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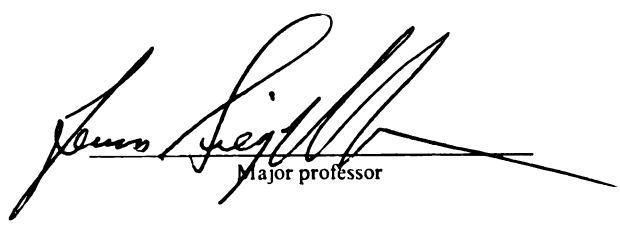

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ABSTRACT

OUT OF THE RUBBLE:

RECONSTRUCTION AND REINDUSTRIALIZATION

IN SOVIET HEAVY INDUSTRY, 1946-1950

By

Mark Orsag

This dissertation is a study of heavy-industrial reconstruction in the USSR in the years that immediately followed the end of World War II. The 1946-1950 period witnessed impressive reconstructive, productive and technological progress in Soviet heavy industry. This dissertation, by examining the roles of the state's industrial structure, technology and labor in the rebuilding effort, presents an analysis of the heavy-industrial reconstruction drive and its accomplishments and longer-term effects.

The histories of two individual heavy-industrial enterprises during the post-war period, Leningrad's Admiralty Shipyards and the Podolsk Factory of Non-Ferrous Metals, will serve as the foundation for my larger examination of post-war reconstruction in heavy industry from the enterprise level upwards. Review of the histories of these two enterprises will be buttressed and expanded through the use of a variety of other evidence concerning the shaping roles of the state's industrial structure, technology and labor in the heavy-

industrial reconstruction effort.

While a wide range of sources were used in my research, the bulk of the evidence was drawn from the following Russian museums and archives: Central State Archives of St. Petersburg (TsGASP[b]), Russian State Archives of the Economy (RGAE), Central State Archives of Moscow Oblast' (TsGAMO), and the Fund of the Museum of the Leningrad Admiralty Shipyards (FMLAV).

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My mother, Ann Orsag, and my brother, Gregg Orsag, provided great love, support and encouragement throughout an often difficult period in all our lives. I cannot begin to describe their contribution.

In closing, I would like to dedicate this work to the memory of my beloved father, Professor Harry Orsag, who died from cancer in January 1995, four months after I returned from my last research trip to Russia.

Mark Orsag

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INTRODUCTION

This is an analysis of post-World War II reconstruction in Soviet heavy industry. Beginning with the experiences of two Soviet industrial establishments, Leningrad's Admiralty Shipyard (Admiralteiskie verfi) and the Podolsk Factory of Non-Ferrous Metals (Podolskii zavod tsvetnykh metallov), I will examine a variety of questions concerning the Soviet heavy-industrial reconstruction effort during the Fourth Five-Year Plan period (1946-1950). Among the subjects examined will be the roles and interactions of the state's industrial structure, labor, and technology in shaping and defining the reconstruction drive and in turn the broader post-war Stalin era and post-war USSR. The rebuilding effort in heavy industry is particularly deserving of attention since it was the Soviet state's top priority in the early post-war years. This centerpiece of Soviet recovery from the devastation, losses and disruption of the war also laid the foundations for the Soviet Union's emergence as a military-industrial super power. The superpower that the USSR became then failed and broke apart in 1991.

Heavy industry in Russia and the other post-Soviet nations is today in a state of collapse. Signs of deterioration had begun to appear subtly as early as the late-

1950s. After 1970, the rapid industrial expansion that had characterized the more "able-bodied" Stalin period had begun to wane, plateau and decline. Heavy industry led the decline. Soviet leaders in the 1970s and 1980s received increasingly poor returns on their still large investment in heavy and military industry. Technological progress stagnated. Beginning in 1988, industrial production in the USSR went into a free-fall. Total production had fallen by more than one-third by 1992. Post-Soviet industrial decline from 1991 until 1996 has been measured at 50 percent.[1]

Wage arrears and economic chaos engulfed plants, such as the vast Zlatoust Metallurgical Complex, that were once "vital parts of the Soviet defense industry." In 1996, Zlatoust operated at less than 1 percent of its capacity. Other heavy-industrial enterprises, such as those of the aluminum industry, generally functioned at between 25 percent and 33 percent capacity in the 1990s. Almost all of their production was exported, with little of the revenue generated from these foreign sales reinvested in new equipment. Up to one-third of such revenues were being diverted "into the foreign bank account of corrupt Russian factory executives."[2]

Had things truly been dramatically different for heavy industry in the 1946-1950 period? Was the USSR, under the surface of a terror-maintained stability, at its core the same "failed" society that so completely collapsed in the 1980s and 1990s? Was Soviet superpower status and the heavy-industrial

might" that seemingly supported it, ever more than a vast "Potemkin Village?"

The Soviet state's general blueprint for post-World War II reconstruction was given official and legal codification when the Supreme Soviet gave formal approval to the Fourth Five-Year Plan on March 18, 1946. The plan designated as its "fundamental task for the reconstruction and development of the national economy of the USSR in 1946-1950 ... to regain the pre-war level of industry and agriculture and then to, in significant volume, surpass this level."[3]

This was truly a monumental task given the level of war damage that the USSR had suffered. Somewhere between 26 and 28 million human lives had been lost. Over 1700 towns and villages had been destroyed. Also obliterated were 31,800 industrial establishments that had employed more than four million workers in 1940. Thousands of the Soviet Union's remaining towns and enterprises had suffered damage. While production in certain regions and military sectors had increased, territories that had supported over 40 percent of the USSR's pre-war population had fallen under enemy occupation during the course of the war. Overall, industrial production had slumped to below pre-war levels.[4]

The key to overcoming these difficulties, the Fourth Five-Year Plan's authors believed, was a continuation of the traditional Stalinist policy of giving priority to heavy industry. The plan stressed, "in the first instance, the

reconstruction and development of heavy industry ... without which the rapid and successful reconstruction of the national economy of the USSR is impossible."[5] It is important to emphasize that enterprises controlled by the Ministry of Shipbuilding (such as Admiralty Shipyard), and enterprises controlled by the Ministry of Non-Ferrous Metallurgy (such as the Podolsk Factory of Non-Ferrous Metals), were part of the privileged group "A" heavy-industrial category.[6] The Fourth Five-Year Plan also stressed "the securing of further technological progress in all branches of the national economy of the USSR." Increased labor productivity was to be achieved through "a multi-faceted mechanization of the labor process." Strengthening the USSR's military-industrial capacity was also a main goal of the plan.[7]

For reasons stated below, detailed comparisons of reconstruction plans, outcomes and experiences between USSR and Western European countries are of somewhat limited usefulness. By any standard or comparison, however, Soviet industrial recovery in the early post-war period was impressive.

The USSR emerged from reconstruction far more urbanized. Production increased much more rapidly than the increase in the number of workers. By 1950, the USSR's major industries were producing 176 percent of their pre-war production levels with only 124 percent of the number of

workers. Total production in the heavy-industrial sector (Group A) had, according to official statistics, more than doubled. This record is all the more remarkable in light of both the particularly acute level of devastation suffered by the USSR and evidence that the economic disruption that occurred during and immediately after the conflict sharply limited Soviet industrial growth in 1946-1947. The three following years, however, witnessed astonishing growth rates that led to a level of industrial output in 1950 that was 186 percent that of the 1947 level. Achieving a rate of increase that led the USSR's post-war industrial recovery and expansion, heavy industry's production stood at 203 percent of the 1947 level by the end of 1950. Heavy industry's weight within the Soviet economy as a whole also reached unprecedented levels.[8]

This increasing predominance, while also magnified by the functioning of the USSR's industrial system, was also certainly, in large part, a conscious choice of the Soviet political elite. This emphasis was sharply different than that of Western Europe's recovery efforts, and has been subjected to justifiable criticism. It must be noted, however, that Soviet leaders were faced not only with incredible devastation, but also a lack of help from outside sources. The Cold War contributed greatly to U.S. assistance, through the Marshall Plan, to Western Europe. The United States, after all, was undamaged by the war and

possessed immense resources. Whether the hostility and isolation that confronted the Soviet leadership after the war were of its own making or not, it is clear that the USSR faced a very different and less favorable set of circumstances. Yet, the overall rates of industrial recovery, although far more balanced, were nevertheless slower in Western Europe than in the USSR. By 1951, European industrial output stood at only 43 percent over prewar levels.[9]

How, then, did the USSR manage to rebuild and expand its heavy industries so rapidly despite having fewer resources and little outside help? Did the answer lie, as Naum Jasny stated it, simply through a concentration of resources and an "exertion of tremendous dictatorial power?"[10]

Geographically, official Soviet reconstruction emphasis was equally placed on rebuilding and further development of the often-devastated "liberated areas," invigoration of production and rebuilding efforts in Soviet traditional chief industrial centers, such as Moscow and Leningrad, and on expansion of the new Eastern industrial centers that had played such an important role during the war. In view of the damage the city of Leningrad (home of Admiralty Shipyard) had suffered during the devastating 900-day siege by the Germans and their allies, its reconstruction was accorded specific attention. In the Fourth Five-Year Plan, the Soviet

leadership pledged "to reconstruct Leningrad as a great industrial and cultural center of the country, securing the pre-war level of industrial production on a more developed technical base; particular attention is to be given, in the case of Leningrad, to shipbuilding and high-grade machine-building."[11]

As military-related enterprises of heavy industry located in or near two of the USSR's foremost industrial centers, the Podolsk Factory of Non-Ferrous Metals and Leningrad's Admiralty Shipyard were positioned, in several ways, at the center of the reconstruction effort.[12] The two enterprises were, however, located in different regions of the country, were of different sizes, represented different branches of heavy industry under different ministerial hierarchies, had differing relationships to military production, and had sharply contrasting "pre-histories" before 1946.

By interrogating the combined historical experiences of the two enterprises in light of their similarities and differences, and combining the results with a variety of other information about heavy industry in the 1946-1950 period, broader truths about the vast post-war reconstruction effort in Soviet heavy industry at ground level can be revealed. This applies not only to the manner in which the heavy-industrial reconstruction drive was carried out at the individual enterprise level, but also in

relation to the influences of labor, class and gender, technology and ideology, nationalism, Marxist-Leninist ideology, and the bureaucratic mechanisms and emphases of the Soviet state's industrial structure on the rebuilding drive that was a central reality of "late" Stalinism, and a critical and defining foundation for the post-war USSR.

A better understanding of the heavy-industrial reconstruction drive and its place in the history of the post-war Stalin period is also necessary, given the relative paucity of relevant and informative scholarly analysis. Soviet studies of post-war heavy-industrial reconstruction are generally more useful for the statistical and other data that they contain than for the analyses they present. These are generally limited to odes to Joseph Stalin in works published before 1956 and odes to the Party, with little or no mention of Stalin, in works published after 1956.[13] Post-Soviet studies of the reconstruction effort by Russian scholars are almost non-existent. Perestroika-era Soviet authors highlighted what they argued were instances of resistance to the unpopular policies and nature of the stultifying Stalinist dictatorship by certain Party members and other intellectuals in the late-Stalin period.[14]

Western authors, while generally ignoring the Soviet reconstruction effort in heavy industry, have portrayed the post-war Stalin period in wholly gloomy terms. Indeed, a general consensus emerged out of the general conditions and

progress of both the Cold War and the specific revelations of the Soviet "thaw" under Nikita Khrushchev. Negative conclusions were often presented in broad-brush style and shared by a surprisingly wide array of scholars. Broadly, the post-war Stalin years have been characterized as an era of disappointment. State policies and the general direction of Soviet society completely failed to reflect, in the words of W. W. Rostow, "the aspirations of its own citizens."[15]

More specifically, the reimposition of a tight straight-jacket of political, cultural, and economic controls after the relative openness of the war years led to broad and deep disillusionment within the Soviet population. Also contributing to the hopeless atmosphere under this interpretation was the Cold War cutoff of the contacts with the West that had developed as a result of the wartime Grand Alliance against Nazi Germany. Western analysts, in addition to highlighting the failure to materialize of a popularly-anticipated "thaw" in the post-war years, have also emphasized the accentuation of the USSR's technological backwardness through a rejection of Western "bourgeois" science, combined with a stultifying xenophobic campaign of empty boasting (pokazukha) claims concerning Russian and Soviet patrimony of inventions ranging from penicillin to the airplane. The career of pseudo-geneticist Trofim Lysenko is often used to illustrate this alleged scientific and

technological stagnation. The post-war Stalinist economy has been portrayed as stagnant and on the verge of collapse.[16]

The highly negative general verdict of Western scholarship on the post-war period was concisely expressed by Sheila Fitzpatrick. Fitzpatrick stressed the primarily coercive nature of Soviet industrial and social policies after the war. In her words, "The regime wanted to tighten controls, not loosen them." Fitzpatrick argued that the strict industrial mobilization controls of wartime remained restrictively in place in peacetime. For Fitzpatrick, the post-war period was defined by a "lack of a return to normalcy" despite the intense desire of Soviet citizens for such a development. The Soviet system, inflexible and "petrified," "clumsily" tried to move from "war to peace." The USSR stagnated and became mired, "floundering" in between.[17]

The relatively small number of scholars who have published monographs about aspects of the post-war Stalin period have further reflected, in their choice of subjects, this generally bleak assessment of these years.[18] While these studies include some highly informative works, the absence of scholarship about the heavy-industrial reconstruction drive, which was probably the central event of the post-war Stalin era in terms of both the number of people directly affected and the longer-term effects on the

society and the economy, leaves a further yawning gap in the already somewhat sparse scholarship concerning this era.

In large measure, many of these oversights may have been caused by a lack of sources. Archival access was non-existent before 1989, and the issuing of some published sources became irregular after the war. Eric Duskin, whose study of the technical intelligentsia is the only other archivally-based study of Soviet industry in the post-war period, notes that the sources available to Western scholars before 1989 often consisted of "little more than mind-numbing paeans to the General Secretary [Stalin]."[19] Duskin noted that many scholars believed work of any depth concerning the late-Stalin period to be impossible due to a fundamental lack of source material. He also argued that, given the situation before the opening of Soviet archives, the prevalence of what he believed to be an overly generalized and unnuanced portrait of the post-war era among Western scholars was somewhat understandable.[20]

Research for this dissertation included a review of a large number of secondary works by both Western and Soviet authors, as well as a broad selection of Soviet newspapers and journals from the 1946-1950 period, ranging from mass-circulation dailies such as Pravda to more specialized journals such as Tsvetnye Metally (Journal of the Ministry of Non-Ferrous Metallurgy). Most of the research for this dissertation, however, was carried out in Russian archives.

Specifically, I utilized RGAE (the Russian State Archives of the Economy) in Moscow, TsGASP(b) (The Central State Archives of St. Petersburg) in St. Petersburg, and TsGAMO (The Central State Archives of Moscow Oblast') in Moscow. Additionally, I made extensive use of numerous non-numerically catalogued records and documents from FMLAV (Fund of the Museum of the Leningrad Admiralty Shipyard) located in St. Petersburg. At the museum, I also examined full runs of the shipyard newspapers Martiets and Sudomekhovets for the 1946-1950 period and conducted interviews, by means of a standardized questionnaire, with former shipyard workers on the museum grounds.

There were eight completed questionnaires in all. The respondents were, for the most part, production-line workers during the period in question. There were, however, one or two engineering-technical workers and foremen. The pool of respondents was wholly male. Attempts to generate a similar sampling of former workers at the Podolsk Factory of Non-Ferrous Metals proved unsuccessful. Despite the problems and difficulties inherent in any use of oral history for research purposes, and of this sampling in particular, the questionnaires contain information that, because of its remarkable consistency about post-war experiences and, when viewed collectively and in conjunction with a variety of other sources, proved invaluable in gaining a better understanding of the heavy-industrial reconstruction drive

at Admiralty Shipyard and of some of the reconstructors themselves.

Much of the evidence utilized herein was, until recently, military-sensitive and thus classified.[21] The problem of propagandistic "doctoring" associated with publicly-released materials is thus limited in writing this dissertation. Cautionary remarks about the limitations of some of my source materials are, however, in order here. Official economic data issued during and after the post-war years undoubtedly contained falsifications; use in the USSR of outdated price-relationships as statistical measures somewhat distorted other data. Nevertheless, it is notable that industrial production statistics for the 1946-1950 period were not later revised downward as were those for post-war agriculture.[22] Even allowing for some distortion, it is also clear that technological progress and heavy-industrial growth in the post-war USSR were massive. It is important to once again underline the narrow focus of this work upon heavy industry. By all indicators, light industry and agriculture performed much less well in the post-war years.[23] A finding of heavy-industrial success does indicate, however, a degree of social and political dynamism. The regime's primary goal was accomplished under very trying and restrictive circumstances.

Thus, carefully using a variety of sources, I will present a heretofore absent picture of heavy-industrial

reconstruction based at the "ground level" in two Group "A" enterprises. I will also, through my conclusions, challenge a number of existing "truisms" about the post-war era in the USSR as well as the broader idea that the USSR was a chronic failure as a society.

Toward this end, I will present chapters devoted to the histories of the two individual enterprises, to a review of the Soviet state's wider reconstruction goals and industrial structures, to the role of technological change in the heavy-industrial rebuilding and modernization efforts, and to an examination of the status, attitudes, and overall situation of Soviet heavy industry's workers. The concluding chapter places the dissertation's findings within the broader context of Russian/Soviet history.

Chapter One, entitled "Reconstruction and Reindustrialization at Admiralty Shipyard and the Podolsk Factory of Non-Ferrous Metals," relates and compares the experiences of these two heavy-industrial enterprises during the reconstruction period. The diverse experiences of the highly privileged and productive Admiralty Shipyard and the less-fortunate Podolsk Factory of Non-Ferrous Metals collectively reveal the depth and impact of both technological change, in particular the large influx of so-called "trophy technology" (trofeinaia tekhnologiia) seized from the USSR's defeated enemies, and the state's military-centered focus. Admiralty's advantages over Podolsk stemmed

in large part from the greater resources obtained because of what will be shown to be a higher position in the "pecking order" of heavy-industrial enterprises. This was dictated by the priority the state assigned to some forms of heavy-industrial production over others. The attitudes of Admiralty's highly-productive workforce will be examined against the background of a lucrative incentive system and the "heroic" traditions of the war and of their own renowned enterprise.

The more troubled history of the Podolsk Factory of Non-Ferrous Metals was that of a facility reborn and then orphaned because of the complex interplay of new trophy technology, the state's military-industrial priorities and the functioning of Soviet industrial-administrative structures. Unsurprisingly less productive than Admiralty, this aluminum facility's workers often received "honor only" and not material rewards for highly productive efforts.[24] Evidence of labor enthusiasm, technological progress, and strong leadership from a director who personified the officially-promoted concept of one-man management (edinonachalie) did not prevent Podolsk's managers and workers from struggling with diminished resources and inconsistent levels of productivity, unfamiliar technology, a high accident rate, and other problems.

These portraits of production and labor on two of the Soviet Union's post-war heavy-industrial shop floors will

serve, in many ways, as the starting point for the more specifically-focused analyses to follow. In sum, the overview of the experiences of Admiralty Shipyard and the Podolsk Factory of Non-Ferrous Metals contained in Chapter One will begin to elucidate the shaping roles of labor, technology, and the Soviet state's industrial structure in the reconstruction and reindustrialization of post-war heavy industry. The chapter's final section will draw limited comparisons between the shop floor-level realities various scholars have perceived as prevailing in the Soviet 1930s industrialization drive and the post-war reconstruction effort's heavy-industrial environment.

Chapter Two--"The State: Structures, Goals, and Methods"--treats in detail the Soviet branch ministry-dominated heavy-industrial hierarchies in which Podolsk and Admiralty operated. The priorities, procedures for conflict resolution, and mobilizational strategies, as well as other aspects of the functioning of the heavy-industrial system's hierarchies, will be analyzed. Crucial issues such as resource allocation, the bureaucratic chain of command, the lingering influence of the war years, and the stimulation of heavy industrial transformation from above through extensive introduction of trophy and other new technology will also be examined.

The role of the Communist Party of the Soviet Union (KPSS) in the operation of higher-level industrial

bureaucracies as well as in enterprises such as Admiralty and Podolsk will also be reviewed. In analyzing the post-war heavy-industrial structure, defined here as stretching from factory managers through the powerful production and technology-defined branch ministries to the Council of Ministers, there will be an inquiry into how decision-making authority was divided, both formally and informally, throughout the various layers of Soviet heavy-industrial production hierarchies. Authority, in various forms, was purposefully allowed to flow downward through the heavy-industrial system. At times, this produced unplanned and unexpected results. Soviet political and ministerial elites, focused on increased production and technological progress, are shown to have generally reacted to such unforeseen developments with a high degree of flexibility and pragmatism. Incentives were more heavily relied upon than coercion.

I will challenge and re-analyze the concept of a monolithic "administrative-command" system in Soviet post-war heavy industry. Instead, through a focus on the operationally unifying fulcra within the system, resource-allocation and performance analysis, I will characterize Soviet heavy-industrial structures in the 1946-1950 period as a hierarchy based on a system of "dual dependence." While, on the one hand, pragmatic tendencies tended to increase the technocratic authority of the branch ministries

and of the enterprise managers themselves (particularly those working in important and well-connected "super" enterprises such as Admiralty Shipyard), such trends also tended to undermine functional, regional and Party authorities. Consequently, branch-ministerial hierarchies tended to be essentially autarkic in many aspects of their operations during the post-war years. As a result, inter-ministry cooperation seems to have often only been achievable through the direct intervention of top-level political elites.

The concept of extensive, informal "leeway" hidden within the more formal organizational structures of the Soviet industrial system is hardly new. David Granick, in the 1960s, through such works as The Red Executive, probed the "unofficial" operation of Soviet industry and indeed discovered parallels between Soviet and American industrial managers. My conclusions about these issues in post-war Soviet heavy industry, however, depart from Granick's broader analysis in at least two important respects.

I will argue that, in post-war heavy-industrial ministerial hierarchies, power was allocated downward consciously and narrowly by an active political elite that retained the will and the authority to intervene at all levels of the industrial structure. The leaderships of the heavy-industrial ministries and chief administrations behaved similarly. Powerful political elites or ministerial

bureaucrats were also not adverse to shaping and reshaping "informal" industrial administrative practices by giving them their official imprimatur. Such adaptations amounted to a "formalization of the informal" in the heavy-industrial structure of the late-Stalin years. Granick, whose work was basically carried out during the Khrushchev period, found a broader, more thoroughly "informal" pattern of decentralization.[25]

The impact of technological change during the reconstruction of Soviet heavy industry, both in relation to the functioning of the state's industrial structure and upon the lives of Soviet heavy industrial workers, is the focus of Chapter Three. Entitled "Modernization from Above and Abroad: The Impact of Trophy Technology on Post-War Reindustrialization," this chapter examines the important mechanisms and effects of the intense infusion of new production techniques, as well as of advanced industrial and military technology, seized from defeated Germany, into Soviet heavy industry. The results of this technological transformation will be examined for its direct impacts upon Podolsk and Admiralty, upon the branch ministries, and upon the broader heavy-industrial reconstruction effort.

