amount.

2. Accumulation in department I of the state sector exacerbates the goods famine of state-produced means of production for another reason. One economic phenomenon that expresses the backwardness of the Soviet economy is the fact that the organic composition of capital in department I of the state sector is actually lower than that in department II. All other conditions being equal, this would produce a ten-

dency towards over-accumulation in department I, which, given the existing shortage of means of production produced by that department, would mean a tendency for it to catch up with the demands placed on it by the economy as a whole. This, however, is an artifact of the moment in time at which we began our analysis. The growth of SI automatically brings with it a rapid rise in the organic composition of capital, which will lead to a relative "over-accumulation" in department II of the state sector, and a corresponding deficit of means of production from SI. All this will take place in an economy where there is already a severe structural shortage of means of production, and where the transfer of productive forces into department I from other sectors and other departments is extremely difficult and produces in its turn further dislocations.

3. Regardless of whether or not the goods famine in means of production exists in physical form, department I of the peasant sector could still suffer a deficit of products of SI if circulation does not take place in the proper proportions *between all departments of all sectors*. Non-equivalent exchange aggravates this situation by reducing PI's ability to accumulate the necessary monetary hoard via exchange with SII (or PII), which it could then use to purchase the means of production it requires from SI. Even if the state made its means of production available to PI cheaply through credit, non-equivalent exchange would still cause PI great difficulties by affecting its exchange with SII. In the same way, non-equivalent exchange makes it extremely difficult for PII to overcome its internal exchange imbalance with SII, causing PII to go over to *in natura* consumption of its products and a boycott of the market.

Yet non-equivalent exchange is a *sine qua non* for the survival of the Soviet system, and as such its role is highly contradictory. Given the fact that the means of production demanded by the peasant sector

genuinely do not exist, it holds down peasant demand for the products of SI, and thereby makes more means of production available for the state sector. In addition it is a vital source of accumulation off of the petty-commodity sector. Here it acts to depress peasant demands upon state production while laying the groundwork for an increased supply of means of production in the future. But, as we also stressed in our previous discussion of this topic, it does so at the great cost of retarding the productive capacity of the peasant sector, the sector that, from the point of view of its existing production relations, is in most dire need of modernization.

The state sector must stimulate peasant production, not suppress it. The real exchange of values between the producers of agricultural raw materials and state industry must be equal. If they are not this is only a reflection of the fact that this exchange is not and cannot be equal when the state does not produce enough means of production, and that the imbalance can only be redressed temporarily by means of non-equivalent exchange. This is not just a balancing act of supply and demand. It is one, and only one, vehicle for developing the state sector, so that it can produce the necessary means of production in the future. This is the precondition for the growth of agricultural output, which must otherwise stagnate and be bound to its feudal past during a period when its growth must keep in line with that in SII and must outstrip that in SI in adding to the export fund. The shortage of means of production in the present runs counter to the needs of expanded reproduction in the longer run, where there will have to be an ever-expanding output of agricultural raw materials, both from the peasant sector *per se* and from modernized state cultivation which supplants petty production.

In the examples we used in the preceding chapter, we see readily what would happen if, assuming these schemes are based on non-equiva-

lent exchange, this condition was relaxed. In the scheme on page 406, both SI and SII, whose exchange with PI for raw materials is in balance, would suddenly suffer a severe shortage of raw materials once industrial prices fell and peasant prices rose, both in line with the world market. Exchange, and ultimately production, would break down. Conversely, this lowering of the price of SI's fixed capital sold to PI would allow the latter department to buy more means of production, but only by lowering the supply available for SII. Or, if SI made sure that it filled SII's demand first of all, the shortage of fixed capital in PI would persist.

4. One of the state's major tasks is to reduce non-productive consumption. To do this, however, will worsen the deficit of means of production in the short term, since it will reduce the share of SI's product that can be exchanged with departments II of both sectors, on the one hand, and increase the demand for means of production by SII, on the other. If any of this reduction is passed onto P, by lessening its burden of the non-productive consumption fund, the deficit will extend at least to PII, and possibly to PI, whose demand for means of production from industrial origin will rise.