The scale of the technology acquisition and introduction effort was massive enough to produce effects throughout the entire Soviet heavy industry system. Technical bureaucrats of the Ministry of Shipbuilding, for

instance, was relocated to Germany until late-1949. Admiralty Shipyard received and absorbed large amounts of trophy technology. The Podolsk Factory of Non-Ferrous Metallurgy was wholly a product of trophy technology. Many other enterprises of the Ministry of Non-Ferrous Metallurgy received "significant quantities of trophy equipment and materials."[26]

In this chapter, I will argue that the post-war period, far from being characterized by technological stagnation and ideologically-driven antipathy toward learning from more technologically-advanced societies, was characterized by relative openness and by rapid progress in relation to production and end-product **heavy-industrial and military-industrial technologies**. I will argue that the broadly successful attempt to absorb foreign technology in the 1946-1950 period laid the foundation for the USSR's status as a late-twentieth-century military industrial superpower.

The attitudes of Soviet heavy-industrial workers toward the technological transformation wrought in the 1946-1950 period will be analyzed both in Chapters Three and Four. In an attempt to understand the human component of rapid post-war technological progress in Soviet heavy industry, I will present examples of how workers positively conceptualized and reacted to the challenges posed by new machines and production techniques. The subject of post-war technical education will also be addressed, as will issues concerning

technology's effects upon norms, bonuses, worker-manager relations, and opportunities for upward mobility. A further, more in-depth examination of these topics will be undertaken in Chapter Four.

The influx of technology, state industrial and economic policies, and managerial mobilization efforts all affected the Soviet industrial workforce. Workers in turn helped shape the heavy-industrial recovery effort and post-war Soviet society. Chapter Four, entitled "The Rebuilders: Soviet Workers in Post-War Heavy Industry," will analyze both the post-war labor environment and how workers, managers and technicians adapted to and operated within it. Specific issues to be probed include the particularities of interaction between workers, managers, engineering-technical personnel, and support staff (sluzhashchie) that constituted the post-war period's highly-stratified shop-floor culture in Soviet heavy-industrial enterprises.[27] The opportunities for the exercise of choice, economic gain, and self-advancement by workers within the heavy-industry system will be addressed through examination of the functioning of the surprisingly free post-war labor market. Attention will also be given to the issues of labor turnover, workers' opportunities for "milking" the state's mobilizational-incentive systems, upward mobility (vydvizhenstvo) for workers through technical education and other means, and the clash between shop-floor realities and the existing formal,

harsh structures of pre-war labor legislation.[28] Attitudes of heavy-industrial workers toward their society and their work will be explored and their responses to patriotic and nationalist appeals, particularly to those relating to wartime unity, will be assessed.[29]

Issues relating to women in the post-war labor force will be explored in detail in Chapter Four. The position of women within heavy industry will be analyzed through reference to workforce composition and gender breakdown by profession, gender discrimination and displacement of wartime women direct-production workers by returning male veterans, the construction of overall gender roles within the post-war heavy-industrial enterprise milieu, and the signs of consciousness displayed by women workers about their generally unfavorable circumstances within post-war Soviet heavy industry.

The heavy-industrial worker's overall place in a post-war society characterized by massive geographic population shifts, labor shortages, vast reconstruction and rebuilding projects, and artificially rapid technological change induced from "above and abroad" will also be described. Living conditions and cultural pastimes will be reviewed, as will the impact upon heavy-industrial labor of state economic policies such as the crucial abolition of wartime rationing and the accompanying monetary reform enacted in December 1947.[30]

The broader outlines of the social and economic conditions of urban heavy-industrial labor, the overall attitudes of workers as a group toward the perceived direction of their society in the 1946-1950 period, and the patterns of workforce stratification that manifested themselves at Admiralty and Podolsk will also be examined as a way of revising the outlines of the "Big Deal" thesis advanced by Vera Dunham in her work, In Stalin's Time: Middleclass Values in Soviet Fiction.[31]

I will argue that the "Big Deal" concept, while it broke new ground by accurately noting the post-war period's strong emphasis on technical education and the greater authority and security enjoyed by engineering-technical workers (ITR) on Soviet industrial shop floors, misrepresents the actual position of skilled-production workers in heavy-industrial enterprises in the late-1940s and early-1950s. Far from being marginalized, heavy-industrial workers (particularly the highly sought-after returning veterans) benefitted from the period's emphasis on technical skill and knowledge. They often bargained from a position of strength within Soviet enterprises. With conditions of a labor shortage prevailing, skilled workers were in demand. Relationships among managers, workers and engineers were complex, but generally symbiotic. Stratification within Soviet heavy-industrial enterprises and in the broader society during the post-war years are

shown to have been sharp, but skilled direct-production workers often functioned, together with the engineering-technical personnel (ITR), as part of a unified and privileged production elite.

The concluding chapter, "Heavy-Industrial Reconstruction in Historical Perspective," will tie together the conclusions reached in the earlier chapters and expand them into a broader analysis of the reconstruction effort. The conclusion will also review and connect a number of issues, ranging from unplanned production "tilts" and labor turnover policy, to broader conclusions about the underlying social and ideological transformations wrought by technological progress in the immediate post-war years in the USSR and the predominance of heavy industry and military emphases in the post-war reconstruction drive. The post-war Stalin years as a whole will be broadly reviewed and characterized as a period of heretofore unexplored complexity and sharp intellectual, social, and economic "dualities." Interests and perceptions that were shared by political elites and heavy-industrial workers during the Stalinist post-war era are elucidated.

I will follow lines of analysis that will place the Soviet post-war reconstruction drive, which across the vast USSR rebuilt and reshaped enterprises of heavy industry such as Admiralty Shipyard and the Podolsk Factory of Non-Ferrous Metals, into the larger contexts of the "befores and afters"

of Russian and Soviet history. The broader implications of this study for Russian/Soviet history as a whole will be discussed, with an emphasis on the critical role of technology in Soviet history. Some tentative conclusions about the fundamental viability of post-war Soviet society are broached, and the reasons for its eventual collapse presented in hypothetical form and analyzed in light of developments and issues central to heavy-industry reconstruction in the 1946-1950 period and explored in considerable detail within this work.

ENDNOTES

1. Early signs of industrial stagnation were declines in the number of new plants constructed and very long construction times for new facilities that were built. The record detailed for the rebuilt Podolsk Factory of Non-Ferrous Metals can be compared with the 1955-1970 construction period for the advanced Achinsk Aluminum Plant. **See** Victor Mote, et al., eds, An Industrial Atlas of the Soviet Successor States. (Houston: Industrial Information Resources Inc., 1994), pp. v-7, vi-vii.

2. Calculating the percentage of the Soviet GNP invested in military and defense-related areas is difficult due to the problem of defining "defense-related industry." Soviet estimates, in the perestroika period of a 25 percent share for these expenditures actually exceeded U.S. intelligence estimates. In the 1980s, Soviet heavy industry employed fully 21 percent of Soviet workers, but it produced only 10 percent of the overall industrial output. **See** Mote, pp. vi-vii, x-3, x-5, v-7, v-vii, and viii-5. **See also** David Hoffmann, "Russia's Industrial Black Hole," in The Washington Post (National Weekly Edition), December 16-22, 1996 p. 14.

3. "Zakon o piatiletnem plane vosstanovleniia i razvitiia narodnogo khoziaistva SSSR na 1946-1950gg," Postanovlenie Soveta Ministrov SSSR, 18 March 1946, in Direktivy KPSS i Sovetskogo Pravitel'stva po khoziaistvennym voprosam 1917-1957gg t.3. 1946-1952 (Moskva: gos-izd., 1958), p. 11.

4. I have used the late Dmitri Volkogonov's estimates of the numbers of Soviet war deaths. Due to the unparalleled nature of his access to Russian archives, his figures are probably the most reliable. **See** Dmitri Volkogonov, Stalin: Triumph and Tragedy (New York: Gove, 1991), p. 505. The other statistics on material losses are drawn from "Epokha sotsializma," Istoriia SSSR no. 3, 1959, p. 653.

5. "Zakon o piatiletnem...," in Direktivy KPSS..., p. 11.

6. The Soviet state's People's Commissariats were rechristened as Ministries during the course of 1946. For the sake of clarity, I have referred to these organizations as Ministries throughout the course of this dissertation. In a similar spirit, I have referred to the governmental organization controlling the extraction, refinement, and production of non-ferrous metals in the post-war USSR as the Ministry of Non-Ferrous Metallurgy throughout the work. In reality, this organization underwent a series of name changes and structural reshufflings between 1946 and 1950. I will touch upon this

briefly in this work's Chapter Two: "The State: Structures, Goals, and Methods."

7. Zakon o piatiletnem...," in Direktivy KPSS..., pp. 11-13.

8. **See** Narodnoe khoziaistvo SSSR: statisticheskii sbornik. (Moskva: Gos. stat. izd, 1956), pp. 19, 28-29, 45-57, and 52.

9. As in the Soviet case, economic recovery did not truly begin for Western Europe until 1948. Total U.S. aide and loans to Western Europe amounted to over $20 billion by 1951. Priceless technological and organizational assistance was also rendered through the Technical Assistance Program. Michael Hogan concludes that U.S. help was crucial in sparking economic progress in Europe that "would not have been possible otherwise." **See** Michael Hogan, The Marshall Plan: America, Britain and the Reconstruction of Western Europe, 1947-1952. (Cambridge: Cambridge University Press, 1987), pp. 30, 36-40, and 415.

10. Naum Jasny, The Soviet Economy During the Plan Era. (Stanford: Food Research Institute, 1951), p. 86.

11. Zakon o piatiletnem...," in Direktivy KPSS..., p. 53. The Leningrad metro was also built at this time.

12. Association with heavy industry also gave an enterprise legally codified, as well as indirect and inherent, structural advantages. For example, greater flexibility was given to managers of such enterprises concerning labor-related issues like worker recruitment and the distribution of bonus pay through the enterprise's Director's Fund. **See** "O poriadke provedeniia organizirovannogo nabora rabochikh," Postanovlenie Soveta Ministrov SSSR, 21 May 1947; "O fonde direktora promyshlennykh predpriiatii," Postanovlenie Soveta Ministrov SSSR, 5 December 1946, in Direktivy KPSS ..., pp. 120-123 and 205-207.

13. For a sampling of both sorts of emphasis, **see** the following: F.P Koshelev, Novyi etap v razvitii narodnogo khoziaistva SSSR (Moskva: voen., 1954); F.P. Koshelev, Osnovnye itogi vypolneniia pervoi poslevoennoi Stalinskoi piatiletki (Moskva: voen., 1951); G.G. Bogamazov, Iz istorii politicheskoi ekonomii v SSSR (Leningrad: Leningradskogo Universiteta, 1988); A.V. Krasnov, Bor'ba partii i rabochego klassa za vosstanovlenie i razvitie narodnogo khoziaistva SSSR, 1943-1950 (Moskva: mysl', 1978).

14. Aleksei Aleksandrovich Kuznetsov, a high-ranking Party member who perished in the Leningrad Affair, was one figure cited as a Stalin opponent. R. W. Davies characterized evidence allegedly supporting Kuznetsov's "opposition" to

Stalin as "vague." Davies further concluded that, due to the political tenor of the times, perestroika-era Soviet writers were "likely to seek out every scrap of evidence about resistance ..., and most unlikely to present scrupulously evidence showing that Stalin had a sensible policy about anything." **See** R. W. Davies, "The Management of Soviet Industry, 1928-1941," in William Rosenberg and Lewis Siegelbaum, eds., Social Dimensions of Soviet Industrialization. (Bloomington: Indiana University Press, 1993), pp. 108-109.

15. W. W. Rostow, The Dynamics of Soviet Society. (New York: Mentor, paperback ed. from New American Library, 1954), p. 133.

16. T.D. Lysenko was an agricultural scientist and geneticist who, through ruthless political maneuvering, managed to obtain a dominant position in the Soviet agricultural sciences in the late 1930s. He kept his power throughout the war and the post-war period. Lysenko, who became president of the Soviet Academy of Agricultural Sciences in 1938, managed to have his chief scientific rival Nikolai Vavilov arrested and imprisoned. Vavilov died in the gulag in 1942. Lysenko's pseudo-scientific theories involved a dismissal of "bourgeois" Mendelian genetics in favor of a hypothesis that was based on the inheritability of acquired characteristics. These theories manifested themselves in practice chiefly through failed attempts to develop low-temperature seeds.

Stripped of his authority after Stalin's death, Lysenko nevertheless managed to regain official favor beginning in 1958. His remarkable political and scientific comeback was completed when he regained the Presidency of the Academy of Agricultural Sciences in 1961. Thus, Lysenko's bizarre and tragic career should be viewed as indicative of his own adroitness at bureaucratic infighting and of the low priority afforded to agricultural science by the USSR's power structure rather than as something peculiar to post-war Stalinism.

The broadly negative depiction of the post-war period by Western scholars as related and summarized here has been drawn from a wide variety of works ranging from monographs to articles and textbooks. Among the many works that I used in deriving this assessment of the prevailing collective judgment of Western scholars are the following: Nina Tumarkin, The Living and the Dead. (New York: Basic Books, 1994); Susan J. Linz, ed., The Impact of World War II on the Soviet Union. (Totowa, New Jersey, Rowman, 1985); James Millar, The ABCs of Soviet Socialism. (Chicago: University of Illinois Press, 1981); Moshe Lewin, The Gorbachev Phenomenon. (University of California at Los Angeles Press, 1989); David Mackenzie and Michael Curran, A History of Russia, the Soviet Union, and

Beyond. (Belmont, California: Wadsworth, 1993); Zbigniew Brzezinski, The Soviet Bloc: Unity and Conflict. (Cambridge: Harvard University Press, 1961); Alex De Jonge, Stalin and the Shaping of the Soviet Union. (New York: Morrow, 1986); Robert Tucker, "Stalin's Legacy to Brezhnev's Russia," in The Soviet Polity in the Modern Era, Erik P. Hoffman, ed. (New York: Aldine, 1984).

17. Sheila Fitzpatrick, "Postwar Soviet Society: The 'Return to Normalcy,' 1945-1953," in Susan J. Linz, ed., The Impact of World War II on the Soviet Union. (Totowa, New Jersey: Rowman and Allenheld, 1985), pp. 129-130, 141, and 150-152.

18. Official anti-Semitism and anti-Semitic persecutions are dealt with in detail in such works as Louis Rapoport's Stalin's War Against the Jews (New York: Free Press, 1990) and Y. A. Gilboa's The Black Years of Soviet Jewry, 1939-1953 (Boston: Little, 1971). Alexander Nekrich in The Punished Peoples (New York: Norton, 1978) examined repressions and deportations against various non-Russian nationalities accused of wartime disloyalty. William McCagg in Stalin Embattled, 1943-1948 (Detroit: Wayne State University Press, 1982); and Abdurakhman Avtorkhanov in Zagadka smerti Stalina (Frankfurt: Posev, 1976) chronicle high-level political intrigue.

19. Eric Duskin, "Recreating the Technical Intelligentsia: The Politics of the Recruitment and Training of Soviet Industrial Specialists, 1945-1950" (Ph.D., 1993, University of Michigan), pp. 9-10. Two non-archivally based macro-economic studies that I have found informative and valuable are Timothy Dunmore's The Stalinist Command Economy (London: MacMillan, 1980) and the ex-Menshevik Naum Jasny's Soviet Industrialization, 1928-1952 (Chicago: Chicago University Press, 1952).

20. Duskin, "Recreating...," pp. 12-13.

21. Data relating to output from military-related enterprises such as the ten shipyards operating in St. Petersburg (Leningrad), for instance, was kept secret into the early 1990s. **See** Mote, pp. viii-10 to viii-19.

22. For information on the correction or "disappearance" of falsified agricultural data, **see** Naum Jasny, The Soviet 1956 Statistical Handbook: A Commentary. (East Lansing, Michigan State University Press, 1957), pp. 94-95.

23. Official Soviet statistics show that growth rates for "Group B" consumer goods industries averaged 4.6 percent a year for the 1946-1950 period. While agricultural growth rates for the 1946-1950 period are still difficult to estimate precisely, available information suggests little, if any, growth after corrections for false "biological yields." **See**

Narodnoe ..., pp. 29, 128-129, and **also** Jasny, Commentary, pp. 94-95.

24. TsGAMO F. 7721 op. 1 d. 32 Pod. zav. tsvet. met. Spravka o khode sotsialisticheskogo sorevnovaniia, 1950, p. 15.

25. **See** David Granick, The Red Executive: A Study of the Organization Man in Russian Industry. (New York: Anchor, 1961), pp. 129-140.

26. RGAE F. 9022 op. 40 d. 43 Min. tsvet. met. Prikazy, 1946, Prik. no. 118, p. 1.

27. The Russian word **sluzhashchie** has traditionally been translated as "white-collar workers" by American scholars. I have eschewed this translation because of the mistaken impression made upon American readers acculturated to rank "white collar" above "blue collar" workers in organizational and corporate hierarchies. I believe that translating the original Russian word as "support staff" more accurately conveys the relative standing of these people in post-war Soviet industrial enterprises.

28. For an analysis of the origins of vydvizhenstvo in the USSR and its functioning during the 1920s and 1930s, **see** Sheila Fitzpatrick Education and Social Mobility in the Soviet Union, 1921-1934. (Cambridge: Cambridge University Press, 1979).

29. Party agitators and factory managers all clearly believed that appeals to an "iconocized" ideal of wartime unity would be an effective mobilizational tool in the post-war period. Allusions to the wartime experience were common in the post-war discourse of production. Party agitators in industrial enterprises, for example, were urged to appeal to workers to operate "as a unified military unit" in order to speed reconstruction and increase production. **See** "Partinnye gruppy na zavode," Partinnaia zhizn' no. 2, 1947, p. 43.

30. "O provedenii denezhnoi reformy i otmene kartochek na prodovol'vennye i promyshlennye," Postanovlenie Soveta Ministrov SSSR December 14, 1947, in Direktivy KPSS..., pp. 254-261.

31. **See** Vera Dunham, In Stalin's Time: Middleclass Values in Soviet Fiction. (London: Cambridge University Press, 1976).

CHAPTER ONE

RECONSTRUCTION AND REINDUSTRIALIZATION AT ADMIRALTY SHIPYARD AND THE PODOLSK FACTORY OF NON-FERROUS METALS

Reconstruction at Admiralty Shipyard

After the end of the day shift at Admiralty Shipyard on June 25, 1946, the day-shift workers gathered in an open square on the shipyard grounds. From a podium set up under the statue of Lenin that marked the spot where the founder of the Soviet state had addressed Admiralty's workers nearly thirty years earlier during the revolutionary crisis of 1917, the veteran lathe operator Viktor Petrovich Glazov spoke to the assembled throng. Glazov still worked at Admiralty despite his advanced age, seventy, and nearly five decades of physically-demanding labor at the shipyard. On that June day, however, the task of this worker whose service pre-dated the twentieth-century was fairly brief--he introduced to the assembled workers their bosses, the troika who ran Admiralty Shipyard for the Soviet state: the Secretary of the Communist Party Committee at the shipyard, Mikhail Dmitrievich Antipanov; Factory Director Pavel Petrovich Perovskii; and the Chairman of the Factory Trade Union Committee, Nikolai Ivanovich Aleksandrov.

All three men had similar backgrounds. They had joined the Communist Party of the Soviet Union (KPSS) in the mid-1920s, graduated from the Leningrad Industrial Academy in the late-1930s, and achieved their positions at Admiralty shortly before the outbreak of World War II.[1] The ceremony over which

they presided on June 25, 1946, blended solemn remembrance with celebration and exhortation. Aleksandrov led the ground-breaking ceremony for a monument to the thousands who had perished on the grounds of the shipyard from bombs, shells, hunger, and disease during the grim nine-hundred day siege of Leningrad.[2]

On behalf of the shipyard, Perovskii, Aleksandrov and Antipanov accepted the State Defense Committee's highest honor, the Red Banner, from representatives of the Minister-of-the-Shipbuilding-Industry Goregliad. This award was in recognition of the role of Admiralty Shipyard during the war. In his speech accepting the Red Banner, Antipanov stressed that the award was not only a symbol of the "stern test of the war years" through which many of those assembled (workers, managers, and engineers) had passed together but also an urgent summons calling all the Admiralteitsy to "new labor victories in the upcoming time of peace."[3]

Director Perovskii made this exhortational linkage between honor won by the shipyard through the trials of war and the honor to be won through reconstruction and production in peace more directly. "In accepting the Red Banner, we pledge to our party and our government that our whole work collective will rapidly fulfill its tasks for the year 1946 ... I am happy to announce that the plan for the first half of 1946 has already been rapidly fulfilled."[4] Indeed, the most explicit and detailed repetition of this linkage of wartime

heroism and post-war productivity heard by the Admiralty workers that day was when Perovskii read the text of Goregliad's official congratulatory telegram to which Stalin's signature was also attached:

> In presenting this highest honor, I express assurance in the fact that now and in the future the work collective of the shipyard will continue to secure rapid fulfillment and over-fulfillment of all the tasks of the party and government through mastering new technologies and more modern methods of work. Together, they will build better ships and build them more quickly and more cheaply.[5]

While it would be easy today to dismiss such a ceremony as little more than a charade, there were in that time and place a variety of reasons for those words and sentiments to have resonated with the assembled workers. Aside from the feelings of unity bred by the hardships of the war, Admiralty and its workers occupied a privileged position in the post-war production hierarchy. As will be demonstrated in this dissertation, Admiralty's workers viewed the post-war period not as stifling or disappointing but rather as full of both promise and fulfillment. Admiralty's post-war workers also exhibited no sense of having been slighted vis-a-vis the new professional middle-class--"the Soviet Babbits and organization men"--that certain scholars have seen as the Soviet state's new privileged caste of the post-war era.[6] The Admiralteitsy that I interviewed, however, did exhibit a sense of collective pride in their enterprise's post-war achievements that had endured for nearly four decades.

Indeed, the traditions of Admiralty Shipyard actually stretched back into the pre-Soviet Russian past. With Russian nationalist themes and heroes having proved their renewed popular resonance during the war and continuing to do so in the post-war years, Admiralty's long and storied history was often referred to in the shipyard's post-war discourse and commemorated officially in various ways.[7]

Founded by Peter I in 1704, the Admiralty Shipyard had turned out wooden galleys and men-of-war for Russia's growing navy. Two devastating fires in the eighteenth century destroyed the original shipyard site, but a new shipyard was constructed nearby under the same name.[8] It was here that such famous ships as the **Poltava** (Russia's first military steamship) and the cruiser **Aurora** were constructed. Over the years, shipbuilding activities expanded onto the territory formerly occupied by the original Petrine shipyard. In 1926, the "new" and "old" shipyards were unified; a nearby ship-mechanisms plant known as Sudomekh remained a separate but affiliated entity, however, until a further unification took place in 1972.

After taking an active part in the October Revolution, the shipyard's workers found themselves with little shipbuilding work in the early 1920s. Many were sent to the countryside. Those who remained built components for locomotives and power stations. With the coming of the industrialization drive in the late 1920s and early 1930s,

shipbuilding activity began to pick up. Nevertheless, naval and other nautical production did not rate high enough in the state's estimation to prevent the drafting of most of the shipyard's workforce into the Red Army in 1940 and 1941.

The role of the shipyard in World War II epitomized both the heroism and the horror of the Soviet war effort. During the two-and-one-half-year-long siege of Leningrad by the Germans and their allies, the shipyard itself came under repeated attack. One excerpt from Director N. I. Olennikov's daily log for April 4, 1942, gives grim evidence of what life was like at the shipyard during the siege of Leningrad:

> 19:15 [hours] Enemy planes sighted overhead, bombs fall on the mechanical section, the model shop, and shop seventeen. 19:30 The scout I sent out has returned and reports fires in shops seventeen and nineteen. 19:35 One worker in shop twenty has sustained a head wound of unknown severity. 19:53 More bombs have fallen on the territory of the shipyard; a fire has been put out in shop sixteen, but three workers (Segerin, Polimov, and Suvorov) were killed when a bomb scored a direct hit on the roof of the light machine shop .... [9]

Over 3,000 men, women, and children died on the territory of the shipyard during the war. Though hunger and disease took the vast majority, scores died from enemy bombing and shelling as well as from production accidents stemming from the almost indescribable working conditions. Casualty rates among former Admiralty workers who had been drafted into the Red Army were also horrific. Of the 8,000 draftees, approximately half were killed.[10]

Despite the incredible hardships, and a workforce that was largely inexperienced and reduced to less than one-quarter when compared with pre-war levels, the shipyard continued to operate. Production of new military and civilian vessels ceased, but repair work on military vessels was carried out as well as production of naval and army ordnance and small craft that carried food and supplies over water and ice on the "Way of Life" that sustained Leningrad during the siege. The workforce of the shipyard during the war years was not only much smaller than before the war but also different in composition. Men too young or too old to be drafted and women replaced those at the front. Women in particular came to the fore. Composing 67 percent of the workforce in 1942, they dominated professions at the shipyard that before the war had been officially considered exclusively "masculine."[11]

By 1946, the workforce was changing again with returning veterans displacing some of those who had labored at Admiralty during the war. Despite the ongoing changes and the difficult material conditions still present in 1946 Leningrad, the unifying themes of patriotism, nationalism and pride in Admiralty's past and present put forward by the shipyard leadership seem to have resonated with their audience. Through interviews and questionnaires, surviving Admiralteitsy of the post-war era such as Mikhail Konstantinovitch Glozman described the post-war years in a positive light. Those who labored at Admiralty between 1946 and 1950 worked and lived in

the "afterglow of the victory over fascism" and believed in a government that had been "the author of our victory."[12] Glozman stated that "people still believed in the future." This faith made them willing, at all levels in the shipyard, to tackle new technical and productive challenges.[13]

Admiralty's role was more prominent after the war than before due to the Soviet Union's new world-power status and concomitant interest in expanding the Soviet navy and merchant marine. During the years of the Fourth Five-Year-Plan, the shipyard's new prominence was reflected in a series of victories in bureaucratic struggles within the governmental hierarchy. In conjunction with other Leningrad shipbuilding enterprises and the Ministry of Shipbuilding, Admiralty's managers were able to expand the facilities of the Leningrad Shipbuilding Tekhnikum and build conveniently located housing for shipyard workers against the resistance of both the Resin Ministry and the Ministry of Labor Reserves.[14] Director Perovskii and Minister Goregliad were also able to convince the Council of Ministers to reject an attempt by the Ministry of Higher Education to take over Admiralty's Shipbuilding think-tank TskB-17.[15]

Indeed, when Admiralteitsy read of their enterprise's importance and long history in the pages of the factory's newspaper Martiets, or about their own collective accomplishments in the tasks of production and reconstruction, they could take additional pride in themselves and their work.

The endless Soviet production rituals of pledges, campaigns, celebratory production competitions, and ceremonies such as the awarding of the Red Banner on June 25, 1946, were not, in that time and place, empty formalities. The need for rebuilding was too immediate and the memories of the trials and triumphs of the war too vivid to allow for simply by-rote rituals. Thus, seemingly stock statements of workers appearing in the Martiets, such as that of repair foreman Svetlov, who pledged to "our Dear Leader, Teacher, and Friend [Stalin]" to help repair the damage done to the shipyard by the Germans, reflected a special feeling of pride that Admiralty was prominent enough to be noticed and even decorated by that "pinnacle of all humanity Comrade Stalin."[16]

Additionally, Admiralty Shipyard was on the cutting edge of one of the reconstruction drive's central features, the effort to integrate military and industrial technology acquired from the Soviet Union's wartime allies and enemies into Soviet enterprises and institutions. Admiralty was one of only seven shipbuilding facilities in the USSR to be awarded two bases of trophy technology (trofeinaia tekhnologiia) captured from Germany. The first of these bases was devoted to items of shipbuilding technology in general; the second, shared in part with Sudomekh, seems to have been devoted exclusively to submarine technology and was highly secret.[17] Special fourteen man teams of workers and engineers were created to work round-the-clock to learn how to use cranes,

auto-welders and other devices seized from German shipbuilding plants. Not only did workers picked for such duty qualify for special production bonuses (premiia), but factory managers constantly stressed that new technology would make the lives of Admiralty's workers easier by eventually reducing arduous manual labor as much as 25 percent.[18]

The ideal of a technically-literate worker was constantly promoted at Admiralty by both managerial and trade union officials. The ever-present rationalization (efficiency) campaigns to promote worker participation in the processes of organizational and technological modernization seem to have been designed, in part, to instill a positive attitude toward change among workers by giving them a stake in it. Rationalization, technical education for workers, and the workings of labor-productivity competitions at Admiralty all functioned not only as direct attempts to increase output and production quality, but also as parts of a coordinated effort to make Admiralty's workers more accepting of the rapid and sometimes jarring pace of technological change in their place of work.[19] The troika clearly envisioned acceptance and adaptation by workers as the order of the day in an environment characterized by reconstruction of massive war damage and the crash introduction of new technologies in a wholesale rather than piecemeal fashion.

Indeed, particularly in 1946, the shipyard ran into problems both in the areas of reconstruction and technical

absorption. The pace of repairs on some of the war-damaged equipment at the factory's central shipbuilding plaza lagged behind schedule as did the integration into the production process of specialized heavy cranes seized from the Germans. Punishment for these failings (in official parlance, for having "failed to satisfactorily mobilize internal resources") by the Ministry of Shipbuilding came in the form of docking the pay of the shipyard's managers including Director Perovskii, Deputy-Director Golubev, and Chief Bookkeeper Kalinkovskii.[20]

Similarly, the changeover from riveting to welding in ship construction was not without problems early on. Again, however, ordinary workers were more or less ignored when sanctions for poor work were levied. Thus, when poor work and recurring damage to equipment among the shipyard's trainee-welders received attention from management in January 1946, it was the supervisory foremen and engineering-technical personnel, not the trainee-welders themselves, who were blamed for the "very low level of technical-culture among our welders."[21]

Indeed, a pattern of holding the higher-ranking personnel responsible for failings recurred consistently through the intense pattern of repetitive production campaigns and periodic shifts in emphasis by the shipyard's management. This tendency created a particularly strong inducement for managers and engineers to motivate and mobilize workers in a variety of

ways to overcome production problems. Along with engineering and technical personnel, workers could earn bonuses for a range of activities that included building not only ships but also train-cars, elevators, and baby carriages (all items which were produced at the shipyard in 1946). Once again, however, it was the Department of Quality Control (OTK) leader Comrade Chikov who was demoted, in 1946, for allowing poor quality output of these products during several production competitions.[22]

The question of how to motivate workers to produce higher quality output became steadily more important at Admiralty. This new emphasis manifested itself when actual shipbuilding work began to supplant the various sorts of secondary production, repair, and direct reconstruction work that had been at the forefront of the shipyard's activity both during the war and for the greater part of 1946. The latter half of 1946 saw calls in the shipyard's newspaper, Martiets, for greater emphasis on quality rather than simply on "pure output." The focus on quality was especially strong in the case of nvaval construction projects, such as "object 545," that were being built on the newly repaired and expanded central shipbuilding plaza.[23]

As the "proportional representation of the order of object no. 545 [grew] in the plans of the shipyard every month" in late 1946 and early 1947, the shipyard's managers combined greater attention to quality with a new stress on

cooperation among the various brigades and shops of the shipyard working on this large project. Sections of the facility that had worked largely independently of each other in the types of work carried on during the war and its immediate aftermath now needed to be encouraged to work together.[24] Thus, the brigade that won the pre-May Day production competition at the factory was singled out for a "friendly cooperative attitude" toward other brigades engaged in work on order no. 545.[25]

Admiralty's managers could thus design, and its workers benefit from, incentives calculated specifically to facilitate the construction of a single important military vessel. Though it is impossible to determine precisely without further research, it seems highly likely that this vessel was an early-model **Whiskey**-class submarine that was a product of the high-priority work going on at the shipyard's second trophy-technology base.[26] Moreover, as will be discussed later, the success of the submarine-building program at Admiralty was a central factor in the privileged position, within the Soviet production hierarchy, of the shipyard and those who worked at it.[27]

With the shipyard receiving the funding from above to support rapid expansion, the number of Admiralteitsy climbed quickly after the war. On January 1, 1946, there were 7,270 men and women working at the shipyard, 5,659 of which were classified by management as direct-production workers. By the

beginning of 1950, the shipyard employed 10,039 people with 7,767 of those being production workers.[28] Even this number, however, was well below the pre-war total of 13,334 employees with a production workforce of 10,612.[29] Indeed, the drive to integrate new technology and to improve labor productivity was thus understandable, not only against the background of increased military shipbuilding after the war, but also as a consequence of the fact that the catastrophic human losses of the war had reduced labor reserves.

The prevailing labor shortage, together with the system of Soviet production relations inherited from the industrialization drive of the 1930s and the shipyard's crucial role in post-war high-technology military industry, led to an expansion of the complex network of plan targets, honorary titles, competitions, and rewards designed to induce workers to produce more and better. Measured by the yardsticks established by this system, Admiralty's workforce was exemplary. For the first three years of the Fourth Five-Year Plan, the shipyard's workforce fulfilled their production and productivity targets by 114 percent and 116 percent respectively. Admiralty's workers saw their pay with bonuses climb to 137 percent of the projected level. All of these figures were among the highest for all the enterprises of the Leningrad Shipbuilding Trust.[30] Moreover, 94 percent of the shipyard's workers participated in various forms of socialist [labor] competition, with 34 percent having earned the title

of Stakhanovite and an additional 32 percent having earned the lesser title of shock worker. Among these standout Admiralteitsy were numbered such highly praised and bonused producers as the metal-worker Kuznetsov and the lathe-operator Chervinskii who, it was claimed, had each fulfilled over a dozen yearly norms in two years.[31] Indeed, trade union and management officials reported that 114 Admiralty workers were averaging three or more yearly production norms per year.[32]

The examples of two such production heroes, the cutting-machine operator N.D. Bulanov and the ship-repairer K.K. Poliakov, whose careers at the shipyard closely paralleled one another, are illustrative of a number of aspects of labor and production activity at the shipyard during the post-war years. Both men had advanced from workers to brigade leaders, joined the Communist Party of the Soviet Union, and labored at Admiralty through the bombs, shells, and hunger of the war years.

Their dedication expressed itself in a desire to pass on the gospel of productivity to the next generation of Admiralteitsy in a way that drew upon traditional father-son relationships and those of a crafts-master and his apprentices.[33] Yet these well-rewarded production heroes became such, not only through their own efforts, but also with assistance from the shipyard's management. In fact, the production statistics of both workers, along with a number of others, were slightly altered upwards as they were being

recorded, perhaps qualifying these workers for higher levels of bonus pay.[34]

Further evidence of the mutually-beneficial relationship between managers and highly-productive workers at Admiralty can be found in the case of the smithy-brigade leader Khar'kov. In the spring of 1948, Khar'kov was nominated for and won the trade-union competition for best smithy-worker in the city of Leningrad. He was rewarded with two months' salary in bonuses by the Ministry of Shipbuilding. Minister Goregliad's congratulatory telegram went, however, not to Khar'kov, but to Admiralty's Director Perovskii, who also earned premiia due to Khar'kov's victory.[35]

Further collective benefits accrued from the shipyard's consistently high finishes in the national production competitions administered by the Ministry of Shipbuilding. Even a modest third-place showing (Admiralty earned several first-places) earned the Director's Fund of the shipyard an additional 70,000 rubles for distribution as premiia in February 1946.[36]

In general, a sense of mutual obligation and support were formally codified on terms shaped by the troika of party, management, and trade union in yearly collective agreements (koldogovory) between the shipyard's workers and managers. Aside from the productive aspects of such agreements, managers pledged to improve the lives of workers in a number of respects. The first of these concerned housing construction,

repair, and maintenance. In this area, the performance of the shipyard's managers was mixed. While repair work was generally fairly rapidly completed, construction of new housing constantly lagged behind schedule. Construction labor was poorly paid in comparison to direct production work, and opportunities for bonuses were far less frequent. With labor generally in short supply in Leningrad, construction brigades at Admiralty Shipyard were chronically understaffed.[37] Many workers and their families were thus trapped in overcrowded apartments with primitive facilities. As late as the winter of 1950, it was reported in the Martiets that in certain buildings of factory housing as many as twenty families were living in crowded apartments "with only a single central heating stove to provide heat for all of them."[38] On the other hand, the shipyard's resort (dom otdykha) in the Caucusus was a spacious, pleasant place where the shipyard was able to send more and more workers on vacation each year.[39]

The shipyard's dining rooms, by contrast, proved a constant and seemingly incurable problem. While the meals were impressive in size in light of the conditions prevailing after the war, the food was poorly prepared under unsanitary conditions by surly and slow-moving employees who were often suspected of pilfering.[40]

The shipyard's work-safety record was also mixed. During 1947 and 1948 for example, a number of foremen, engineers, and brigade leaders were either fined or dismissed for safety

violations. During this period, the shipyard averaged thirteen serious accidents per quarter (a serious accident being defined as one causing, through injury, the loss of fifteen or more labor days). In one such accident, a worker was effectively crippled.[41] Admiralty's accident rates were, however, consistently lower than most other Leningrad industrial facilities of its size; the shipyard's accident rates also declined steadily throughout the 1946-1950 period.[42] In any case, Admiralteitsy such as Glozman and Iuri Ivanovich Shestakov did not view their work as having been particularly unsafe; Shestakov, however, complained about the expense workers and engineers incurred in buying the specialized work clothes mandated by the plant's safety regulations.[43]

Admiralty's shortcomings regarding work safety seem to have mattered little to workers and surely even less to managers; the latter were primarily focused on the rapid completion of key military orders. Positioned at the strategic crossroads of heavy industry, military modernization, and somewhat artificially-induced technological progress, the shipyard, as an apple of the Soviet state's eye, lacked for little from above. In turn, Admiralty was a highly productive enterprise during the years of the Fourth Five-Year Plan. By the end of 1950, Admiralty had fulfilled its production targets in every category designated for it by the state. Overall plan fulfillment stood at 115.8 percent and an

increase in labor-productivity of 52 percent in 1949 and 1950 alone was claimed.[44]

During the 1946-1950 period, the shipyard produced one light cruiser, thirty-four submarines, thirty light military patrol-craft, four steam launches, five river-passenger boats, and three hundred forty barges. Originally to facilitate the submarine-building program, a special deep-water embankment was also built. Expansion of this new addition to Admiralty Shipyard would be fully completed by 1952. The new structure would prove critical in later tanker projects and the construction of the world's first atomic-powered icebreaker, the **Lenin**.[45]

In addition, the shipyard had successfully integrated into the production process two major ship-building advances. Welding replaced riveting and the longitudinal method of ship construction, in which the whole body of the ship was built simultaneously, replaced the old practice of constructing the hulls of ships by sections. Both of these practices had been fairly widely used in the West since the late 1930s, but they had been virtually unknown in the USSR before their introduction at Admiralty in 1946. Both of these methods speeded ship construction and made the finished vessels stronger and more durable. The shipyard also integrated more precise metal-working techniques and large amounts of captured German technology into the production process. Indeed, the end

result was a more modern industrial facility that produced more than it had before the war with fewer workers.

While Admiralty's success was in part due to the larger factors of the USSR's new world role and requisite naval expansion, Admiralty did not earn its place at the forefront of that expansion and the reconstruction drive in heavy industry by accident. Located in the USSR's second city, Leningrad, Admiralty was not only strategically placed geographically but also had historic and heroic traditions that stretched from Peter the Great through World War II.

With the rise of Cold War tensions during the late 1940s and the increased emphasis on Russian nationalism and traditions during and after the war, Admiralty's long history was often used by managers and Ministry of Shipbuilding officials to instill pride within the shipyard's workforce.[46] The nationalistic climate in the post-war USSR was also reflected at Admiralty through warm references to Russian military, literary, artistic, and political figures of the past in the pages of Martiets. Nationalist and patriotic sentiments were encouraged through celebrations and performances made possible through the cooperation of carefully-managed groups at the shipyard; these ranged from amateur drama and music clubs to the naval support society, "Worthy of the Fleet" (DosFlota).[47]

In the end, Admiralty's privileged place in the vanguard of the Soviet reconstruction effort fostered an often

symbiotic relationship between the shipyard's workers and managers. In the case of object 545 for example, the shipyard's managers were certainly under a good deal of pressure themselves to finish work on this important military project. Managers exhorted workers continually but additionally received the means to reward those who were working on the order. Special bonuses and enrollments in the Factory Book of Honor were earned by many workers for achievements in a special "socialist competition for high-productivity results in the construction of [order no. 545] for the Soviet Navy in the period of the Fourth Five-Year Plan."[48]

In addition to shared interests, the overall attitudes and mindset of the shipyard's workforce was a crucial component of Admiralty's high productivity. Certainly, workers' attitudes were, in part, a reaction to external stimuli such as the exhortations of the troika. Workers' also seem to have shared certain beliefs and perceptions of reality with managers. In hindsight, descriptions of Admiralty workers in the small mechanical shop laboring with "unflagging enthusiasm" to churn out seventy additional mechanisms in honor "of the leader (vozhd) Stalin on his seventieth birthday" may seem deluded, shameful, or even pitiful. There seems little reason, however, to doubt the heartfeltness of such exhibitions of fealty on the part of the post-war Admiralteitsy.[49] Shipyard workers, interviewed in 1994,

universally described the 1946-1950 period as one of high labor productivity, rapid technological progress, and very high labor morale. The shipyard's workforce was proud of its prominent place in the reconstruction effort and saw the shipyard's successes as an affirmation of the whole direction of their society. Indeed, their whole lives at that time were, in their words, lived in the "golden years" after the great victory when any difficulty seemed surmountable.[50]

The war had affirmed faith in Stalin and in the Soviet state in all its aspects as the "author[s] of that victory."[51] Present hardships and problems were dismissed as minor obstacles on the road to a better tomorrow. The Admiralteitsy could see steady progress in their own enterprise. Personal doubts too were put aside in this time of faith: Mikhail Konstantinovitch Glozman, for instance, was disturbed by the Cold War and the resulting Soviet cutoff of contact with the Western world. Glozman internally questioned Soviet rejection of the Marshall Plan and perceived the government's attempts to play on nationalist sentiments. Nonetheless, he found himself caught up in "all by ourselves pride" in the reconstruction drive's achievements at Admiralty, in Leningrad, and in the USSR as a whole.[52]

Admiralty was clearly one of the reconstruction effort's success stories. It was an elite facility with a highly motivated workforce. Yet Admiralty represents only one facet of the post-war effort to rebuild and modernize Soviet heavy

industry. The story of the other facility that I studied, the Podolsk Factory of Non-Ferrous Metals, shared many common elements with that of Admiralty, but was, in some other ways, very different.

Reindustrialization at the Podolsk Factory of Non-Ferrous Metals

The history of the Podolsk Factory of Non-Ferrous Metals during the 1946-1950 period is surprising, revealing and contradictory. Originally German, this facility's industrial reincarnation as an experimental Soviet factory was a remarkable technological achievement. Podolsk's rebirth was another example of the broader post-war process of technological transfer, the USSR's absorption of German trophy technology. Podolsk's experience contradicts portrayals of the late Stalinist regime as too ossified and hidebound by xenophobic Zhdanovite dogma and its spirit of nativist boasting (pokazukha) to learn from more technologically advanced societies. While the experience of the Podolsk Factory of Non-Ferrous Metals contradicts such negative assumptions, it also highlights the late Stalinist industrial system's single-minded and, in this case, highly wasteful focus on the military sphere.

For labor, patterns of broad and rapid upward mobility were mixed at Podolsk with sharp limits on rewards for the productive that undermined the plant's much-trumpeted system

of socialist competition. Despite the best efforts of the factory's activist director, Podolsk's labor force was also plagued by a host of problems that included high accident and turnover rates. The post-war, heavy-industrial system's callous disregard for the Podolsk facility and its workforce, due in large part to the period's rapid march of technological progress, also gives Podolsk's narrative an oddly contemporary quality.

Although other metals such as lead, zinc, and bronze were also produced there, the Podolsk Factory of Non-Ferrous Metals was primarily a facility devoted to the production of aluminum. Of the non-ferrous metals, aluminum had been among the most important during the Great Patriotic War. Mainly because of its use in the construction of military aircraft, aluminum production had been a top state priority between 1941 and 1945. Aluminum plants had been relocated to the Soviet Far East by special decree of the wartime State Defense Committee in October 1941 in order to save the plants from the advancing Germans. The successful relocation of these facilities and their significant subsequent production output actually left the USSR with a large aluminum surplus by the war's end. Indeed, aluminum's significance was underscored by the words of wartime Soviet People's Commissar (and post-war Minister) of Non-Ferrous Metallurgy Petr Fadeevich Lomako, who later wrote that his "proudest achievement" was having successfully fulfilled the military's wartime demands for aluminum.[53]

This stress on aluminum as a strategic metal was carried on after the war in the activities of Soviet occupation forces in Germany, and it was in Germany that the history of the Podolsk Factory of Non-Ferrous Metals began. Officials of the Ministry of Non-Ferrous Metallurgy, working closely with officers and technical specialists from the Chief Intelligence Directorate of the General Staff (GRU), conducted a detailed survey of German aluminum-production methods, technology and statistics in late 1945 and early 1946. One German facility that received close scrutiny was the Ziud Aluminum Plant, of the infamous I.G. Farben industrial conglomerate, located in the town of Bitterfeld. In this facility, the Germans had produced particularly high-grade aluminum using a multi-stage purification process that made use of electrolysis and flotation techniques. The Bitterfeld facility also had on its grounds a special "airplane shop" where the refined aluminum had been readied for use in building engines, parts of fuselages and other aircraft components for the Luftwaffe. These included components of the early-model Messerschmitt Me-262 jet fighters that appeared late in the war.[54]

The advanced aluminum-production methods that had been employed at I.G. Farben's Bitterfeld plant greatly impressed the Soviets. GRU Major Ermalaev, who referred to the aluminum-production process that had been employed at Bitterfeld as the "Tottenguss method," wrote that "this Tottenguss method was up to the present time totally unknown to us in the USSR and

through this form of [aluminum] preparation there are practically no impurities left in the end product."[55] Ermalaev further stated that this process, which produced "the highest quality aluminum in the world," had been known only within I.G. Farben and was even more advanced than analogous techniques employed in the United States.[56]

The technology of the Bitterfeld facility was originally considered important enough by the Soviet authorities to authorize the essential relocation of the entire plant to the Soviet Union. In early 1946, Ermalaev and his GRU colleagues, along with officials of the Ministry of Non-Ferrous Metallurgy dispatched from Moscow, began the arduous task of overseeing the transfer of the Bitterfeld facility. Although the evacuations of aluminum plants to the Far East during the war gave the GRU and Ministry personnel experiential examples to draw upon, their task in Germany was still daunting. Even before the actual disassembling and physical transfer of the plant could begin, a vast amount of preparatory work had to be completed: determining suitable Russian names for many hitherto unknown pieces of equipment, copying documents and equipment, and translating thousands of detailed technical schematic drawings and documents. Once this preliminary work was carried out, the actual physical transfer began. For this work, the GRU used Soviet occupation troops, German and repatriated Soviet POWs, and German scientists and engineers who had formerly worked at Bitterfeld.[57]

Back in the USSR, the task of reconstructing the Bitterfeld plant in its new Soviet incarnation was assigned to the Sixth Moscow Construction Administration (SMU-6), headquartered in the town of Podolsk in Moscow oblast'. Throughout the latter half of 1946 and on into 1947, work on the transfer was undertaken simultaneously in both Bitterfeld and Podolsk, which had been chosen as the site of the "new" facility in the USSR.[58] The assembling of this industrial and technological trophy in Podolsk proceeded under the guidance of the leader of SMU-6, Evgenii Nikolaevich Nikol'skii. From the crates of disassembled parts coming from Germany, his task was to create, before the end of 1950, a fully functioning, highly productive facility that utilized the Tottenguss process.