These four points constitute what we would call the general contradictions within the process of accumulation in the backward commodity-socialist economy. At another level there are further contradictions, which more precisely reflect the conflict between the specific material conditions of expanded reproduction, and the conditions of exchange imposed by the poverty of the state sector and the goods famine.

In Chapter 11 we derived the conditions for reproduction in terms of *exchange* between the state and peasant sectors, under the concrete historical constraints imposed by the Soviet Union's backwardness: Its depleted plant and equipment, the predominance of peasant agriculture, and the tendency for the petty-commodity sector's demand for state in-

dustrial goods to outstrip the latter's ability to produce them. We posed the following problem: If, as Preobrazhensky states, department I of the petty production sector requires more means of production from department I of the state sector than vice versa, i.e., if peasant agriculture demands more means of production of industrial origin than state industry requires raw materials and other forms of circulating constant capital from the countryside, then stagnation within the peasant sector, and ultimately within the economy as a whole, can be averted only under a very precise relationship of exchanges between all departments of both sectors. Specifically, department II of the state sector must purchase *less* from the state sector's department I than it sells; it must then purchase *more* from department I of the peasant sector than it sells to it in return. In addition, these two differences must be the same as one another, and they must equal the shortage of industrially produced means of production within PI.

What are the conditions of accumulation and expanded reproduction? Here SII must purchase *more* from SI than it sells, and buy *less* from PI than the other way around. The conditions are exactly the reverse as those for circulation under conditions of a goods famine. What is more, under expanded reproduction, there is a relatively tight division of labor, where PI can only produce the correct amount of means of production--and without which none of the necessary exchanges would balance--because its own demand for fixed capital is met by SI. This latter is an *equal* exchange between SI and PI, so that the mere existence of a goods famine between SI and PI contradicts the very premise of expanded reproduction. If SI cannot meet PI's demand for fixed capital *in toto*, then the latter's production will fall short of what is required, and expanded reproduction will either slow down markedly or actually revert to simple or declining reproduction.

We see that the conditions of exchange, given a shortage of state-

produced means of production in PI, contradict the conditions of exchange under expanded reproduction: 1) With the former PI sells *less* to SI than it needs to buy. For expanded reproduction it must sell more. 2) With the goods famine SII needs *fewer* means of production from SI than it sells back in means of consumption. Under expanded reproduction the *very problem* is that SII has a deficit of means of production, primarily fixed capital. 3) During the goods famine in PI, SII must buy more from PI than vice versa. Otherwise PI cannot overcome this deficit of means of production and the goods famine will become chronic. Under expanded reproduction SII in fact has to buy *less* from PI, so as to acquire the money it needs to buy fixed capital it still lacks.

This result is no less important for the fact that it confirms the original laws of symmetry we detailed when analyzing concrete capitalism--namely that when there is a shortage of means of production in department II of the industrial sector this can only be made up if there is a relative surplus of means of production in the peasant sector. What is more, we have now found that, because the two departments I produce different types of means of production, the *internal* exchange between them must show an unequal set of exchanges "in favor" of PI. This precisely mirrors capitalism's relations with the colonial world, where it bought more raw materials than it sold back in means of production, and sold back to the colonies finished consumer goods. The fact that this was at the same time an exploitative relationship, based on non-equivalent exchange, political and military domination, and the permanent disfigurement of the colonial economies is something our schemes cannot show, and again points to their very real limitations.