Originally christened the Moscow Aluminum-Bronze Factory, the plant was renamed in 1947, even before it commenced production. The new name, Podolsk Bi-Metals Factory, was used until 1949, when a final change to Podolsk Factory of Non-Ferrous Metals was made. Yet while names changed, many of the plant's personnel remained the same throughout its reconstruction and entrance into production. Nikol'skii, who oversaw the construction work as head of SMU-6, stayed on as Podolsk's director. Much of the plant's workforce was also drawn from its SMU-6 builders.

In attempting to inspire his workforce, Nikol'skii relied on references to wartime heroism, sacrifice and triumph, as

well as on workers' hopes for the future--all epitomized by the new factory taking shape around them:

> The self-sacrificing labors of the Soviet people helped our Motherland achieve a complete military and economic victory over our implacable enemies. Now the task of recovering from the wounds of that war is a great task still before us. We here at our young factory are carrying on the work of the war to strengthen and build upon our military victory, heal the wounds inflicted by the war, ... and achieve new levels of well-being and happiness for our own people.[59]

As the plant took shape around them, the numbers of those who worked in it grew, particularly after the first of the Podolsk plant's shops entered into production in 1948. As more and more of the factory's shops opened for work, the transfer of construction workers to higher-paid direct-production work in the metallurgical shops proceeded apace; at the beginning of 1949, the plant employed 747 people in non-construction capacities, with 496 of those being classified as direct-production workers.[60] Near the end of the Fourth Five-Year Plan period in January 1950, these figures rose to a total of 1050 employees, with a direct-production workforce of just over 700.[61]

This rapid transformation of construction workers into metallurgical workers, taking place against the backdrop of a severe labor shortage caused by wartime losses, led to a number of problems. Factory Chief Engineer M. N. Kogan wrote, in 1950, that the plant's dining rooms, school buildings and pioneer camp had been "in a state of incomplete construction or disrepair [for three years] due to a lack of qualified

construction cadres."[62] The rapid changeover also left the Podolsk plant with a workforce that Nikol'skii himself considered "unskilled and unqualified," especially given the new technologies that would have to be mastered.[63]

Being itself wholly a post-war product of trophy technology, the Podolsk plant, unlike other Soviet enterprises of non-ferrous metallurgy, had never experienced wartime conditions where women workers had "comprised more than half of all workers and worked on equal terms with men, even in the most difficult jobs."[64] In 1949, the Podolsk workforce was already 60 percent male, with women employees being very prevalent among the less-favored support staff.[65]

Nikol'skii managed his workforce in a very personal way. He apparently attempted to involve himself in every aspect of the lives of the plant's workforce. Nikol'skii's style was highly intrusive and authoritarian, but also, at least if judged against the standards of the harsh times in which he operated, well-intentioned. For instance, he turned a whole wing of his own administration building into additional living space for single male workers in 1949. Additionally, Nikol'skii viewed as one of his proudest accomplishments for that year the fact that there had not been "a single case of serious infection" [defined as life-threatening] among the factory's workforce.[66]

Nikol'skii clearly attributed such a healthy workforce to his own stress on cleanliness in the workers' hostels and

apartment buildings. As will be discussed later, he also resisted pressure from production workers and their shop captains to divert money from the housing maintenance fund to offer more production bonuses. Nikol'skii's paternalism on this issue extended to calling those who failed to meet his cleanliness standards to account before meetings of the Factory Committee that Nikol'skii often attended.

One such case involved an aluminum-shop worker, Zhilkin, who was upbraided by the Director for having a dirty apartment. In reply, Zhilkin offered the excuse that, "I have a big family and the children are running through the streets bringing dirt into the house and my wife has been unsuccessful in trying to tidy up."[67] An unimpressed Nikol'skii gave Zhilkin four days to clean his apartment and ordered the Housing Committee to check on his progress. Furthermore, in addition to the cleanliness issue, the Director also devoted considerable attention to curbing "immorality and rowdiness" among the members of the "plant's largely young and single workforce."[68]

Nikol'skii placed great emphasis upon the construction of new housing for the factory's workforce. After problems with the construction of housing for SMU-6 workers in 1947, the next two years saw improvement. Nikol'skii fulfilled ambitious plans for investment in construction in 1948 and 1949 and actually fulfilled the housing construction plan in 1949.[69] The factory's housing department claimed that, due to a series

of improvements in 1949, the housing situation at the factory had gone from "bad to good." It was claimed that the apartments all had better furniture, better heating in winter, and less crowding, with the number of families living two to an apartment reduced from 60 to 10. Subsequent inspections ordered or carried out by Nikol'skii revealed, however, that 30 factory families still lived two to an apartment, and that one wing of the Gorkii street apartment complex was still poorly heated in winter.[70] Nikol'skii's confidence that the situation could be remedied in 1950 proved ill-founded; a sharp reduction in resources flowing to the factory from the Ministry of Non-Ferrous Metallurgy, through the responsible chief administration (Glavvtortsvetmet), caused the amount of investment in new housing construction to dip to only 31 percent of the factory's planned 1950 target.[71]

Nikol'skii's role at Podolsk not only exemplified the continuation of the concept of one-man management (edinonachalie) that emerged from the latter stages of the industrialization drive of the 1930s, but seems to have been crucial in Podolsk's achievement of technological goals and increased production despite the factory's many problems. The Podolsk Factory of Non-Ferrous Metals, however, remained a troubled facility throughout much of the Fourth Five-Year Plan period. The plant's technicians and engineers actively avoided participation in voluntary administrative or social-welfare

work. The plant's workforce was afflicted with a "high incidence of criminality and hooliganism."[72]

Another serious problem at the Podolsk Factory of Non-Ferrous Metals involved the plant's appalling safety record. While Nikol'skii berated shop captains, engineers and workers about the steady stream of serious accidents occurring at the facility, the problem only seemed to worsen from year to year. During the third quarter of 1948, with some of the larger shops yet to enter into production, there were 33 serious accidents at the plant, including two fatalities.[73] As accidents increased in numbers and severity throughout the course of 1949, the plant's Technical Security Office put a truly Orwellian positive spin on the situation: "As a result of our measures concerning the investigation and analysis of the causes of accidents occurring during the course of 1949, similar accidents with analogous causes didn't happen again."[74] Yet in 1950, the problem continued to worsen; in the aluminum shop alone in the first half of the year, 447 labor days were lost due to accidents. This meant that each day, on average, two of the shop's workers were not at work due to injuries sustained on the job.[75] Yet safety clothes for the shop's workers were still in short supply despite Nikol'skii's constant directives to the Office of Technical Supply to pay "serious attention to the problem."[76]

In July 1950, after a disastrous second quarter that saw a record 44 serious accidents resulting in the loss of 980

labor days, the factory's ongoing safety crisis peaked when a giant gas generator was accidently turned on "while an unshielded cleaning and repair crew was working in one of its vents." The ensuing eruption of flames immediately immolated one worker and severely burned two others (one of whom also died shortly thereafter).[77]

In addition to the plant's poor safety record, the facility was left increasingly short of funding and supplies. Opportunities for bonuses were limited since the facility lacked the resources for a Director's Fund from which to draw bonus pay. Factory documents indicate that even when Nikol'skii wanted to reward productive workers monetarily and thought he had found the resources to do so, he was often forced to withdraw the reward and limit himself to a mere expression of gratitude.[78] Similarly, the factory's winners in the efficiency suggestions (ratspredlozhenie) competition of 1948 still had not received their monetary awards some months into 1949--a fact blamed rather unconvincingly on a "flu epidemic in the [oblast trade union's] labor and wages office."[79] Other than the year-end allocations for bonuses paid directly from the Ministry of Non-Ferrous Metallurgy, there was little connection at the Podolsk facility between productivity and material incentive.

When Nikol'skii did award extra money to plant employees, it more often involved the sick, the injured, or others afflicted with difficulties. These "socialist insurance"

awards, though fairly frequent, were small and often given to people not presently able to work at the factory. This practice may or may not have been effective in assisting stricken or impoverished workers, but it did little to promote labor productivity. Indeed, Nikol'skii's subordinates complained to him about some of the plant's labor practices. Workers were said to be lax regarding safety regulations and were also often unresponsive to the organizational demands of productivity, such as pre-positioning the workplace for the following shift. Construction brigades in which only a fraction of the workforce was engaged in actual productive labor were also common. In 1950, Chief Engineer Kogan wrote that "we are repeating the mistakes of past years ... one worker works and two others watch him."[80]

When rare opportunities for bonuses did arise, they could be occasions for discord among the leaders of the various shops. In 1950, the issue of year-end premiia from the Ministry of Non-Ferrous Metallurgy turned the socialist competition for the year's Red Banner (signifying the best shop in the factory) into a contentious event. The awarding of the Red Banner and the accompanying bonuses to the factory's Extraction Shop sparked criticism from the other shop captains (particularly those of the Aluminum Smelting Shop and the Garage) that went beyond touting the achievements of their own shops.

The debate that ensued is illustrative not only of the fierceness of the rivalries fueled by the all-too-rare chance to earn bonuses but also of the priorities of the factory's leadership. The decision of Director Nikol'skii, Chief Engineer Kogan, and Factory Trade Union Committee Chairman Smirnov to award the Red Banner to the Extraction Shop was hotly disputed at a Factory Committee meeting by the Aluminum Shop and Garage bosses Budnik and Tenkov on the grounds that the decision had ignored the Extraction Shop's poor safety record:

> There are constant complaints about the working conditions in the Extraction Shop! In reconsidering the awarding of the Red Banner, we ought to take into account these questions of technical security in the Extraction Shop. That shop is very dirty and they [the workers of the Extraction Shop] aren't wearing their protective clothes. Very recently the shop had a very large accident in which several workers were injured and two supply wagons were destroyed.[81]

In defense of his shop's victory, Extraction Shop Chief Kul'baskii stated that "in view of our productive achievements the Red Banner simply ought to come to us ... sure we've had accidents, but we are now strongly working on such questions."[82] It was this view that carried the day. Chairman Smirnov affirmed the original decision to award the Red Banner to the Extraction Shop. He summarily dismissed the comments of the Extraction Shop's critics, Budnik (who had also touted his own shop's improved safety record) and Tenkov (who had highlighted the successes of the Garage's fuel-economization

program) as "not really having been about socialist competition" [emphasis added by this author].[83]

If this verdict was indicative of the continuing broader primacy of quota-filling and gross production over safety, efficiency, or other concerns in post-war Soviet heavy industry, an exchange from a preceding meeting of the Factory Committee was indicative of the dissatisfaction within the Podolsk Factory over the absence of opportunities to earn monetary bonuses. That meeting saw the representatives of the various shops unite behind the comments of Drykin, Kul'baskii's deputy at the Extraction Shop. Drykin noted that for most of the collective and individual productive achievements of his own shop, as well as those of the other shops, no one in the factory had received "anything except 'thanks.'"[84] Echoed by the other shop representatives, Drykin stated that "there ought to be premiia" and made the specific suggestion that the Director divert funds from the Factory Housing Commission for this purpose.[85]

Smirnov's rejection of Drykin's argument seemed indirectly to reflect regret and more agreement than disagreement: "On the one hand Comrade Drykin, you are right to say that it is necessary to materially reward those shops and individuals who work the best at our factory. Unlike some other factories, however, our Director does not have such a fund and so there is no money for this purpose." While noting that the practice of diverting money from the Housing

Commission was used at other factories that lacked a Director's Fund and had been occasionally used in the past at Podolsk, Smirnov stated that such a practice was no longer possible due to Director Nikol'skii's desire to "maintain a clean and wholesome environment."[86]

The fact that the factory's Communist Party chief was absent from these contentious meetings was notable but not exceptional. Podolsk's Party organization had no definable role in a range of important decisions and was not an identifiable organizational presence at a series of important factory meetings. Furthermore, while national-level Party publications stressed the central mobilizational role of Communist Party agitators in industrial enterprises, much of the mobilizational discourse at the Podolsk Factory was handled by Nikol'skii, acting not through Party channels, but as factory director.[87] In general, the Communist Party and Komsomol organizations at the Podolsk Factory of Non-Ferrous Metals were weak, with checking as well as mobilizational functions being exercised by the factory's technically-trained managers. Factory records provide numerous examples of disinterest and passivity among party cadres.

A 1950 report from Ivashkov, Chairman of the Trade Union Committee of the Garage, was typical: "The attitude of the Komsomol of the factory toward its agitational role is very passive; I have three Komsomols in the Garage who are supposed to be representing the Komsomol and carrying out political-

cultural work, but I never see them doing so around the Garage. This is in spite of the fact that we have a lot of young workers in the Garage."[88] Such indifference may well have been learned by Podolsk's Komsomol members from their elders in the Communist Party at the factory. The attitude of the latter is exemplified by the following passage concerning the factory Party organization's political mobilization efforts:

> The Factory Committee notes that the course of preparation for the elections to the Supreme Soviet of the USSR in the shops of the factory is proceeding completely unsatisfactorily. The agitational mass-work, in the shops and brigades, of explanatory enlightenment regarding the conditions of the elections to the Supreme Soviet of the USSR is simply insufficient.

When asked by trade union officials for suggestions on how to improve the situation, several of the shop Party committee chairmen and shop bosses replied that it would be best "to simply organize one meeting or a report, either preferably brief."[89]

The situation of the Party organization at Podolsk was in a broad sense reflective of the reduced role of the KPSS in post-war Soviet society. At the national level, the weakness of the KPSS was demonstrated by the infrequent meetings of top Party organs such as the Central Committee. Stalin himself continued to exercise his authority through the state mechanism of the newly renamed Council of Ministers (he had assumed the post of Chairman during the war). The Party's decline to mere "superfluous parallelism" vis-a-vis state

channels of authority can also be traced to the particular demands made upon the Soviet structure by the war.[90] Wartime need for speedy and direct decision-making, as well as the Party's lack of formal international diplomatic standing, had given the Soviet political elite little choice but to rely on the state structures both in terms of the elite's own military and economic efforts and in its dealings with the USSR's major wartime allies, the United States and Great Britain. Invigorated by the power and prestige gained in the war effort, the state structure remained dominant after the victory in the Fourth Five-Year Plan period and indeed until after Stalin's death.[91]

Notions of a Party-led class struggle also took a back seat to a post-war emphasis on national unity created by the hardships and triumphs of war and reconstruction. The political elite's functional shift to reliance on state-based power structures was accompanied by co-mingling and coexistence of statist and Russian nationalist themes with Marxist-Leninist ones in industrial and broader social discourses. Stalin's "personality cult" also reached its pinnacle in the post-war era with stress on his prowess as a military leader overshadowing the earlier emphasis on his role as a revolutionary and leading Marxist-Leninist theoretician. Certain actions, such as the renaming of the former Peoples Commissariats (such as Shipbuilding and Non-Ferrous Metallurgy) as Ministries in April 1946, also clearly

demonstrated a conscious effort to elevate statist traditions over revolutionary trappings. A new stress on state power born in war also emphasized military-industrial power.

A focus on new military-industrial technologies had prompted the rebirth of the Bitterfeld plant as a Soviet facility. Further technological progress and the resulting shifts in the Soviet state's military production priorities, however, led to negative consequences for the Podolsk Factory. The course of the development of military jet propulsion in the post-war USSR probably contributed to Podolsk's defunding. In 1946, the Soviets carried out test flights with captured German Me-262 aircraft. An original government decision simply to copy the German jet in December 1945, however, was later reversed. The USSR obtained some more advanced British jet engines and other components in 1946-1947 and used these in place of the German ones as the models for early Soviet jet aircraft. The Soviets also incorporated a number of their own modifications. While the exact contribution of a number of developmental choices and technological advances to Podolsk's decline is not entirely clear, this shift away from German designs could have hardly helped the status of the Podolsk facility, which, in its German incarnation, had been closely linked to the production of Me-262's.

Like the Me-262 itself, early Soviet jet designs such as the Mig-9 and the whole series of models produced by the Yakovlev Design Bureau (Yak-15, Yak-17, Yak-30), also were

essentially piston-engine aircraft designs in which jet engines had been installed. The tail sections and other areas of the aluminum fuselages of these craft had to be specially constructed out of particularly strong, high-grade aluminum due to their contact with jet exhuast. By mid-1949, however, the Mig-9 and these Yakovlev aircraft designs were out of favor and their production had been discontinued.[92] The timing of this decision in relation to Podolsk's decline is also certainly suggestive.

The new post-war stress on titanium, nickel-steel, and other alloy-strengthening metals may have further contributed to a deprioritization of an advanced aluminum facility such as the Podolsk Factory. The Minister of Non-Ferrous Metallurgy, Lomako, wrote that the Soviet authorities quickly came to a "full realization of the military significance" of these new alloy-strengthening metals after the war, and that much "power and honorable labor was devoted to their development."[93]

Due to its component role in alloys as strong as steel and 45 percent lighter, titanium was perfect for use in military aviation. After the discovery of an economical process for its refinement in 1946, titanium-based and nickel-steel alloys quickly began to supplant aluminum in the production of crucial military equipment such as jet engines and other components of post-war military aircraft including the first mass-produced, modern Soviet jet-fighter, the Mig-15.

The Mig-15 and the similar Lavochkin La-15 (which was produced in conjunction with the Mig-15 until mid-1950) were true swept-wing jets with tubular designs that eliminated any contact between jet-engine exhaust and the aluminum fuselage. Long-range jet bombers of the period, such as the 103M "Bison," employed similar designs. All of these aircraft were also sub-sonic. Thus, high-grade aluminum of the type produced at the small, experimental Podolsk facility was not essential to their construction. The fuselages of these designs could be more easily and economically built from aluminum drawn from existing surplus stocks or produced by established, larger enterprises such as the well-supplied Moscow Aluminum Factory.[94]

Such technological and other related developments also resulted in a bureaucratic reshuffling within the Ministry of Non-Ferrous Metallurgy in 1948 that reflected new opportunities and priorities. The production of titanium-based and other new alloys was supervised by a newly-created chief administration dealing with the production of hard alloys. Glavvtortsvetmet, the chief administration under which Podolsk operated, disappeared during the temporary merger of the Ministry of Non-Ferrous Metallurgy into the so-called Ministry of the Metallurgical Industry in 1948. Though it reappeared when the Ministry of Non-Ferrous Metallurgy re-emerged as a fully independent organization in 1950, Glavvtortsvetmet never seems to have recovered its former authority and resources, as

the case of Podolsk amply bears out. With more durable new alloys serving as specific replacements for aluminum in certain key areas relating to the production of military aircraft; with the USSR's surplus stock of aluminum; and with the shifts in aircraft design and the shift from German to British jet engine technology, the flow of resources allocated to the Podolsk Factory of Non-Ferrous Metals diminished dramatically during the final years of the heavy-industrial reconstruction effort.

The final part of 1949 at Podolsk was indicative of the troubles to come in 1950--the year the plant was scheduled to reach full production capacity and full utilization of the Tottenguss method. In the fourth quarter of 1949, production fell, the accident rate increased, and complaints about supply shortages mounted. On the whole, however, 1949 had been a year of considerable achievement at the factory. In spite of the growing problems, aluminum production had gone from just 2.58 tons produced by part-time, "purely experimental operations" in 1948 to 667.48 tons in 1949. Thus, despite a two-month delay in getting aluminum-smelting operations underway, the factory had overfulfilled its planned aluminum output total. The factory had also made considerable progress in terms of strengthening its transportation and power networks.[95]

In 1950, aluminum production rose to 1,074.48 tons, but the Podolsk Factory failed to meet its targets in almost every major category; aluminum production amounted to only a dismal

65.6 percent of the planned total.[96] In explaining these results to his superiors, Nikol'skii emphasized the positive, such as the cooperation realized between factory personnel and the scientists of the ministry's production-branch laboratory in fully implementing the Tottenguss process. Director Nikol'skii blamed the factory's failings, in large part, on the inadequate resources sent to the factory in the last year-and-one-half of the Fourth Five-Year Plan. Nikol'skii claimed that this situation had made impossible the task of meeting the stepped-up production targets for 1950 and that such failings were common among the smaller aluminum enterprises of the Ministry of Non-Ferrous Metallurgy.[97] Nikol'skii further stated that the chronic supply problems and the "still young" factory's lack of tradition had created a "stop and start" work routine at Podolsk that further limited production.[98]

In addition to the daunting supply and start-up production problems it faced, day-to-day quality of life issues were also negatively impacted by the factory's lack of status in the Soviet production hierarchy and the rapid, sometimes disruptive movement of construction workers into direct-production work. The factory's school building for workers' children was not completed until 1951, three years behind schedule. Recreational opportunities for adults were limited; the factory's soccer team was sidelined at one point due to a lack of shoes.[99]

Podolsk's problems, occurring during a period characterized by both a relatively free labor market and a labor shortage, produced a high incidence of labor turnover (tekuchest') at the factory. Most of the departures were classified as "at-will" departures by the factory's management, which more than made up for the losses through new hiring. The fact that most of the departees, however, were valuable and skilled direct-production workers (who were best able to market their labor elsewhere) probably intensified the factory's safety and production problems.[100] According to my calculations, 22 percent of Podolsk's workforce left the factory in 1950--a figure more than double the national average for heavy industry by the end of the Fourth Five-Year Plan period in 1950. Admiralty Shipyard, by contrast, had a negative turnover rate of between 7.5 and 10.5 percent 1950.[101]

Despite the orphaned and troubled status of the Podolsk facility, it could be argued that from one very important standpoint, the Fourth Five-Year Plan period at Podolsk was an astonishing success. By the end of 1950, the Tottenguss method of aluminum production was in use in a Soviet aluminum facility, and other technological advances had been made as well.[102] Getting the new technology working in some form had been the most consistent focus of the instructions given to Nikol'skii by his superiors in the production-branch chief administrations (Eshchenko in Glavaliuminstroi and Belov in

Glavvtortsvetmet). Increases in productivity and purity of 23 and 19 percent, respectively, over previously existing Soviet aluminum-production methods, were achieved at Podolsk by the end of 1950.[103] Success in this area probably explained Nikol'skii's retention of his job as director despite the Podolsk Factory's failure to meet the 1950 output targets. As we shall see in Chapter Three, the remarkable Soviet record at Podolsk in this broader technological sense is fully comparable to that of widely-hailed "technological absorbers" such as the South Korean steel industry.[104]

Taken lock-stock-and-barrel from Germany through a massive effort, the enterprise reborn in the USSR as the Podolsk Factory of Non-Ferrous Metals was left high and dry by the shifting goals and priorities of the Soviet industrial structure of which it was a part. No longer a center of attention for the central authorities in the second half of the Fourth Five-Year Plan, the managers of the Podolsk Factory of Non-Ferrous Metals lacked inspirational traditions, a Director's Fund, and the resources to bolster production and labor productivity. This paucity of support created a snowball effect that was felt in all areas of the enterprise's life. Even with Nikol'skii's take-charge style, the Podolsk Factory was rarely rewarded in ministerial production competitions.[105]

The technologically-advanced Podolsk Factory was transported to the USSR from Germany largely because of heavy-

industrial and, more specifically, directly military-related production priorities. Shifts in those priorities and underlying technological changes involving new technologies and materials and military-aviation development decisions adversely affected the aluminum factory and those who worked at it. Podolsk's deprioritization also reflected the low priority of efficient use of resources vis-a-vis production output concerns within Soviet heavy industry. The processes used at Podolsk were capable of producing high-grade aluminum, as well as other metals, from scrap aluminum and other waste materials. Such recycling capabilities, however, counted for little in the eyes of planners focused solely on the usefulness and short-term cost-efficiency of the factory's output for military aviation.[106]

In addition to suggesting the unbridled determinism of military significance regarding the priorities of the post-war Soviet industrial system, the experience of the Podolsk Factory of Non-Ferrous Metals thus also spotlights both the system's adaptability to technological change and its callous wastefulness. The ability to shift resources quickly within the industrial system clearly gave political and implementational elites the ability to react rapidly to technological changes and challenges posed by such events as the strategic emergence of new, advanced alloys and the opportunities presented by trophy technology in general. Such shifts seem to have been made, however, with little thought

for their impacts upon a facility such as the one erected through great effort at Podolsk.

The differences between the experiences of Admiralty Shipyard and the Podolsk Factory of Non-Ferrous Metals during the Fourth Five-Year Plan period are, at first glance, more apparent than the similarities. Favored Admiralty, with its status, history, and traditions, stands in stark contrast to the newborn and quickly orphaned Podolsk. Admiralty's managers utilized their enterprise's traditions as an important part of their mobilizational appeals. Podolsk's managers seem not to have attempted the "invention" of traditions specifically related to Podolsk, but rather tried to tie the fate of the newly-rebuilt German enterprise directly to the direction of the Soviet reconstruction drive as a whole.

The differing circumstances faced by the workforces and managements of the two facilities demonstrate both the range of experiences possible within a Soviet post-war heavy-industrial framework and how closely the fortunes of individual workers, ITR personnel and managers were tied to that of the enterprise at which they labored. Such relationships were, however, complex. While Podolsk's workers received lower base salaries, fewer opportunities for bonuses and suffered higher accident rates, their housing situation was generally superior to that endured by Admiralty's Leningrad workers until 1950.

There were also many deeper common patterns and circumstances in these two enterprise-level accounts. While indicators of labor morale were certainly higher at Admiralty, there were clear signs of labor enthusiasm at Podolsk as well. Both enterprises served as community and social service hubs for their workers who, at times, faced very difficult living conditions. Patterns indicative of upward mobility were apparent at both facilities; the specifics of vydvizhenstvo at each facility, however, were slightly different. Despite the labor shortage prevailing after the war, both facilities were also able to expand their workforces rapidly. This indicates the relative desirability of heavy-industrial jobs in the 1946-1950 period.

While the relationships among workers, managers and ITR were complex and highly specific to each of the two facilities, one can draw some broader conclusions about shop floor interaction at the two enterprises. Mobilizational discourses at both factories were centered on Russian nationalism and the broadly unifying "iconization" of the war and reconstruction efforts, rather than appeals to class struggle or searches for hidden enemies. Podolsk certainly had its share of labor-management disputes, but their "normality" and depolitization are noteworthy in this respect. In general, managers and ITR enjoyed considerable authority and job security at both facilities. During the 1946-1950 period, there were only two replacements of top managers (both at

Admiralty) at either Admiralty or Podolsk. These departures were both due to illness.

This evidence about managerial security seems to support the "Big Deal" thesis of Vera Dunham. Dunham's contention that the "Big Deal" also led to an erosion in the status of workers in Soviet industry vis-a-vis engineers, technicians and managers, however, definitely was not borne out in these examinations of shop floor reality in two Soviet heavy-industrial enterprises. Direct-production workers retained a relatively privileged position at both enterprises (though to a greater degree at Admiralty). Responsibility for shortcomings often fell on supervisory personnel rather than production workers. The harsh on-book labor laws, such as the "Labor Book" Law of 1938 and the June 1940 law, relating to such things as "at-will" departures, tardiness, misuse or damage of enterprise property and theft, were not strictly enforced against workers. Social status differences between workers and engineering-technical personnel do not seem to have been great in actual heavy-industrial practice. Patterns of interaction between managers and workers can generally be described as symbiotic rather than conflictual or sharply divergent.

Both enterprises placed great emphasis on the rapid absorption of new production and military-related trophy technology. In each case, the attitudes by all concerned toward this task were highly practical. There is little, if

any, evidence of the rigidly nativist and wildly anti-scientific attitudes that many scholars have seen as a dominant feature of this "Zhdanovite" era. Non-politicized technical education was an intense focus at both facilities and considerable technological progress was made at both Admiralty and Podolsk.

Admiralty was a shipbuilding facility and Podolsk primarily an aluminum facility. Both plants, however, also produced other materials as well. Podolsk's secondary production was metallurgical in nature, while Admiralty's was far more varied. Both facilities, however, also demonstrated signs of an attempt to achieve something close to enterprise autarky in areas such as agricultural production. Another area of congruence was the priority demonstrated, in terms of both the allocation of resources and a greater emphasis on quality control, for military-related production.

It is not the purpose of this work to compare or contrast in an in-depth manner the combined or individual experiences of Admiralty and Podolsk in the post-war years with accounts that detail the Soviet industrial scene of the 1930s. Any sort of definitive attempt at such a comparison would break down in a welter of specifics. The dramatic shifts in emphasis and direction that strongly characterized that earlier industrial drive would also frustrate such an attempt.[107] In a very general sense, however, it is clear that many emphases and structures of the 1930s campaign, including the top priority

afforded heavy industry and the use of commemorative production campaigns, for example, were apparent in the Fourth Five-Year Plan period as well.

Other narrowly-defined differences between reconstruction and reindustrialization in the late-1940s and early-1950s, and the industrialization drive of the 1930s were also revealed, however, and do aid in highlighting some of the important features of the former. One difference was that technological solutions, and not "the motive force of class antagonism" predominated.[108] Managerial and technical authority was less open to political challenge. Incentive-based and honorary mobilizational programs were geared to steady, longer-term results, rather than "heroic" single shifts or day-long "storming" efforts. All of this contrasted sharply with the emphases demonstrated during certain periods of the 1930s industrialization drive. The political and social divisions, tensions and turmoil that were characteristic of many Soviet heavy-industrial shop floors during much of the late-1920s and the 1930s were also largely absent at Admiralty and Podolsk during the 1946-1950 period. A broadly more cooperative atmosphere prevailed. The records of neither enterprise furnished any examples of such 1930s practices as "light cavalry raids" or other attempts by the KPSS or its affiliated Komsomol organizations to expose "conservative" planning, practices or estimates of production.[109]

Stability also prevailed, above the enterprise level, at the higher levels of the Soviet heavy-industrial structure during the 1946-1950 period. High-level ministerial bureaucrats enjoyed considerable security of tenure in the post-war years. During this five-year stretch, the Ministries of Shipbuilding and Non-Ferrous Metallurgy saw only one change at the top of their hierarchies--when Malyshev replaced Goregliad as Minister of Shipbuilding in 1950. Soviet industry in the post-war years was spared the crippling purges that had ravaged it during 1937 and 1938.

Chief wartime economic planner and post-war head of Gosplan Nikolai Voznesenskii was, however, among the hundreds who perished in the 1948-1949 "spasm of violence" that has become known as the "Leningrad Affair."[110] Yet, both personal and structural parallels to the blood purges of the 1930s, and the fall and suicide of Heavy Industrial Commissar Sergo Ordzhonikidze, are lacking. Ordzhonikidze had, after 1930, opposed political intrusions by both the Communist Party and the People's Commissariat of Internal Affairs (NKVD) into the operations of the heavy-industrial sphere. His final conflict with Stalin in 1936-1937 was triggered by a desire to protect the industrial bureaucracy he headed from the ravages of "Stalin's despotism" carried out through the NKVD.[111]

Voznesenskii's death in 1949 did not coincide with, or presage, a broader purge of the nation's heavy-industrial bureaucracy or even any sort of shift in industrial policy.

The causes of the Leningrad Affair itself remain murky. Even Stalin biographer Dmitri Volkogonov, whose access to the relevant archival materials was unequaled, concluded that the matter was "not easily explained." While Volkogonov attributed the Leningrad Affair, in a very general sense, to the despotic and violent political culture inherent in Stalin's personal dictatorship, he also provided evidence that some of the specific roots of Voznesenskii's fall may have lain in the perceptions of the dictator and his Moscow-based "camarilla" that the Gosplan chief was a potential political rival. Some policy differences over agriculture may have also been essentially criminalized by the central leadership. In any case, Volkogonov gives no indication that the fate of broader industrial policy, or of those who implemented it, were ever at issue in the Leningrad Affair.[112]

To a greater degree than in the 1930s, relative security and freedom from political or police interference and the ability to operate independently within the broad guidelines defined by the central political elite implied a large shaping role for enterprise managers, ministerial bureaucrats, and other elements of the Soviet heavy-industrial hierarchy. This hierarchy, as defined by its structures, policies, methods of operation, and administrative practices, was thus positioned to play a key role in the post-war reconstruction of Soviet heavy industry.

ENDNOTES

1. "Itogi raboty zavodskogo komiteta." Martiets, November 22, 1946, p. 1.

2. The large slab-like monument bears an inscription that reads:

> 1941 - 1945
> Hero of the factory, immortal is your feat.
> In cruel battles, in inspired labor, in the
> name of the great victory.

V. M. Iurasov, Admiralteitsy (Leningrad: Lenizdat, 1976), p. 190.

3. Iurasov, p. 196.

4. Ibid.

5. Tsentralnyi gosudarstvennyi arkhiv sankt Peterburga [TsGASP(b)] F. 9510 op. 1 d. 41 Lenobkoma ... Prikazy ... 1946, Prik. no. 178, 20 May, 1946, p. 1. Stalin does not appear to have signed the decree himself, but, rather, had his signature stamped on it.

6. Most notably Vera Dunham. **See** Vera Dunahm, In Stalin's Time: Middleclass Values in Soviet Fiction. (London: Cambridge UP, 1976), pp. 4-5. See also Mikhail Konstantinovitch Glozman, questionnaire, p. 2. Glozman notes that management was less likely to delay the pay of workers than of engineers.

7. Use of such traditions to inculcate loyalty and stimulate feelings of "enterprise patriotism" were not unique to Admiralty or the post-war years. Similar attempts during the 1930s are noted in such works as Vladimir Andrle's Workers in Stalin's Russia and Donald Filtzer's Soviet Workers and Stalinist Industrialization. Moreover, these traditions have continued in post-Soviet Russia. Admiralty Shipyard was scheduled for privatization in late 1994, and television ads during the summer of that year promoting the sale of shares of stock in the enterprise stressed its prominent place in Russia's history.

8. To avoid confusion, I have referred to the enterprise as Admiralty Shipyard throughout this paper. Reality is more complex. Over time the shipyards have undergone a series of structural transformations and name changes. The facilities built after the destructive fires of the eighteenth century were generally known as New Admiralty (Novyi Admiralteiskii). Nineteenth- and early-twentieth-century construction on the

old eighteenth-century site produced a plant known as the Frantsuzskie-Russkie Verfi (Franco-Russian Shipyards). During the Soviet period, after a brief merger in the 1920s with the Baltic Shipbuilding Factory (Balteiskii sudostroitel'nyi zavod), the facility was known as Shipbuilding Factory number 194 (Sudostroitel'nyi zavod no. 194) or Marti Shipbuilding Factory (Sudostroitel'nyi zavod imeni Marti). The Shipyards were also still occasionally referred to as Admiralteiskii sudostroitel'nyi zavod even before the honorific Marti name (celebrating Comintern figure Andre Marti) was dropped in the 1950s. The plant was later officially designated the Admiralteiskii sudostroitel'nyi zavod. Unification, in 1972, with the affiliated Ship-Mechanism (Sudomekh) facility led to yet another series of name changes with the name Admiralty Shipyard (Admiralteiskie verfi) being the one finally settled on. For further information see V.M. Iurasov, Admiralteitsy (Leningrad: Lenizdat, 1976) and A.M. Lukashev, Leningradskoe Admiralteiskoe ob'edenenie (Leningrad: Lenizdat, 1982).

9. Iurasov, pp. 173-174.

10. Iurasov, pp. 13-14.

11. Iurasov, p. 167.

12. Mikhail Konstantinovitch Glozman, questionnaire, p. 2.

13. Glozman, p. 2. While it can be argued that Glozman is accentuating the positive in his reminiscences, neither he nor the other post-war Admiralty workers failed to point out problems at the shipyard during the post-war or other periods. Their accounts also closely corroborate each other on many points--including their general assessment of high labor-productivity and morale at the shipyard between 1946 and 1950.

14. Both of these organizations had claimed the property in question. Rossiiskii gosudarstvennyi arkhiv ekonomiki (RGAE) F. 8899 op. 2 d. 125. Min. sud. prom. Proekty postanovlenii rasporiazhenii Soveta Ministrov SSSR, 1947-1948. Letters from Minister of Shipbuilding Goregliad to Deputy Chairman of the Council of Ministers Saburov and from Saburov to Goregliad dated 6 March 1947, and 29 March 1947, pp. 209-210.

15. RGAE F. 8899 op. 2 d. 125 Min. sud. prom. Proekty ... 1947-1948. Letters from Minister of Shipbuilding Goregliad to Deputy Chairman of the Council of Ministers Voznesenskii and from Voznesenskii to Goregliad, dated 7 April 1947 and 30 April 1947, pp. 291 and 305.

16. Quotation from "Na obshchezavodskom sobranii." Martiets, 3 January 1946, p. 1.

17. RGAE F. 8899 op. 2 d. 111 Min. sud. prom. Prikazy, 1946, Prik. no. 405, 28 September 1946. p. 2. **See** also Norman Polman, Soviet Naval Power. (New York: Crane and Russak, 1974), pp. 19-26.

18. "Obiazatel'stvo rabochikh ITR", Martiets, 20 March 1948, p. 1.

19. While I will defer my limited comments on similarities and differences between the industrialization drive of the 1930s and the reconstruction and reindustrialization drive of the post-war years until later in this chapter, it seems clear that these processes had many basic commonalities as well as some important divergences.

20. TsGASP(b) F. 9510 op. 1 d. 41 Min. sud. prom. Prikazy, 1946, Prik. no. 514, 19 December 1946, p. 2.

21. "Povysit' kul'turu elektrosvarki", Martiets, 12 January 1946, p. 1.

22. "Sotsialisticheskoe obiazatel'stvo", Martiets, 19 January 1946, p. 2, and "Brak otdel pod mikroskopom," Martiets, 16 February 1946, p. 2.

23. "Bolshie vnimaniia stroitel'stva ob'ekta 545", Martiets, 2 September 1946, p. 1.

24. Ibid.

25. Ibid.

26. Military orders at the shipyards were identified only by numerical designations such as no. 545. My determination that 545 was probably a **Whiskey**-class submarine is based on information gleaned from both the documents and displays of the Admiralty Shipyards Museum and from secondary sources such as Norman Polman's Soviet Naval Power. No major surface ships were finished in early 1947 when object 545 was completed; yet 545 was clearly an important military order. According to Polman, captured German submarines brought to the USSR in late 1945 served as models for the first **Whiskey**-class submarines produced at such facilities as Admiralty and Sudomekh in the late 1940s (See Polman, pp. 19-26).

27. Nazi Germany had been the world's leader in numerous aspects of submarine design including hulls, propulsion systems, torpedoes, and some areas of naval electronics. As mentioned earlier, Soviet **Whiskey**-class subs were based on German U-boats captured and taken back to the USSR. By 1950, production had begun on the successor **Zulu**-class submarines which were based on advanced German prototypes and blueprints

of the **Type XXI** U-boat captured by Soviet troops. US military analysts considered the **Zulu**-class submarines particularly dangerous because of their high speed when submerged. By the mid-1950s, the Soviets combined rocket technology with the **Zulu** program to carry out the world's first launch of a ballistic missile from a submarine. Admiralty and Sudomekh seem to have been involved in all these programs, and the first **Zulu**-class submarines were produced exclusively at these facilities (See Polman, pp. 19-26).

This researcher, while in St. Petersburg, attempted to interview a woman who had worked at Admiralty as a bookkeeper for Defense Ministry officials on these projects, but after initially agreeing to be interviewed, she refused.

28. Fond muzeia leningradskoi Admiralteiskoi verfei (FMLAV) Chislennost' rabotavshikh na Admiralteiskikh verfiakh s. Peterburga po sostoianiiu na 1 ianvaria 1946 i 1950, p. 1. These numbers include all personnel working both at Marti (Admiralty) and the affiliated Sudomekh facility.

29. FMLAV Chislennost' rabotavshikh na Admiralteiskikh verfiakh s. Peterburga po sostoianiiu na 1 ianvaria 1941, p. 1. These figures also include Sudomekh workers.

30. TsGASP(b) F. 9510 op. 1 d. 135. Lenobkoma profsoiuza rabochikh sudostroitel'noi promyshlennosti, Statistika 1948, pp. 15-20.

31. TsGASP(b) F. 9510 op. 1 d. 135. Lenobkoma ... Statistika 1948, p. 18.

32. Ibid.

33. TsGASP(b) F. 9510 op. 1 d. 320 Lenobkoma ... Stakhanovtsy leningradskoi sudostroitel'noi promyshlennosti, 1950, pp. 1-15. Bulanov and Poliakov are described as constantly striving to impart their "production techniques and their love of their work to the younger workers."

34. TsGASP(b) F. 9510 op. 1 d. 320 Lenobkoma ... Stakhanovtsy ... 1950, pp. 1-10. Bulanov's production statistics for the 1946-1950 period were raised from 8.9 to 9.8 yearly norms and Poliakov's from 7.6 to 8.1 yearly norms in trade union documents signed not only by representatives of the shipyard's factory committee but also by Director Oreshkin (who had replaced Perovskii in 1948) and Deputy Director Golubev. The pattern of alterations in these documents is consistently to raise production statistics. These alterations were always made with purple ink characteristic of documents signed by Oreshkin and Golubev. In return for their cooperation, Admiralty's managers may have expected even greater effort

from these men and their brigades. Since any additional premiia would still have come from funds allocated by the Ministry of Shipbuilding to the Director's Fund at Admiralty, such fudging could have been seen as a technicality permitting dispersal rather than as a falsification that could have brought retribution from above.

35. "Leningradskii zavod im. Marti Perovskomu," Martiets, 8 May 1948, p. 1.

36. RGAE F. 8899 op. 2 d. 107 Min. sud. prom. Prikazy, 1946. Prik. no. 2, 2 February 1946, p. 3.

37. See "Stroitel'stve bez kontrolia," Martiets 3 Oct. 1947, p. 2; "Nizhnye kvartiry," Martiets 4 Dec. 1948, p. 2; TsGASP(b) F. 9510 op. 1 d. 256 Lenobkoma..., Dokladnye zapiski Zhilishno-bytovykh komissii... 1948, pp. 2-4.

38. "Ulushchit' zhilishno-bytovye usloviia," Martiets, 2 December 1950, p. 2. While the above Martiets article concluded that such primitive heating conditions were "no way to live," the situation was little worse than that existing in 1994 St. Petersburg in which any sort of heating outside of luxury hotels and important government office buildings was, in this writer's experience, practically non-existent.

39. FMLAV Dom otdykha zavoda imeni Marti 1949-1950, pp. 1-10.

40. "Istoriia s kotletoi," Martiets, 4 December 1948, p. 2. An average meal in 1948 was said to consist of 300 grams of bread, 75 of kolbassa, 200 of fish, and 200 of pasta with butter. Russian friends and acquaintances of this writer who had lived in Leningrad in the years following the war commented that Admiralty's workers had eaten better than they themselves had during these years, particularly before the abolition of rationing in 1947.

The functioning, or lack thereof, of the shipyard's dining rooms was constantly being criticized in the Martiets and investigated by the trade union. See "Na obshchezavodskoi profsoiuznoi konferentsii," Martiets, 15 January 1946, p. 2; "Zavod raportaet," Martiets, 16 October 1947, p. 1; "Ulushchit' zhilishno-
bytovye usloviia," Martiets, 2 December 1950, p. 2.

41. TsGASP(b) F. 9510 op. 1 d. 194 Lenobkoma ... Obiasnitel'naia zapiska po sostoianiiu travmatizma na Leningradskikh predpriatiakh sudostroitel'noi promyshlennosti, 1947-1948, pp. 5-7. The crippled worker Alekseev of shop no. 8 was severely injured by a heavy fall of packed ice and snow from a roof.

42. TsGASP(b) F. 9510 op. 1 d. 331 Lenobkoma ... O proverke raboty glavnogo tekhnicheskogo inspektora: Tsk soiuza na zavode no. 194, pp. 11-20.

43. Iuri Ivanovich Shestakov, questionnaire p. 2. It is certainly possible, however, that the experiences of the war years had largely desensitized the Admiralteitsy to the issue of industrial safety.

44. FMLAV Spravka o osnovnoi proizvodstvennoi diatel'nosti Admiralteiskikh verfei s. Peterburga, p. 1. The main production categories were as follows: barges, military ships, submarines, passenger ships, steam launches, turbines, and ventilation units. The last two categories were linked to the building of the Leningrad metro and the reconstruction of the Donbass mines.

The accuracy of these production statistics is vouched for by the museum staff (some of whom, such as Iurii Ivanovich Shestakov, worked at Admiralty or Sudomekh during the 1946-1950 period). Members of the staff were quick to compare the productive post-war years with later, less-productive years and the plant's current lower production levels.

45. FMLAV Spravka o osnovnoi .... p. 1; **See also** Iurasov, p. 331.

46. For one of many examples of this emphasis in the Martiets, see "Zavod raportaet," Martiets, 16 October 1947, p. 1.

47. TsGASP(b) F. 9510 op. 1 d. 342. Lenobkoma ... Po klubam predpriatii khudozhestvennyi samodeiatel'nosti, p. 24. and "DosFlota na zavode," Martiets, 28 October 1949, p. 1.

48. FMLAV Kniga pocheta zavoda 1946-1947. Reshenie zavodskogo komiteta 16 noiabriia, 1946. p. 6.

49. Quotation from "Den' rozhdeniia," Martiets, 31 December 1949, p. 1.

50. Shestakov, questionnaire, p. 1.

51. Glozman, questionnaire, p. 2.

52. Indeed, when this author observed several of the post-war-period Admiralteitsy in a room together filling out questionnaires, their pride in their shipyard during those years and the esprit-de-corps among them were still palpable despite the passage of over four decades.