What we also learn from these schemes, however, is that this same basic relationship must take place in the Soviet economy--only it cannot. One reason SI buys less from department I of the peasant sector is that its own industry has been so decimated, while the economy of

the countryside is literally starved of means of production. This is not the "normal" state of affairs for a developed economy. The lesson is important: If either PI or SII has a shortage of means of production from SI, it can overcome this deficit *only if the other department has a relative surplus in its exchange with the state sector's department I*. But expanded reproduction, as the real course of movement within the society, reveals a tendency towards under-production of means of production, principally fixed capital, within SI. Therefore, if PI simultaneously shows a shortage of means of production from the state sector, there will be a goods famine and neither SII nor PI can obtain its full complement of fixed and circulating constant capital from SI. *The goods famine means that the conditions for the realization of SII's demand for state-produced means of production and those for the realization of PI's demand for similar means of production irreconcilably contradict each other. The one can obtain the means of production it requires only at the expense of the other, because state industry cannot supply enough means of production for society as a whole.*

On what basis could this contradiction be resolved? Preobrazhensky posed this same question in his "Ekonomicheskie Zametki II" ("Economic Notes II"). There he argued that the state's poverty of means of production, and the surplus demand on the part of the peasant sector for products of state industry had only two possible solutions. If these same disproportions had occurred in a capitalist economy they would have been liquidated by bringing new capital into the deficit branches of production and by importing the needed means of consumption, both accompanied by a rise in prices on the commodities that were in short supply. In other words, equilibrium would be restored on the basis of the law of value.² In the Soviet economy, as we have stressed repeatedly, this is impossible, for it would contradict everything

which the Revolution and the effort to construct socialism stand for and depend upon. On the other hand, any short-term attempts to alleviate the disproportions *from within the system* could well take this form. State prices could fall, means of consumption could be imported (not forgetting that there was a shortage of these as well in the countryside, although we have not included this in our scheme) at the expense of imports of means of production, attractive concessions could be given to induce foreign capital into the country. All of these would destroy the attempt at socialist construction and would pose only one of two alternatives: Either they would condemn the economy to even worse dislocations in the future, due to its failure to accumulate; or they would introduce new tendencies into the society, whose ultimate end would be the abolition of Soviet power and the restoration of capitalism.

The other solution, the one Preobrazhensky posed throughout the twenties, is to increase accumulation in the state sector. The question remains: How?

What we have seen so far is that expanded reproduction in a commodity-socialist economy, such as the USSR in the 1920's, is only possible if the peasant sector assumes an increasingly greater share of the total social production of those means of production that serve as the circulating portion of the constant capital of the separate departments. This, and only this, will permit state industry to alter the physical composition of its own output so as to provide for the increasing demand within all departments for fixed capital. To the extent that this is not possible due to the material needs for different types of means of production, e.g., the role of agricultural products in circulating constant capital declines as compared to fuel, minerals, auxiliary products, etc., produced by the state sector, then there must be a transfer of productive capital from department II of the state

sector to department I. In any event a rapid growth in agricultural production of means of production is absolutely essential for such a commodity-socialist system to utilize the world market as a lever for smoothing out the inevitable disproportionalities that will arise.

Against this we have seen that, even under these "ideal" conditions, the backwardness of peasant agriculture will throttle the entire process of expanded reproduction. Soon state industry would outpace its supplies of raw materials, as Marx noted when he discussed how developing capitalism itself depended upon other modes of production for a substantial part of its means of production. Here is a glaring contradiction within our reproduction schemes. They dictate that peasant agriculture take on an increasing share of the provision of a vital portion of society's means of production (its circulating constant capital). But this ignores the fact that this is *peasant* agriculture, and that its capacity for growth is not unlimited. The *real* solution is that agricultural production *must be transformed*. *One mode of production must succumb to another, both in terms of technique and of its production relations*. On the one hand this indicates that the precondition of this revolution in agricultural technique is the *prior* development of state industry. On the other hand this must be a conscious political choice made by the workers' state. The extension of industrialization, its application to agriculture, the consequent demands of proportionality must first of all be understood and the necessary policies undertaken if this subordination of petty production is to take place.

The manifest backwardness of the Soviet economy--the poverty of its industry, the predominance of petty production over the state sector, the need to replace its fixed capital stock not gradually, but all at one time--all of these phenomena make expanded reproduction virtually impossible in the Soviet Union in the period of primitive socialist

accumulation. Our analysis of the conditions of expanded reproduction in the Soviet economy shows that department I of the state sector cannot *simultaneously* satisfy a shortage of means of production in both the state sector's department II and the peasant sector's department I.