53. P. F. Lomako, Tsvetnaia metallurgiia v gody Otechestvennoi voiny (Moscow: Tsvet. Met., 1975) p. 45.

54. Tsentral'nyi gosudarstvennyi arkhiv Moskovskoi oblasti (TsGAMO) F. 7721 op. 1 d. 4 Pod. zav. tsvet. met. Materialy (spravki, protokoly, zapiski, otchety o ispolzovannykh trofeikogo oborudovanniia po Podolskii zavod tsvetnykh metallov Jan.-Aug., 1946, p. 3.; and **also** Wings of the Red Star--Mig Force, Wings Aviation Military Collection. "Dual Over Korea," Discovery Channel, 1993, video cassette, 50 minutes. Podolsk was one of five German aluminum facilities transferred to the USSR. **See** Victor Mote, et al., eds., An Industrial Atlas of the Soviet Succession States. (Houston: Industrial Information Resources, Inc., 1994), p. v-7.

55. TsGAMO F. 7721 op. 1 d.4 Pod. zav. tsvet. met. Materialy... 1946, p. 3. The Soviets also referred to these German methods as the Gado process.

56. TsGAMO F. 7721 op. 1 d. 4 Pod. zav. tsvet. met. Materialy..., 1946, p. 3. Because of shortages of bauxitic materials that contained aluminum-bearing ores, the USSR had, in the late-1930s, turned to aluminum production based on tailings of nepheline. These latter ores were by-products of Soviet mining operations in the Kola Peninsula. **See** Mote, p. v-7.

57. RGAE F. 9022 op. 40 d. 43 Ministerstvo tsvetnoi metallurgii Prikazy, 1946. Prik. no. 118, p. 1.

58. The choice of the Podolsk site for rebuilding the Bitterfeld plant was simply dictated by the fact that it was near the offices of SMU-6 and for no other reason. See RGAE F. 9022 op. 27 d. 232 Min. tsvet. met. O stroitelstve Moskovskogo aluminievo-bronzogo zavoda, pp. 6-10.

59. TsGAMO F. 7721 op. 1 d. 7 Pod. zav. tsvet. met. Kollektivnyi dogovor za 1946, p. 1.

60. TsGAMO F. 7721 op. 1 d. 11 Pod. zav. tsvet. met. Planovyi otdel. Osnovnye pokazateli vypolneniia plana po zavodu za 1948-1950, p. 1.

61. Ibid.

62. This shortage also caused the dissolution of SMU-6 in 1950. The organization's equipment was divided among the other Moscow construction administrations. See TsGAMO F. 7721 op. 1 d. 39. Pod. zav. tsvet. met. Protokoly 1950, p. 71.

63. TsGAMO F. 7721 op. 1 d. 22 Pod. zav. tsvet. met. Obiasnitel'naia zapiska k otchetu po osnovnom deiatelnosti za 1949, p. 11.

64. V. P. Protasov and T. B. Rubinshtein, Effektivnost' rekonstruktsii i rasshireniia predpriatii tsvetnoi metallurgii (Moscow: Metallurgiia, 1981), p. 61.

65. Salaries at the Podolsk Factory of Non-Ferrous Metallurgy ranged from 300 - 350 rubles for female telephone operators to 500 - 550 rubles a month for construction workers. Higher up the pay scale, though still below the salaries earned by engineers and managers, were shop-floor workers and the upper-echelon support personnel such as motor-pool workers, whose salaries generally ranged from 600 to 800 rubles a month. See TsGAMO F. 7721 op. 1 d. 9 Pod. zav. tsvet. met. Prikazy 1949, p. 1.

66. TsGAMO F. 7721 op. 1 d. 22 Pod. zav. tsvet. met. Obiasnitel'naia ... 1949, p. 39.

67. TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly zasedanii zavodskogo komiteta 1950, p. 14.

68. TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly ... 1950, p. 21.

69. TsGAMO F. 7721 op. 1 d. 32 Pod. zav. tsvet. met. Spravka o khode sotsialisticheskogo sorevnovanii za dosrochnoe vypolnenie plana 1950 goda, p. 8.

70. TsGAMO F. 7721 op. 1 d. 22 Pod. zav. tsvet. met. Zhilishnyi otdel 1949, pp. 39-40.

71. TsGAMO F. 7721 op. 1 d. 32 Pod. zav. tsvet. met. Spravka o khode..., p. 8. The factory's workers were, in some cases, forced to rent peasant homes. Living space per person plunged to as low as 3.2 square meters during the course of 1950.

72. Nikol'skii was faced with a myriad of decisions regarding the punishment of offenses by factory personnel, with theft and chronic tardiness being the most common. Given the standards of his time, Nikol'skii was surprisingly merciful in dealing with the transgressors. The Director generally stopped short of the dreaded "referral to the Office of the Public Prosecutor" except in the more serious cases of theft, where the value of the property involved was not trifling and the willful intent of the perpetrators clear. One such case involved the metal shop workers Brezhnev and Galkin, who had been pilfering metal from their shop for weeks and tried to flee when exposed. Nikol'skii gave their case over to the prosecutor and, pending its disposition, assigned the two men to supervised construction work. In the majority of cases, Nikol'skii made do with warnings, demotions and fines. He made an example, however, of a recently-recruited worker Minchev who, evidently unhappy with conditions at the plant, simply

refused to work. Nikol'skii referred his case to the prosecutor immediately. See TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly... 1950, p. 41; TsGAMO F. 7721 op. 1 d. 16 Pod. zav. tsvet. met. Prikazy po zavodu za 1949, p. 77; TsGAMO F. 7721 op. 1 d. 27 Pod. zav. tsvet. met. Prikazy po zavodu za 1950, p. 39.

73. A serious accident was defined as one causing the loss of thirteen or more labor days. Fourth-quarter statistics were similar. See TsGAMO F. 7721 op. 1 d. 5 Pod. zav. tsvet. met. Otchet o neschastnikh sluchaikh sviazannykh s proizvodstvom za 1948, p. 1.

74. This report also recommended strengthening the authority of the foreman in safety matters to help combat the plant's accident problem. See TsGAMO F. 7721 op. 1 d. 20 Pod. zav. tsvet. met Otchet o neschastnikh sluchaikh sviazannykh s proizvodstvom za 1949, p. 5.

75. TsGAMO F. 7721 op. 1 d. 39 Pod. Zav. tsvet. met. Protokoly..., 1950, p. 34.

76. These statistics do not include labor days lost due to deaths in production accidents, which were not infrequent at Podolsk. See TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly..., 1950, p. 34.

77. The crew's supervising engineer, who was responsible for the accident, ordered his men into the "still dangerous tube" to help their stricken co-workers, while he himself ran for an ambulance. Despite his behavior, however, he does not seem to have faced criminal charges over the incident. See TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly..., 1950, p. 36.

78. A good example of this is the case of Stakhanovite construction worker Vasilii Denisovich Strashnyi whose 300-ruble bonus for a 500 percent-of-norm shift was scratched out by Nikol'skii. **See** TsGAMO F. 7721 op. 1 d. 9 Pod. zav. tsvet. met. Prikazy..., 1949, p. 61.

79. TsGAMO F. 4855 op. 2 d. 1 Moskovskii oblastnyi komitet profsouiza rabochikh metallurgicheskikh promyshlennosti. Zapiski presedatelei komissii 1949, p. 9.

80. TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly..., 1950, p. 42.

81. TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly..., 1950, p. 43.

82. TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly..., 1950, pp. 43-44.

83. TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly..., 1950, p. 44.

84. TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly..., 1950, p. 21.

85. Ibid.

86. Ibid.

87. Such publications regularly promoted the idea that "in the struggle for the successful fulfillment of these tasks [of the reconstruction drive as set forth in the Fourth Five-Year Plan] an honored place is occupied by our agitators in the enterprises." **See** "Zakrepit' uspekhi predmaiskogo sotsialistecheskogo sorevnovaniia," Bloknot agitatora, no. 14, 1948, p. 8.

Almost all of the output of political mobilizational material at the Podolsk Factory was issued through the office of Director Nikol'skii. One example was the lengthy broadside, "Our Soviet Motherland is the Shining Example of Peace and Democracy in the Whole World" that Nikol'skii wrote for the factory stengazety in 1948. **See** TsGAMO F. 7721 op. 1 d. 9 Pod. zav. tsvet. met. Prikazy..., 1948, p. 68.

88. TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly..., 1950, p. 58.

89. TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly..., 1950, p. 7.

90. Timothy Dunmore, Soviet Politics (London: MacMillan, 1984), p. 34.

91. An interesting postscript to this trend after Stalin's death was Georgi Malenkov's decision to assume the post of Chairman of the Council of Ministers instead of that of General Secretary of the Communist Party. His choice, in light of wartime and post-war experiences, was not an illogical one. However, Malenkov's eventual political nemesis, Nikita Khrushchev, capitalized on the powers of the position left to him by Malenkov to revive the latent power of the Communist Party.

92. Impressively, the Soviets were able to mass produce their own versions (the RD-45 and the RD-500) of the then state-of-the-art British engines without the benefit of any technical support from Rolls Royce. German BMW engines had been used to

power the Mig-9, the early model Soviet jet that remained in production until late 1948. **See** Wings ...

93. Lomako, Tsvetnaia Metallurgiia, p. 207. Commercial production of titanium in the USSR lagged far behind military-related development and only commenced in 1954. **See** Mote, p. v-7.

94. Early Soviet jets such as the Mig-15, and the Mig-17 which succeeded it, were known for their toughness, lightness and adaptability. Over 7,000 Mig-15s were eventually built. An early-model Mig-17 became the first Soviet aircraft to break, in a dive, the sound barrier in 1950. The Mig-19 was the first truly trans-sonic Soviet jet.

Comparing American and Soviet jet technology in the post-war years is a complex question. United States Air Force (USAF) F-86 Sabrejets achieved a favorable shoot-down ratio against Chinese- and North Korean-piloted Mig-15s in the Korean conflict. An elite Soviet Mig-15 squadron that fought secretly in the conflict, however, generally bested the Sabrejets.

In 1953, the USAF successfully captured and tested a Mig-15. The Americans concluded that the Soviet jets were technologically level with their own. By the 1960s and 1970s, however, the United States had a solid lead in military aircraft technology. **See** Wings.... Nikol'skii compared the poor supply situation at his new, small factory with that enjoyed by the much larger and older Moscow Aluminum Factory. **See also** TsGAMO F. 7721 op. 1 d. 22 Pod. zav. tsvet. met. Obiasnitel'naia zapiska..., 1950, pp. 1-3.

95. **See** TsGAMO F. 7721 op. 1 d. 30 Pod. zav. tsvet. met. Osnovnye tekhniko..., 1950 p. 1; TsGAMO F. 7721 op. 1 d. 29 Pod. zav. tsvet. met. Doklad direktora o rabote zavoda v 1949-1950, p. 1; TsGAMO F. 7721 op. 1 d. 22 Pod. zav. tsvet. met. Obiasnitel'naia zapiska ..., 1950, pp. 1-3.

96. **See** TsGAMO F. 7721 op. 1 d. 30 Pod. zav. tsvet. met. Osnovnye tekhniko..., 1950, p. 1; TsGAMO F. 7721 op. 1 d. 22 Pod. zav. tsvet. met. Obiasnitel'naia zapista..., 1950, pp. 1-3.

97. Nikol'skii noted that support for the Podolsk facility in 1950, from the Ministry of Non-Ferrous Metallurgy through its production-branch chief administration (Glavvtortsvetmet), was less than 70 percent of the original 1946 projection. **See** TsGAMO F. 7721 op. 1 d. 29 Pod. zav. tsvet. met. Doklad direktora o rabote zavoda. v 1949 - 1950, p. 3.

98. TsGAMO F. 7721 op. 1 d. 33 Pod. zav. tsvet. met. Doklad o tekhnicheskikh i tekhnologicheskikh dostizheniia zavoda za 1950, p. 3.

99. TsGAMO F. 7721 op. 1 d. 11 Pod. zav. tsvet. met. Plan. otd. Osnovnye..., 1948 - 1950, p. 7.

100. TsGAMO F. 7721 op. 1 d. 31 Pod. zav. tsvet. met. Osnovnye tekhniko..., 1950 g. pp. 2-4.

101. Ibid. The national average for industrial labor turnover in the year 1950 is cited by Kenneth Straus. **See** Kenneth Straus, "The Hammer and Sickle Steel Plant: Factory Work and Community Life in Moscow, 1928 - 1933" (unpublished manuscript, 1995) p. 111. Sheila Fitzpatrick has given far higher turnover rates for the first two post-war years of 1946-1947. **See** Sheila Fitzpatrick, "Post-War Soviet Society: The 'Return to Normalcy,' 1945-1953," in Susan J. Linz, ed. The Impact of World War II on the Soviet Union (Totowa, New Jersey: Rowman and Allogheld, 1985), pp. 139-141.

The negative turnover data contained in Admiralty's records was calculated on a quarterly, rather than a yearly, basis. The data was also recorded in percentage form as opposed to the actual number of departures. This makes an exact figure for yearly turnover difficult to calculate because the total increase in the number of workers per quarter was not available. The numbers presented here represent an approximate upper and lower boundary. Negative turnover was higher at Admiralty in 1948 than in 1950. Increased stability was also reflected by the complete elimination of part-time and double-occupation workers from the shipyard's payrolls by the end of 1950. Data for 1949 was either never collected or missing. **See** TsGASP(b) F. 9510 op. 1 d. 256 Lenobkoma... Statiskiki..., 1948, pp. 1-2; and also TsGASP(b) F. 9510 op. 1 d. 52 Lenobkoma... Otchet o chislennosti rabochikh... 1950, pp. 1-3.

102. The 95.8 percent fulfillment figure for technological introduction was one of the few bright spots at Podolsk in the otherwise difficult year of 1950. See TsGAMO F. 7721 op. 1 d. 31 Pod. zav. tsvet. met. Osnovnye..., 1950, p. 1.

103. TsGAMO F. 7721 op. 1 d. 29 Pod. zav. tsvet. met. Doklad direktora o rabote zavoda v 1949 - 1950, p. 3.

104. Woo Hee Park, "Absorption and Diffusion of Imported Technology: A Case Study in the Republic of Korea," in David Steedum and A.D. Tillett, eds. Absorption and Diffusion of Imported Technology (Ottawa: IDC, 1983), pp. 80-86. and **also** TsGAMO F. 7721 op. 1 d. 31 Pod. zav. tsvet. met. Osnovnye..., 1950, p. 2.

105. TsGAMO F. 7721 op. 1 d. 32 Pod. zav. tsvet. met. Spravka o khode..., p. 4. The Podolsk Factory's only competition award from the Ministry of Non-Ferrous Metallurgy was a third-place finish in the first quarter of 1950. It resulted in a rare instance of widespread distribution of bonuses at the factory.

106. **See** Seria peredovoi proizvodstvennoi tekhnicheskii opyt-otrakhel'naia plavka aliuminievnoi loma i otkhodov na Podol'skom zavode tsvetnykh metallov (Moskva: Tsvet. met. 1974).

107. The complexity of the 1930s' industrial scene, as portrayed in the works by Hiroaki Kuromiya, Lewis Siegelbaum and David Shearer, would render such an effort essentially meaningless. Dramatic shifts in industrial policies and shop-floor realities would beg the question as to "which" 1930s industrialization drive was serving as the point of comparison with post-war heavy-industrial reconstruction. **See** Hiroaki Kuromiya, Stalin's Industrial Revolution. Politics and Workers, 1928-1932 (New York: Cambridge University Press, 1988); Lewis Siegelbaum Stakhanovism and the Politics of Productivity in the USSR, 1935-1941 (New York: Cambridge University Press, 1988); David Shearer, Industry, State and Society in Stalin's Russia, 1926-1934 (London: Cornell University Press, 1996).

108. **See** Vladimir Andrle, Workers in Stalin's Russia. Industrialization and Social Change in a Planned Economy (New York: St. Martin's Press, 1988), p. 67.

109. For descriptions of such practices during the early-1930s, **see** Andrle, p. 107.

110. Dmitri Volkogonov, Stalin: Triumph and Tragedy, Trans. Harold Shukman. (New York: Grove-Weidenfield, 1991), p. 523.

111. Shearer, p. 242.

112. Volkogonov, pp. 519-523.

CHAPTER TWO

THE STATE: STRUCTURES, GOALS AND METHODS

Scholarly portraits of the Soviet industrial structure have largely characterized it as a bureaucratized, rigid "administrative-command" system or, on the other hand, a weak and chaotic "anti-system." Both totalitarian theorists and their revisionist challengers have also stressed the Soviet industrial system's social divisiveness, though revisionists have convincingly demonstrated that popular support for industrialization existed in the 1930s.

A strongly-shared assumption among Western scholars of otherwise varying viewpoints (and also having many advocates in the USSR itself by the late-1980s) was that, once established "out of the rough and tumble" of the 1930s, Soviet industrial structures remained "basically in place and unchanging." Before proceeding to my own analysis of the functioning of post-war heavy industry, I will review some of the relevant historiography in greater detail.[1]

Conceptions of the Soviet industrial hierarchy as an "administrative-command" monolith have been put forward, like the negative conceptions about the post-war period as a whole, by a surprisingly broad array of historians. Western scholars who adhered to an unmodified version of the totalitarian thesis regarding Soviet society, such as Carl J. Friedrich, Zbigniew Brzeszinski, and W. W. Rostow, characterized the Soviet industrial system as willful in its destruction of

traditional social bonds in order to create a new disciplined system of strict autocratic control--an "overpowering reality of control by the dictator and his party."[2]

While the specifics of the portrait differed, a similar rigidly top-down outline of the Soviet industrial system's structure emerged from a range of non-Soviet Marxist scholars. Often inspired by Leon Trotsky's "bureaucratic" interpretation of Stalinist society, these scholars saw the industrialization drive as the triumph of a repressive and undifferentiated collective bureaucracy over exploited and terrorized Soviet workers. "It is the bureaucrats ... the workers count for nothing in the governing of society."[3]

Such portraits of tight control did not take account of the, until fairly recently, poorly understood actual functioning of the Soviet industrial system and, in particular, the degree of independent control exercised by lower rungs of the bureaucracy (and by the workers themselves) over such issues as hiring, bonuses, norms, labor discipline issues, and so on. Neither set of views fits the complexities of the post-war heavy-industrial reality apparent at Admiralty Shipyard and the Podolsk Factory of Non-Ferrous Metals.[4]

By contrast, more recent views of the Soviet industrial system as fundamentally anarchic rather than tightly controlled have often been informed by detailed study of the 1930s industrial scene. To the extent that some of their authors or other scholars have generalized these findings as

more broadly representative of the Soviet industrial experience in general, I also find these views, along with the totalitarian-based ones, as largely inapplicable to heavy industry in the post-war period.[5]

David Shearer has drawn a convincing portrait of industrial chaos in the 1930s. Confused lines of authority and a "storming the barricades" mentality led to near anarchy. He strongly implies, however, that tension and chaos were endemic to the Soviet industrial system--never to be resolved in a way that would allow Soviet industry to free itself of the tragic irony of the system's all-powerful economic "commanders" being left essentially unable "to manage the day-to-day economic affairs of their empire."[6]

Vladimir Andrle's conclusions about symbiotic relationships between workers and managers in the 1930s parallel my own findings regarding the post-war situation in heavy industry, but he also sees the Soviet regime as inextricably committed to ideals of tight central control that, in fact, contributed to greater anarchy. Andrle also views the Stalin regime as fundamentally trapped in crude "brute force" methods of industrialization that continually down-played technology and relied on ever greater infusions of resources and labor power to boost production.[7]

Other authors, like David Granick, Katherine Verdery, and Donald Filtzer, have done work relating to the post-Stalin industrial scene. Filtzer has, in fact, published works that

bracket the war and post-war Stalin periods. Granick's pioneering work was, as has been pointed out by other scholarly commentators, not free of certain overly optimistic assumptions about technocratic convergence that ignored some of the uniqueness of the Soviet industrial system. Granick's work does, however, parallel my own conclusions concerning the fundamentally technology-focused mindset that pervaded post-war Soviet heavy industry. Granick also found considerable informality, a strong but cooperative role for the KPSS in industrial management, and more regional, as opposed to vertical (ministerially-dominated), organizational structures. He does note that the move toward greater reliance on regional authority was, in fact, a new direction taken by the Soviet Union after Stalin's death.[8]

Katherine Verdery's work is quite broad, both in geographical and temporal scope. She also, however, characterizes Soviet and other socialist economic and social systems as being essentially weak and chaotic. While her discussion of resource allocation, certain structural inefficiencies, and the hard choices these realities dictated seems at times quite applicable to post-war reality of heavy industry, her broader generalization that socialist regimes were only "partially and fitfully" able to win support and mobilize their populations once again does not seem to coincide with the dynamism apparent in post-war heavy industry.[9]

Filtzer's work presents the Soviet industrial system as peculiarly and chronically anarchic and dysfunctional. Sharing many of the "bureaucratic" assumptions of the neo-Marxist scholars, Filtzer, however, finds not bureaucratic dominance, but, rather, continual conflict. Hostile workers managed to subvert oppressive bureaucratic attempts throughout Soviet history to get the system and its workers to work. Instability was thus endemic to the Soviet industrial system; an unbridgeable gap remained between the political elite's ambitions and the "anarchy" that reigned on Soviet shop-floors.[10] Though approaching Stalinist industrialization from a more temporally narrow and different point of view, the work of Hiroaki Kuromiya also highlighted the divisive aspects of industrial mobilization in the late-1920s and early-1930s. Party and state officials attempted to gain support from workers by fostering an atmosphere of class war in Soviet industry.[11]

In his writing on the evolution of the Soviet industrial system in the 1930s, R. W. Davies draws contrasts between the early years of Stalinist industrialization and the more mature structure that existed by 1941. Overly ambitious early industrial plans gradually began to give way (starting in 1933) to more realistic planning. Early plans had required constant downward adjustments. This was not true of industrial plans in either the late-1930s or in the post-war period. Conflict and turmoil within Soviet industry, however, were,

for Davies, a consistent feature of the pre-war period. Political elites had promoted worker voluntarism in order to combat resistance by managers and technical specialists to high plan targets. The Great Purges had embroiled Soviet industry in a murderous search for hidden enemies.[12]

Davies challenges the traditional administrative-command model that cast Soviet industry as a rigid structure in which all independent thought and action was subsumed to unquestioned following of Stalin's dictates. In this regard, Davies' work is especially important in my conception of the post-war structure. While, as we shall see, features detailed by Davies were not present in precisely the same way after the war, they continued to play important roles. In attacking the administrative-command concept, Davies notes the presence of a "quasi-market" in areas such as labor hiring practices. Managers, while their independence was limited by instability and fear, also found themselves forced to act outside of official channels in a manner Davies describes as "quasi-entrepreneurial." Davies also demonstrates a pre-war role for managers and ministerial bureaucrats in modifying, through the input of their specialized knowledge and negotiation, the plans of the Soviet political elite.[13]

Wartime experience produced few formal changes in this Soviet industrial structure but, as Mark Harrison and John Barber have described, ad-hoc planning often replaced more rigid long-range plans. Reliance on personal initiative also

increased. Self-sufficiency and simply "work[ing] hard and producing as much as possible" characterized the early stages of the war effort. Even after more formal, centrally-directed practices began to reassert themselves in 1943, more informal elements that had helped Soviet industry deal with chaos and setbacks in 1941-1942 remained an enhanced part of the economic mix.[14]

In my analysis, overall systemic performance in heavy industry in the post-war reconstruction era was impressive. Confronted with damage from an incredibly destructive invasion and then becoming embroiled in the Cold War, however, the USSR's economy did become more militarized in its emphases. As we have seen at Admiralty and Podolsk, however, increased militarization did not preclude considerable flexibility in practice during the 1946-1950 period. Nor was the industrial-ministerial structure disrupted by a renewal of purges or other forms of pre-war political turmoil. Lower priority sectors such as agriculture and consumer goods remained starved for resources, but Soviet heavy-industry's intense and highly-centralized approach to technology yielded, as will be detailed in the following chapter, impressive results.[15]

To justify these broad conclusions and to place the experiences of Admiralty Shipyard and the Podolsk Factory of Non-Ferrous Metals in the broader context of post-war heavy-industrial reconstruction, it is necessary to examine in detail the Soviet state's industrial structure during the

rebuilding period. This vast hierarchical apparatus can be characterized at first glance as both complex and confusing due to overlapping layers of bureaucracy, frequent organizational reshufflings and multiple lines of authority and command. The actual functioning of the Soviet heavy-industrial system, however, was smoother and more effective in practice than its labrynthine organizational structure would suggest. This was due, in large part, to the effective and nearly autarkic power wielded by the branch ministries.

Indeed, except for the Council of Ministers itself above them, each branch ministry, such as Shipbuilding or Non-Ferrous Metallurgy, essentially constituted its own independent hierarchy. Contact among the various branch ministries that together constituted Soviet heavy industry was, however, limited.

The powerful Ministers themselves, Lomako at the Ministry of Non-Ferrous Metallurgy and Goregliad at the Ministry of Shipbuilding, were directly responsible (on a rotating basis) to members of the political elite such as Malenkov, Saburov, or Beria. If the tasks assigned to the ministries by Stalin or such close associates were of a high priority, the minister (and the ministry) in question was in a strong bargaining position in terms of acquiring resources. This pattern repeated itself down through the structure of the ministerial hierarchies themselves.[16]

My broad conception of the Soviet heavy-industry structure is as a system containing four basic layers: planners, implementers, enterprise managers, and direct producers. Each layer was fundamentally defined by its relationship to the layer(s) above and/or below it through the system's two basic fulcra--resource allocation and performance analysis. The top planning layer consisted of the Soviet Union's political elite, whose individual and collective wills and priorities were formally enacted by the Council of Ministers. The political elite's goals were often fleshed out through consultation with the relevant ministries or national economic planning advisors at the State Committee on Planning (Gosplan). At this top level, planning, priority, and resource allocation directly reflected the leadership's conception of broad national priorities and needs as judged against available material and labor resources. From very early on in the planning process, extensive consultation occurred among these top-level political elites and macro-economic planners, as well as with the chief implementors of the plan, the leaderships of the production-branch ministries such as the Ministry of Shipbuilding and the Ministry of Non-Ferrous Metallurgy.

Exchanges occurred concerning matters pertaining to production targets, critical questions of resource allocation from the planners to the implementors, and the specific composition of the planned production output. While such

exchanges generally involved the economic, technical and production bureaucracies of Gosplan and the relevant ministry, members of the political elite, acting through the Council of Ministers, or as specially-assigned plenipotentiaries, often played a direct role if the matter under consideration related to an especially high priority of the political elite itself. From 1947 through 1950, for example, all military shipbuilding was carried out on the basis of yearly production plans, under the auspices of the Ministry of Shipbuilding, that were separate from the civilian shipbuilding plans worked out by the Ministry and Gosplan. These military shipbuilding plans were developed in detail "at the highest level" by high-ranking Ministry of Shipbuilding and Gosplan officials and "Comrade [Lev Zakharovich] Mekhlis acting as a personal representative of Comrade Stalin."[17]

The ministerial bureaucracy was responsible for carrying out the production plans with the agreed-upon allocation of resources. In turn, it would have its performance analyzed by the planners on the basis of how well a ministry as a whole had contributed to the national economy through fulfillment of its own production targets. Already, however, one can see the potential for originally unplanned "tilts" in ministerial production through the example of the separate plans for military and civilian production within the Ministry of Shipbuilding. Clearly, the Ministry's implementational bureaucracy had a vested interest in shifting scarce resources

to military production to assure that the top priority of their leaders was successfully realized.

While ministerial implementors had an interest in trying to pry as much as possible in the way of resources from the planners, the latter with their national, multi-priority outlook had an interest in giving individual ministries no more than what was absolutely necessary to meet production goals. This somewhat crude, and not always effective system of checks and balances, which also functioned between the system's lower levels, operated and operates in various forms around the world in many government and corporate bureaucracies and should in no way be considered absolutely unique to the late-Stalinist USSR.

More unique to the industrial structure of the USSR in the post-war years was the complex and bifurcated organization of the various ministries and the production-branch chief administrations (glavki) within them. Both the chief administrations and the ministries themselves usually dealt with the managers of individual enterprises on separate issues ranging from worker recruitment to utilization of new trophy technology.[18] Indeed, enterprise managers were dependent on this combined ministerial layer for their positions (as were the ministerial bureaucrats upon the planning elite). Despite the considerable devolution of authority over production and labor matters from the ministries to the chief administrations, both the ministerial bureaucracies and the

subsidiary bureaucracies of the chief administrations played complementary supervisory roles vis-a-vis enterprise managements.

A more narrow concept than the post-Stalin decentralization associated with Nikita Khrushchev, "devolution" is defined here as the deliberate ceding of authority over specific industrial matters (such as worker recruitment) by the higher levels of the Soviet heavy-industrial structure to the structure's lower levels. Ministries and chief administrations analyzed performance in their turn, reflecting and often magnifying the priorities set at the top of the system by the planners.[19] Given this reality, and the fact that the production tasks and resources of the chief administrations, like those of the ministries themselves, were largely decided at the planning rather than the implementational level, it seems reasonable to consider the ministries and their chief administrations as a unified level of the production hierarchy.[20]

The ministerial implementers relied upon the enterprise managements to produce the results that would fulfill both their own enterprise obligations and those of the ministries and chief administrations to the planners. For the purposes of this work, the enterprise management strata is defined as supervisory personnel who had regular operational contact on such issues as resource allocation and production with the ministerial-level and glavki implementors; managers were

enterprise-level officials who were deemed responsible by the implementors for the operation of the entire factory rather than for the operation of any single shop or brigade. Thus, individuals who held positions such as director, deputy director and chief engineer fell into this management category; supervisory personnel from the shop-boss level on-down clearly did not.[21]

This definition of management is also firmly grounded in the functioning of the processes of resource allocation and performance analysis within the Soviet heavy-industrial system. Enterprise managers received resources from the ministerial level and disbursed them to the factory's direct-production shops. Overall factory performance (equated with managerial performance) was analyzed by the ministerial implementors; the performance of the direct producers in the individual factory shops was analyzed by the enterprise managers.

This final direct-production stratum included a broad range of workers, supervisory personnel, and engineering-technical workers (ITR) whose performance was analyzed within the shops themselves or by the factory's managers. These direct-producers either were shop-floor workers themselves or were in a direct supervisory capacity over them.[22]

On the whole, the structure can be best characterized as a hierarchy of dual dependence. The political elite's priorities were reflected within each ministerial hierarchy,

but control over the actual production process and its results was limited by the intervening implementational and managerial strata and the constant formal and informal bargaining that took place between the mutually interdependent layers. Both ministerial implementators and enterprise managers were dependent on the strata above them for resources and on the strata below them for results.

Enterprise managers bargained with ministries for resources and with workers for production. As we have already seen in the case of Admiralty, success bred success. Access to greater resources gave managers the ability to recruit the best workers and build the sort of symbiotic relationships that worked to the mutual benefit of both groups. Production increased and resources flowed to the most productive. Since resources flowed to enterprises that, like Admiralty, also most directly reflected the political elite's priorities, the elite found itself in the position of having its priorities at this level unintentionally even more intensely magnified in the industrial system's enterprises. The functioning of the system's network of dual dependency, however, also thus negated any attempt at precise economic pre-planning by that same elite. The Soviet political elite essentially acknowledged this reality by making the 1946-1950 Fourth Five-Year Plan more flexible and less specific than earlier five-year plans. While some analysts have assessed this practice

negatively, others have seen it as a sign of greater pragmatism and maturity.[23]

David Shearer, in his recent work Industry, State and Society in Stalin's Russia 1926-1934, elucidated the conflict between notions of "taut" planning and "flexible" planning in the late-1920s and early-1930s in Soviet industry. As advocated in its purest form by proponents in the Workers and Peasants Inspectorate (Rabkrin), the notion of "taut planning" in an economic sense can be defined as the strict repression of all market and commercial relations and construction of a militarized campaign economy. A seemingly contradictory mix of extreme centralization, artificially high product targets, strictly designated methods to achieve those targets, a "politization of production," and an overall industrialization drive that epitomized "reckless audacity" and, in practice, bordered on anarchy, were all characteristics bred by the predominance of "taut planning" during the late-1920s and early-1930s.[24]

Lingering in a variety of modified forms throughout the 1930s, notions of "taut planning" can also be associated with various social phenomena that occurred in Soviet industry during the 1930s. Broadly construed, these phenomena involved forms of pressure brought to bear against those (often bureaucrats, managers, and/or engineering technical personnel) who resisted the imposition of what they deemed to be unrealistic industrial goals. A diverse set of examples ranged

from formal and informal harassment of managers on Soviet shop floors (spetseedstvo) to the Stakhanovite movement and, in certain ways, to the terror campaigns of both the early- and late-1930s. The atmosphere of suspicion and distance created also led to a fundamental elimination of the distinction between the "professional and political behavior" of industrial experts.[25]

The unity created by the war, the increased valuing of technical knowledge, the replacement of the old suspect technical intelligentsia by a new generation of "red experts," and the greater degree of flexibility and pragmatism demonstrated by the Stalin regime, all were part of a "normalization" and a broad retreat from the concept of "taut" planning toward more flexible approaches in the post-war period. Heavy-industrial production targets in the Fourth Five-Year Plan, while ambitious, were, like those of the late-1930s, not unrealistic. Indeed, it would seem self-evident, given the conditions prevailing in the USSR after the war, and the earlier negative results from attempts at precise pre-planning, that choosing flexibility over taut planning was the only logical option.

The way the Soviet industrial system functioned, along with the prevailing conditions of mass migration, remaining human and material devastation, sweeping demobilization, rapid introduction of new technology, and wartime to peacetime economic reconversion created, in the words of Kenneth Straus,

a "quicksand society" that would have frustrated any attempt at a return to "taut planning."[26]

Such adaptation and fine-tuning, as well as the tasks of bargaining and consulting with the political and planning elites, often fell to the powerful implementational ministerial bureaucrats. As Timothy Dunmore notes, the officials in the post-war ministries were in better positions to deal with the task of fleshing-out the general plans of their superiors than their predecessors in the 1920s and 1930s had been. While heavy industry had been overseen by one unwieldy commissariat (Narkomtiazhprom) until 1937-1938, by 1947 there were nineteen more specialized heavy-industry ministries (including Non-Ferrous Metallurgy and Shipbuilding). The post-war ministers themselves also all possessed higher education and extensive technical training in their fields and generally enjoyed increased security of tenure as opposed to their pre-war predecessors. Before the war in 1936, fewer than two-thirds of the branch heads, within what at that time had been a single heavy-industrial ministry, had possessed advanced degrees.[27]

Minister of Shipbuilding Goregliad's interaction with Deputy Chairman of the Council of Ministers Lavrenti Beria concerning a plan to increase the capacity of Central Asian river transport to carry coal and fuel products in 1947 provides a good example of the influence exercised over

planning by the branch ministries. After receiving a draft decree on the matter, Goregliad wrote to Beria:

> Stemming from the fact that the Council of Ministers of the USSR has adopted a decision allocating to the Ministry of the Shipbuilding Industry the task of preparing for Central Asian River Transport a fleet of self-propelled barges with a central construction point and hub on the Aral Sea, I ask your permission to amend the order of the Council of Ministers of the USSR through the following suggestions and additions ... Comrade Molotov has already agreed to the inclusion of these suggestions and additions of Minsudprom if they are acceptable to you. The inclusion of such suggestions and additions represents a minimum of what is vitally necessary for the successful fulfillment of the order of the government. Thus, I request your agreement for their inclusion in the text of the order.
>
> A. Goregliad[28]

Goregliad's proposed changes were extensive and amounted to both an expansion and a rewriting of the draft decree. Goregliad made an extensive and detailed range of supply demands on a variety of ministries and chief administrations, ranging from the oil-supply chief administration of the Ministry of Construction (Glavneftsnab) to the Ministry of Food Service. Goregliad also requested extra funds for construction of the new Aral Ship-Assembly Yards (Aral'skie sudosborochnye verfi), for special bonuses for Ministry of Shipbuilding workers, and for the upgrading of barge construction methods and the Ministry's electrical power stations.[29] Despite the breadth of Goregliad's demands, Beria (evidently after consulting with the other affected organizations) approved Goregliad's version of the project with only minor changes. This speaks eloquently to the

bargaining power and influence of the technical bureaucracy of a favored heavy-industrial ministry when it effectively pledged itself to fulfill a plan.[30]

As national organizational hierarchies based on high-priority direct production, the heavy-industry branch ministries enjoyed a primacy in the post-war economic system not enjoyed by functional ministries such as the Ministry of Labor Reserves or the Ministry of Finance. Timothy Dunmore has already convincingly demonstrated the post-war transfer of authority, in such matters as labor recruitment, away from these functional ministries and to various parts of the production-branch ministerial structure.[31]

The primacy of direct production was also highlighted within the ministerial hierarchies at the implementational level by the greater authority and independence exercised by the production-branch chief administrations as opposed to the functional chief administrations. At the enterprise level, the traditionally greater status enjoyed by direct-production workers (rabotniki) as opposed to support staff (sluzhashchie) continued in the post-war period and also reflected heavy industry's strong production-first emphasis. Furthermore, functional and territorially-based organizations such as industrial trusts within Soviet heavy industry often found their own roles and powers to be circumscribed and redundant. Some of them, however, such as the formerly-powerful Ministry of Labor Reserves, continued to carry out certain non-

production related statistical functions rarely or indifferently performed by the production-branch ministries or chief administrations.[32]

I found only rare and generally insignificant instances that contradicted Dunmore's analysis of increasing production-branch ministerial power. A representative example was the loss of control by the Ministry of Shipbuilding over the supply, maintenance and use of sporting equipment in its enterprises in 1947.[33]

The primacy of production within the heavy-industrial hierarchy and the high priority accorded to heavy-industrial reconstruction by the Soviet political elite all placed pressure on the powerful ministerial-level implementors to "quicken production returns" as rapidly as possible. This task had to be accomplished with the limited resources available to a country devastated by the war.[34] In order to accomplish the ambitious production tasks confronting them, the ministerial bureaucracies largely ignored the geographical priorities laid out in the Fourth Five-Year Plan that called for continuing development of the USSR's eastern regions and the newly liberated areas. The ministries instead consistently directed resources toward trusted traditional networks of well-connected enterprises in the nation's established industrial regions.[35] In practice, this favored a reliable and well-known enterprise like Admiralty, with its traditions and already well-established place in the production hierarchy.

Podolsk, on the other hand, was a new, small, highly-specialized facility going through the arduous process of getting its production shops on-line (pusk). Without established connections, other bona fides or experienced cadres, it fared poorly despite its location in Moscow oblast'.

Indeed, the practice of focusing resources on key favored enterprises had roots as far back as the First Five-Year Plan.[36] Wartime production and evacuation experiences also greatly reinforced this emphasis. Mark Harrison has noted that the actual number of plants partially or wholly evacuated during the war was relatively small. The plants considered worth saving were, however, clustered in certain key industries and had "economic significance that was all out of proportion to their number."[37] One of the industrial facilities ranking high enough in priority to merit such wartime attention was Admiralty Shipyard which, while still operating as a key naval repair and munitions plant throughout the siege of Leningrad, had seen its valuable shipbuilding equipment evacuated to Siberia until the war's conclusion.[38]

The favorable treatment and attention received by important "super-enterprises" such as Admiralty in the post-war era also often caused them to become focal points for the introduction of new technology. Wielding their considerable power and influence within the industrial system these "super-enterprises" and their managements became magnets that

attracted additional production, resources and the best and most highly-skilled workers. Admiralty was assigned a variety of projects and thus drew in a wide range of resources. The shipyard also produced often scarce secondary goods not directly connected to shipbuilding. Not only did the factory produce consumer goods, but also crucial heavy-industrial equipment for the construction of Leningrad's Enso electrical power station, for the Leningrad metro, and for the reconstruction of the Donbass mines. Admiralty was also the largest producer of tractor parts among all the enterprises of the Ministry of Shipbuilding.[39]

The power that such super-enterprises wielded in the post-war heavy-industrial environment certainly should not be underestimated. Mounting autarky drives that paralleled those of the branch ministries and, indeed, that of the nation as a whole during the early years of the Cold War, these giant enterprises employed a significant percentage of all Soviet workers and were crucial for meeting their respective ministries' production targets.[40] Admiralty's example also demonstrated that diverse production and a striving for enterprise autarky had become an accepted part of the production process by the end of the Fourth Five-Year Plan period. Secondary production at Admiralty was officially assigned to it. An informal tendency of the pre-war period had been refined, shaped and formalized from above. Out of the six major (and official) production categories, upon which

Admiralty's performance was evaluated, two had nothing whatsoever to do with shipbuilding. During the 1930s, Soviet heavy-industrial enterprises had carried out production of secondary items largely on an ad hoc or informal basis and had also been subjected to considerable pressure to limit or eliminate such production in order to achieve greater specialization.[41]

Due to the primacy of direct production, the clear lines of authority within the ministerial hierarchies, and enterprise managements' crucial role in fulfilling the production targets on the basis of which the political elite would analyze their ministerial and glavki superiors, enterprise managers, particularly of key production magnets such as Admiralty, were also in a strong position to squeeze resources out of the industrial system. The functioning of the industrial system, however, also produced bureaucratic logjams that, at times, limited managerial power and effectiveness even at "super-enterprises" such as Admiralty Shipyard. Such logjams stemmed from at least four causes: the industrial system's relentlessly productivist bent; the location of lines of authority within largely autarkic ministerial hierarchies defined by production type (shipbuilding, coal mining, agriculture, etc.); the weakness of local and regional authorities; and the atrophied or insufficient nature in the late-Stalinist USSR of written codified laws and rules pertaining to organizational behavior.

An excellent example of such a bureaucratic tangle was Admiralty Shipyard's attempt in 1949 to oblige the Leningrad Trust of Dairy and Vegetable Sovkhozes to provide workers, machinery and know-how in expanding and upgrading Admiralty's agricultural holdings--an important matter, but one more related to standards of living at the factory than directly to production issues. Despite the fact that the transaction had been approved and funded by Gosbank in accordance with a Council of Ministers' decree requiring the provision of such "supplemental assistance" to factories such as Admiralty, Ansin, the Leningrad Sovkhoz Trust's leader, refused in August and again in September to provide the assistance.[42]

The deadlock prompted a flurry of complaints from Admiralty's Deputy Director Golubev; he sent letters to his own superiors at the Ministry of Shipbuilding and to Ansin's superior at the Ministry of Agriculture, Riabov. Golubev notified the Deputy Agriculture Minister that Ansin, "in spite of the high-level existing decree, has simply refused to present the aid to us."[43] The situation remained very much the same in October and November; Golubev was still vainly trying to seek administrative redress for "Comrade Ansin's refusal of our request for aid and workers."[44]

The lack of an effective response to Golubev's complaints from the Ministry of Agriculture, or any other part of the Soviet bureaucracy, seems to have emboldened Ansin. The Trust's Director refused to oblige Golubev, despite assurances

to the latter from Deputy Minister of Shipbuilding Novikov in mid-October that he was "looking forward to the [whole] matter being decisively resolved in the next five or six days."[45]

Golubev was taken ill in December 1949, but the flow of complaints about Ansin from Admiralty's managers continued as acting Deputy Director Minikes and Chief Bookkeeper Burlankov repeatedly sent copies of the original Council of Ministers' decree and angry letters to the Ministry of Agriculture, the Ministry of Shipbuilding, and the Leningrad Oblast' and City Councils (Soviets). At the beginning of December, these local and regional bodies backed Ansin. The Chairman of the Ispolkom of the Leningrad City Soviet argued that "rendering of aid to the factory is impossible without further Gosbank credits."[46] A change of heart by the leadership of the Soviets at the end of the month won a promise from Ansin to sign the order authorizing the aid, but at the last moment the trust's boss once again balked.

By 1950, the dispute appeared no closer to resolution despite numerous letters referring to an existing Council of Ministers' decree, meetings and the involvement of a variety of governmental organizations. Suddenly, however, sometime before January 15, 1950, all the workers and equipment were provided to Admiralty by Ansin, and the work to improve and expand the factory's agricultural holdings was begun. The sudden resolution of the dispute in the wintry and unlikely month of January, after nearly six months of fruitless

bureaucratic wrangling, may well have been due to the personal intervention of Deputy Chairman of the Council of Ministers Georgi Malenkov, who had also intervened to resolve a similar, but more high-level, dispute involving the bureaucratic hierarchies of the Ministry of Shipbuilding and the Ministry of Agriculture in 1947.[47]

The bureaucratic deadlock caused by a dispute between organizations that were part of two <u>different</u> ministerial hierarchies defined by two <u>different</u> types of production was thus seemingly solved, not by appeal to any formal legal or procedural framework, but through the personal intervention of a powerful member of the political elite. Malenkov's evident resolution of the dispute, while further indicative of the pre-eminence of heavy-industrial production in the elite's priorities, also demonstrated the significance of informal "telephone law" in the functioning of the post-war Soviet industrial structure and economy. "Telephone law," however, also allowed the elite directly to affect the production process in the enterprises.

In 1949, with Cold War tensions rising because of the impending Communist victory in China, Stalin personally called Admiralty's Director Oreshkin to order him to divert all available material and labor resources into the speeding up of the construction of the light cruiser **Chapaev**.[48] The need for such direct personal intervention by members of the political elite, particularly in cases of deadlocks among or between

industrial hierarchies, such as the one between Admiralty's management and the administrators of the Leningrad Dairy and Vegetables Sovkhoz Trust, logically ought to have been lessened due to the omnipresence of the KPSS. The Communist Party pervaded, transcended and, in theory, linked the various ministerial hierarchies and enterprises and their technically-specialized and production-focused bureaucrats and managers.