Previously we had concluded that if the unsaleable exchangeable product of the petty-commodity sector were acquired through the use of credits or by other means for the state export fund, then the necessary means of production could be imported with the foreign currency thus acquired. Preobrazhensky considered this one of the prime methods of primitive socialist accumulation. Here the main barrier seemed to be political. Yet we also noted that even here the backwardness of the economy made this ostensible lever of accumulation another bottleneck in the economy's development. There we said that for goods to be purchased on the world market they must be exchanged for--the state must first of all have the goods to sell. For the world market to have any effect on Soviet growth--regardless of the political obstacles involved--peasant production must reach a certain level, it must attain a minimally advanced technique. The symmetry by which the sum of means of production produced in both sectors--allowing for non-equivalent exchange--is equal to the demand for means of production in both sectors would have to prevail for the world market to actually solve the goods famine, which would then be a function of the fact that the Soviet economy's production of means of production was in the wrong material form, where any actual shortages could be made up via the differentials between Soviet and world market prices.

The existence of the goods famine, particularly the poverty of fixed capital, precludes this, both in the present and in the future. State industry cannot provide those means of production essential to anticipate the demand for agricultural raw materials during subsequent periods of reproduction. Thus the Soviet economy requires a radical

rearrangement of the total social capital, in order to increase the specific weight of heavy industry. This, as we showed in our Introduction, was true for political reasons, as well as economic ones.

Although the state may need this rearrangement of productive forces, it cannot achieve it, both because the other departments of the economy are themselves too poor to transfer enough resources into the state sector's department I without severe disruptions extending throughout the economy, and because there are not sufficient reserves of fixed and circulating capital to allow these transfers to take place. A policy of primitive socialist accumulation is the precondition for the development of the state sector, but it is not in and of itself adequate to meet the task. Nor is simple access to the world market. What is needed is aid, pure and simple, the material assistance of other socialist countries. This is a political problem of the first order. We are thrown back to Preobrazhensky's own conclusion in 1927. We have shown that the Soviet Union cannot extract itself from perpetual economic crisis because of the contradictory nature of the society and the economy--a contradiction embodied in that between the law of value and the law of primitive socialist accumulation. The *demands* of expanded reproduction contradict the *reality* of the goods famine. The two cannot be reconciled. A policy of drift and uncertainty over industrialization would only drive the economy deeper into this dead end and sharpen the class conflicts within it to the detriment of the proletariat.

The victory of the Left Opposition in the struggle against Stalin would not in itself have been sufficient to bring the Soviet Union out of its impasse. It was the necessary condition for a solution to the country's difficulties, but it was not the answer itself. As we have intimated, the solution was also political, but it lay outside the confines of the USSR. Preobrazhensky wrote: "The sum of these contradic-

tions shows how closely our development towards socialism is connected with the necessity of breaching our socialist isolation, not only for political but also for economic reasons, and of relying in the future on the material resources of other socialist countries."³

The syntax of this sentence is significant. It presupposed that the *political* reasons for the impossibility of socialism in one country were already understood among Marxists. Preobrazhensky's task was then to demonstrate that economically the theory was a presecrption for disaster. Today Marxists have a different problem. Socialism has come in many circles to be equated with economics, and the argument against socialism in one country is seen as a technical question. Politics has been forgotten. Yet it was as a political thinker and as an activist that Preobrazhensky entered the struggles of the 1920's. Economic ideas were--and remain--political weapons. This is a principle of Marxism that must from time to time be rediscovered, and the processes by which this has been done are part of the history of our movement. It is a history we must understand if we are to revitalize socialism and turn it into a living reality.

NOTES TO CONCLUSION

1. VKA 22, p. 70 (Spulber, pp. 172-73).
2. "Ekonomicheskie Zametki II" ("Economic Notes II"), *Bol'shevik*, No. 6, March 31, 1926, pp. 60-61.
3. VKA 22, p. 70 (Spulber, p. 173).

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