At least during the 1946-1950 period the Party, however, was simply not capable of performing such a unifying or checking role. Far from being an instrument of totalitarian ideological or organizational control in post-war heavy industry, the party was weak and, to borrow a term from Moshe Lewin, thoroughly "economized" (subsumed within the industrial-economic hierarchies).[49] While the KPSS remained an important vehicle for personal entree into the ranks of managers and ministerial implementors, it was unable to transcend or alter the production-defined hierarchies that relied increasingly on technical expertise and functioned through performance analysis and resource allocation. The Party was, in many ways, relegated to the status of one more ephemeral layer of overlapping bureaucracy; thus, its place in the Soviet industrial system was similar to those occupied by the functional ministries.

One of the reasons for the Party's weakness within the ministerial structures was the increasingly long-serving and technically-specialized nature of the ministerial bureaucrats

themselves. As Timothy Dunmore has argued, the wearing of "two hats" by post-war ministerial cadres did little more than compel them to "formal attendance" at infrequent Party meetings. Dunmore notes that "in the vast majority of cases, it seems that the ministerial official was more loyal to his full-time employer and colleagues in the state apparatus than to the Party which he was obliged to join to further his career."[50] The post-war years, as noted in Chapter One, were also characterized at individual heavy-industrial enterprises such as the Podolsk Factory of Non-Ferrous Metals by weak Party organizations.

Evidence from Admiralty Shipyard and the affiliated Sudomekh Factory suggests that Communist Party organizations within those enterprises also worked poorly, even on questions that these shipyards were, on the whole, handling successfully. One particularly telling example concerned trophy technology introduction. The shipyards' managements, trade unions and supplemental mobilizational structures, such as Knowledge Societies, all seem to have played more effective roles, as organizations promoting new technology absorption, than did the Party organizations. Again, since many members of the Knowledge Societies, along with almost all of management and the trade union leadership, were Communists themselves, enterprise-level Party members clearly decided that the actual Party administrative and mobilizational structures were less desirable and effective avenues to accomplish their goals.[51]

The general purpose of mobilizational strategies within post-war Soviet heavy industry was to promote greater productivity. In practice, this could entail anything from encouraging the adoption of new technology and industrial processes by skilled production workers in the enterprises to prompting ministerial bureaucrats to work above-plan amounts of overtime. Methods of mobilization could include material incentives such as monetary bonuses or vacation passes. Moral incentives ranged from broad patriotic appeals to public praise for productive individuals.

From a perusal of the motivational discourses used in such heavy-industrial enterprises as Admiralty Shipyard and the Podolsk Factory of Non-Ferrous Metals, as well as at higher levels of the Soviet heavy-industrial ministerial hierarchies during the post-war years, it becomes clear within post-war heavy industry that there was no search for "cosmopolitans" or other internal enemies. The emphasis was on unity, not division. In March 1946, for instance, Minister of Non-Ferrous Metallurgy, P. F. Lomako wrote in the Ministry's journal Tsvetnye Metally:

> The many-thousand man army of the workers of Non-Ferrous Metallurgy will march forward in step with all the people of the USSR; they will turn all their own powers toward the fulfillment of the historic tasks as decreed [in the Fourth Five-Year Plan] by Comrade Stalin.[52]

The absence of the pre-war theme of intensifying class struggle, a lack of attention to the specifics of Communist ideology, and a weakened and ill-defined administrative role

for the Communist Party within post-war heavy industry all effectively worked to further accentuate the power of the technologically-defined, heavy-industrial ministerial bureaucracies that were dedicated to increasing the state's military power. These trends do not seem to have wholly coincided either with pre-war or post-Stalin patterns. David Granick, for instance, noted both the stronger role of the Party after Stalin's death and the greater prevalence of the "professional revolutionary as manager" in the Soviet industry of the 1920s and 1930s.[53]

Given the long hours and demanding production programs at reconstruction-era heavy-industrial enterprises, it is, in a practical sense, unsurprising that ideological-theoretical work was generally a low priority for KPSS and Komsomol members. While complaints about lax standards from Party, trade union, and managerial personnel were frequently voiced at Admiralty and Podolsk, the impact of such rhetoric appears to have been negligible. Again, the pattern of behavior was strikingly similar at Admiralty to the pattern, in this regard, already documented for Podolsk in Chapter One.

A 1948 article in the Martiets recounted the following episode:

> In the course of the last Party meeting of the factory administration, the question of Party political education and theoretical training was considered. The reporting Party member asked for fully forty minutes to be allotted for discussion of 'such an important question'. The listeners, however, shouted out disapproval from their seats--'No twenty minutes is sufficient! There is not

> really a lot to say and we already know it all anyhow!' After a lengthy and heated debate between the speaker and the audience, a 'golden mean' of thirty minutes was settled on.

The article's author, who was also Admiralty's Party boss, concluded that the behavior of the listeners had once again demonstrated that "many Communists are simply and completely unmotivated to strive for the improvement of their own ideological level in accordance with the fulfillment of the charter of our Party."[54]

Indeed, such disregard for Communist theory and ideals had been consistently apparent in the Party organizations of both Admiralty Shipyard and the affiliated Sudomekh Factory two years earlier in 1946. Passivity in recruiting new members, infrequency of meetings, and low levels of Communist education were endemic problems.[55] While articles in the newspapers of the two facilities regularly highlighted these problems, they never were deemed sufficiently important to merit serious and effective redress. This "effective devaluation of the significance of the political education of Communists" came into sharp relief in 1950, when it was revealed that "over one half of the factory's [Admiralty's] Communists have never been engaged in any kind of study."[56]

The intense "economization" of the Party, both at the broader organizational and individual levels, played an important role in effectively de-ideologizing Party cadres in post-war Soviet heavy-industrial enterprises. Working in environments in which performance was regularly analyzed

solely on the basis of personal productivity, Communists were fundamentally judged on their own productivity rather than their social origins or their level of theoretical knowledge, organizational activity, and overall political commitment. Two Party members held up as examples of "outstanding Communists" at Admiralty were the Party leaders of two of the factory's production shops, Chervinskii and Demidov. The qualities highlighted, in both cases, involved the personal example of high labor productivity. Demidov was consistently fulfilling his production norm by 300 percent, and Chervinskii, "who [showed] an example of how a Communist should work," had "already fulfilled twenty-three monthly norms during the first six months of 1947." While the mobilizational qualities of party shop and brigade leaders were also often hailed within the enterprises, these feats were also closely tied to productivity issues such as promoting the introduction of new technology.[57]

As noted above, Party participation in all aspects of enterprise life was also often diluted or usurped by managers who, while almost always Party members themselves, found it convenient to exercise authority on all issues directly through their managerial posts. Podolsk's activist Director Nikol'skii provided a fine example of this phenomenon. Podolsk's Party organization played no significant role in the life of the factory. An expanded role for Nikol'skii was in

accordance with the official principle of one-man management (edinonachalie) in Soviet industrial enterprises.[58]

While managerial authority was, for practical purposes, less focused upon a single individual at a larger enterprise like Admiralty (allowing a greater role for the Party in specific mobilizational activities such as the ceremonial presentation of the Red Banner described in detail in Chapter One), power was still concentrated in managerial hands. Indeed, within enterprises and ministerial hierarchies, enterprise managers, particularly of favored enterprises such as Admiralty, were generally invested with broad powers during the industrial reconstruction effort.

Powers over hiring and inter-enterprise trading that had begun informally to shift to enterprise managers, and away from the Ministry of Labor Reserves, within the production hierarchies of such industries as non-ferrous metallurgy and shipbuilding during 1944 and 1945, were more completely and officially bestowed upon enterprise managements in early 1946 through the ministries. While authors such as Granick and more recently Dunmore have stressed the continued informal nature of such transfers of power within the post-war ministerial hierarchies, many informal practices were, as indicated earlier, actually reshaped, officially adopted and formalized during the 1946-1950 period.[59] Interestingly, in the case of the Ministry of Non-Ferrous Metallurgy, the devolution of such broader powers to the enterprises even preceded the

enlargement of the Ministry's own powers at the expense of the functional ministries. In both cases, however, a pattern of informal practice being given official sanction repeated itself. This process of "formalization of the informal" also usually involved some greater degree of regulation that would allow the sanctioning level of the ministerial hierarchy to shape the practice's results.[60]

After some initial restrictions linked to the broad crisis that gripped the entire Soviet economy in 1946, heavy-industrial ministries gave managers increasingly broad sway. While, as we have seen at both Admiralty and Podolsk, ministerial bureaucrats closely monitored the employment of trophy technology, other attempts at sharply limiting the authority of enterprise managers were generally aimed only at those deemed unproductive or corrupt.[61]

Indeed, while productive managers were rewarded with bonuses, mere lack of productivity was not necessarily held against managers by their superiors in the ministries and chief administrations--if the failure was explicable due to lack of resources. Nikol'skii's failings at Podolsk did not cost him his position. The 1950 technological realization of the Tottenguss aluminum-production process in a Soviet industrial enterprise may have also helped negate lower than planned productivity and an astronomical accident rate in the eyes of his superiors. Nikol'skii's power at Podolsk was also great enough, even without the resource of a Director's Fund

like those enjoyed at more privileged enterprises such as Admiralty, that he managed to put his own personal paternalistic stamp on the factory.

Both at Admiralty and at Podolsk, the balance of power within the enterprise troika of management, Party and trade union was thus heavily weighted toward management. While the general dominance of management over Party and trade union in Soviet heavy-industrial enterprises was apparent in such matters as the arguments at Podolsk over bonuses described in Chapter One, trade unions, at times, were able to resist the expansion of managerial authority at the highest levels when such expansion threatened to be at the expense of workers.

One clear case of successful trade union resistance to a widening of managerial authority at the national level occurred when Minister of Non-Ferrous Metallurgy P.F. Lomako was forced to retreat over a change in policy regarding housing allocation at the Ministry's enterprises. In a June 1948 letter sent to all the directors of the Ministry's enterprises, Lomako had proposed that the director of each enterprise be made wholly responsible for the allocation of housing on the basis of a system that gave clear preferences to managerial and engineering-technical personnel over all workers except for miners.[62] Opposition to the directive came quickly, however, from Chairman of the All-Union Committee of Workers of the Metallurgical Industry Aniskin. Later in June, Lomako wrote back to the enterprise directors, dropping this

general preference scheme and rescinding his directive removing the trade union from any say in the allocation of housing.[63]

The trade union's power, in this instance, may well have stemmed directly from a broader post-war priority of the political elite itself--the creation of favorable conditions for industrial workers. Along with giving enterprise managers leeway in such matters as recruitment and bonus pay, Soviet authorities, particularly in strategically important heavy industries and in mining, took a variety of broader steps to boost the numbers and morale of urban workers.

Kolkhozniki recruited for industrial work by chief administrations and individual enterprises were given special privileged releases, relieving them of their kolkhoz obligations on favorable terms.[64] Even when faced with potentially disruptive problems such as labor turnover (which had begun to appear in practice in heavy industry in 1944), the ministerial hierarchies encouraged enterprise managers to use incentives rather than coercion. Although this policy may have made the problem of turnover temporarily worse by encouraging competition among enterprises over worker recruitment, the policy at its core was part of an overall effective, pragmatic, incentive-oriented effort to mobilize industrial labor. Evidence of what this specifically meant in policy terms can be found in the experience of the Ministry of Shipbuilding's Fourth Chief Administration in confronting the

turnover issue in the wake of the "formalization" of the informally free heavy-industrial labor market in 1948.

Viktor Kondaritskii, who led the Fourth Chief Administration, noted that an existing turnover problem had limited the growth of the work force in the organization's enterprises in 1947 and 1948: "In spite of the fact that a number of new workers were taken on in 1947 and the first half of 1948, the absolute growth of their numbers was still less than desirable at a majority of the factories, mainly because of large [negative] fluctuations of labor power at these enterprises."[65] Kondaritskii, however, saw a positive, incentive-based solution as the only possible answer to the problem of turnover; the government had officially abolished the last of the wartime restrictions on "own accord" departures on May 31, 1948. He advised the managers of the Administration's enterprises as follows:

> Regarding the implementation of the Decree of the Supreme Soviet of the USSR of May 31, 1948, about the elimination of the Decree of the Presidium of the Supreme Soviet of the USSR of December 26, 1941, 'About the Answerability of Workers and Support Personnel of the Enterprises of Military Industry for Own Accord Departures from the Enterprises,' I decree: To the directors of factories and production organizations--1. To immediately adhere to the will of the leadership as expressed through the Decree of the Supreme Soviet of the USSR of May 31, 1948, and Order No. 244 of the Ministry of the Shipbuilding Industry dated June 7, 1948. 2. To secure, at the enterprises of the Fourth Chief Administration, the creation of conditions connected to the promotion of the strengthening of the labor power of the workers and through the provision of all aspects of these conditions to fulfill the plan of housing-living construction to create model living conditions, to

> correctly organize and completely support the labor of the workers, and chiefly to secure for them a high level of earnings.[66]

Without competitive pay and other perquisites, the Fourth Chief Administration would have had difficulty attracting scarce skilled workers in a free labor market. Indeed, it was consistently through material and other incentives that the Fourth Chief Administration and other production organizations attempted to achieve their goal of a "strengthening of the permanent cadre of workers and engineering-technical workers, the reduction of labor-force fluctuations, and the strengthening of labor discipline at the enterprises."[67]

While the labor market itself was certainly a "sellers' market" after 1946, the first post-war year had been characterized by a "buyers' market" and tough times in Soviet industry. Squeezed themselves by a variety of pressures, enterprise managers had, in turn, tried to extract what financial resources they could from their employees. Notably, their superiors in the heavy-industrial ministerial bureaucracies, such as that of the Ministry of Non-Ferrous Metallurgy, attempted, in a rare post-war attempt to limit the power of enterprise managements, to protect workers.[68]

In a series of directives, Deputy Minister of Non-Ferrous Metallurgy Arkhipov warned managers "to cease any type of withholdings and deductions from the wages of workers and other employees not specifically set forth in the directives of the government." Arkhipov also criticized the chief

administrations in blanket fashion for "weakly exercising control" over managerial practices that included illegal withholding" of deductions for "[ordinary] work clothes, food, child care, etc." from workers' paychecks. Calling upon enterprise managers "to carefully check the correctness" of withholdings, Arkhipov warned that they "would be held answerable" through fines, firings, and judicial action for abuses against workers.[69]

Ministerial bureaucracies also responded vigorously to trade union complaints about managerial abuses and poor working conditions in Soviet heavy-industrial enterprises in 1946. This response involved the creation of an enterprise-level checking entity known as the Personnel Department (otdel kadrov). The chief function of such a department in an enterprise was to "handle complaints about working conditions." The department was also involved in the work of technical education and certification, labor management liaison, vacation planning, the supervision of young technical specialists, and management of labor reserves.[70]

Evidence of the favorable attitudes of political elites toward industrial urban labor can be found not only indirectly in ministerial actions, but also in some of the Soviet state's broader economic policies. In this macro-economic sense, the state pursued a deflationary strategy of keeping wages stable while driving down prices for food and consumer goods. Such reductions took place at regular intervals between 1948 and

1950. The biggest decreases occurred in the latter year. The state also made sure that the urban population benefited, through sharper reductions for food items in contrast to non-food items. The "only explanation" for this policy was official [economic] "discrimination against the peasantry" in order to benefit urban, industrial workers.[71] Indeed, the 1946-1950 period was marked by a discrepancy in real wages between the peasantry and the urban population greater than at any other time during the Soviet industrialization and reindustrialization process.[72]

Other specific economic actions of the Soviet leadership, such as the monetary reform and accompanying elimination of rationing in 1947-1948, were also evidently designed to benefit the urban population at the expense of the peasantry. Bread and other essential foodstuffs were still offered at specially-reduced prices even after the elimination of rationing. The monetary reform also hit the peasantry hard by reducing wartime savings. Monetary reform was officially justified by a need to strengthen the ruble and to combat counterfeiting.[73] The real net effect, however, was a dramatic reduction (because of more favorable ruble exchange terms for the urban population and the aforementioned impact of the accompanying elimination of rationing) in the prices for foodstuffs in the collective farm markets.

The peasants were additionally pressured to sell quickly and cheaply by the impact that the reform had upon their

savings. The compound effect was such that collective farm market prices, which had skyrocketed during wartime and post-war rationing, actually fell below state prices for some staples such as bread and potatoes for much of 1949. High-priority heavy-industrial enterprises were also encouraged to pay workers so-called "bread supplements" to help them further improve their food purchasing power.[74]

In addition to promoting heavy and military industry and trying to spur their reconstruction by creating favorable economic conditions for heavy-industrial workers, the Soviet government strongly emphasized technical education and rapid technological modernization on the basis of trophy technology; this related issue will be discussed in detail in Chapter Three.

Another, somewhat lower priority state goal was the maintenance of a significant industrial base in the Eastern territories, where much plant and equipment had been transferred during the wartime evacuations. The major means used by the political elite to entice workers to relocate or remain in the East were material incentives. While, because of the large numbers of returnees, the Council of Ministers stopped the branch ministries from continuing incentives for workers resettling in formerly devastated or occupied zones in the western USSR in 1946, bonuses continued to be paid to citizens willing to work or attend technical school in the East. Between 1946 and 1950, 824,000 workers received

financial or consumer goods bonuses for relocating to or remaining in the Urals and Siberia; another 419,000 earned bonuses for attending eastern technical schools.[75]

The original regional planning goals contained in the 1946 Fourth Five-Year Plan were, however, secondary in practice to overall production goals. Timothy Dunmore noted that the original post-war regional planning schema "was one of complex development of all regions favouring the underdeveloped regions of the east and the new areas in the west of the USSR."[76] The actual regional distribution of labor and production, however, sharply favored the USSR's traditional industrial regions. Production in the new western territories and in the liberated areas also increased considerably, but did not reach targeted levels. In contrast to the unexpectedly large production upsurge in the traditional western industrial zones, production in the newly-industrialized east grew slowly overall, and in some areas actually declined.[77] Despite the discrepancies between planning and reality, the central political elite pragmatically did not intervene to "correct" the problem. As noted above, incentives were used, but political elites, as well as ministerial bureaucrats, shied away from using coercive measures that might have invigorated the East but negatively affected the overall national production levels in heavy industry.[78]

The most overriding and fundamental priority of all was, after all, the state's stress on heavy industry, particularly in relation to strengthening the military power and the military-industrial base of the USSR. The striking military emphasis of the post-war industrial reconstruction effort can be attributed to a variety of factors, such as the momentum of wartime priorities, the traditional Soviet stress on heavy industry and military power since the late-1920s, the new world-power status of the USSR following the war, the increasing Cold War tensions between the USSR and its former allies, and rapid advances in fundamental military technology during and after the war.

The Soviet industrial structure's enterprise-level actualization of this military-technical emphasis can be seen very clearly at both Admiralty and Podolsk. Admiralty's submarine-building program was, after all, at the core of its favored status. The Podolsk Factory of Non-Ferrous Metals was brought to the USSR from Germany, in large part, due to its promised usefulness for constructing military aircraft. Aluminum production had been a chief military-industrial priority of Soviet industry during the war when, even after the destruction of many key production facilities in the West, output levels had reached 144 percent of 1940 levels by 1945.[79] Indeed, in 1946, the Fourth Five-Year Plan had called for a further doubling of the level of aluminum production. Nevertheless, this increase did not match the planned

increases for other strategic metals such as wolframite and molybdenum. This was due, in part, to the large existing stocks of aluminum left over from the war.[80] Production of militarily-significant compounds such as wolframite and molybdenum indeed increased in combination with greater scientific efforts directed "toward the goal of improving methods of extraction of wolframite and molybdenum concentrates."[81]

Construction of new, and expansion of existing, production facilities devoted to these metals diverted resources from other facilities and less militarily-significant projects (such as those dealing with zinc, tin and copper) throughout the national system controlled by the Ministry of Non-Ferrous Metallurgy. A further decrease in the importance of aluminum production, as noted in Chapter One, also took place against the background of changing military aviation needs and of scientific and technological advances regarding titanium, nickel-steel, and additional new, specialized alloys useful for military aviation.

Crude military determinism, however, did not prevent heavy industries from functioning, on the whole, with a surprising degree of effectiveness, pragmatism, flexibility, and clarity of purpose and function. The dominant position of the technical and production hierarchies of the branch ministries streamlined the operation of the system and limited the overlapping roles of weaker actors, such as the Communist

Party and the functional ministries. Technical expertise and security of tenure within the ministerial hierarchies were greater than before. The unity fostered by the war, the continued intervention of an attentive and active political elite, and possibly the memory (without a murderously disruptive repetition) of the ruthless Great Purges, worked to limit bureaucratic complacency and malfeasance.

The regime consistently relied on incentives instead of coercion in attempting to mobilize workers, managers and bureaucrats. This amounted to a consistent, if not open, reliance on the profit motive and market mechanisms in the functioning of the heavy-industrial system. Stalin, in his work Economic Problems of Socialism, openly acknowledged that the profit motive "must be taken into account both in planning construction and in planning production." This is the "ABC of our economic activity at the present stage of our development."[82] Essentially, such a statement theoretically canonized the reality of how much of Soviet heavy industry functioned.

Given the grim impression of the period, all these findings are surprisingly positive. On the other hand, the callousness shown toward the workforce of an "orphaned" factory like Podolsk, and the wastefulness endemic to the system also are clearly apparent. Podolsk's accident rate was also appalling and was linked to efforts to get an advanced technological process going without sufficient resources.

Documents of the period also make clear the industrial structure's prevailing indifference to longer-term concerns about work safety and environmental problems. Spent fuels and used equipment were regularly simply dumped into the environment either on or off enterprise grounds. There are also many disturbing accounts relating to work safety that are less immediate and spectacular than those regarding the string of accidents at Podolsk. Descriptions of men and women laboring, without the benefit of masks or other protective gear, in factory shops entirely covered in a fine layer of wolframite dust do not lead one to the conclusion that all the workers of the post-war era lived to the sort of vigorous old age exemplified by the Admiralteitsy that I interviewed. While officials in the upper echelons of the industrial hierarchy regularly expressed concerns about such problems, they failed to depart from their single-minded quest for greater labor productivity and increased output long enough to devote attention and resources in a thoroughgoing way toward their resolution.[83]

Another negative feature of the Soviet heavy-industrial system in the post-war period was its chronic supply shortages. In a broad sense, these seem to have been caused more by inherent wastefulness rather than by the inflexibility of state planning. As we have already seen, the overall economic plan was no more than a general guideline open to revision. It was the production-first, as opposed to

efficiency-first, emphasis of the industrial system that tended to cause waste.

While ministerial elites paid lip service to the goal of conserving resources, proposed solutions were insufficient and impractical. For instance, both the chronic shortages of ferrous and non-ferrous metals occurring at heavy-industrial enterprises such as Admiralty in 1946 and the spot shortages that occasionally appeared there and at Podolsk in later years were addressed by the ministerial bureaucrats of shipbuilding and non-ferrous metallurgy primarily through the mechanism of a campaign to encourage collection of pieces of scrap metal that were lying around the grounds of each ministry's enterprises.[84]

This campaign, and the accompanying non-specific demands "to rationalize use of these materials," were typical of the efficiency-related directives given to enterprise managers by the bureaucrats of either the Ministry of Shipbuilding or the Ministry of Non-Ferrous Metallurgy. Ministry of Shipbuilding officials further noted that these efficiency-related measures were to be carried out only in ways "that did not hinder production." Ministry officials also acknowledged that, at best, the scrap collection programs would produce a total economy in metal savings of only one percent.[85] The primacy of production reigned in the Soviet post-war heavy-industrial system--still unhindered by efficiency or safety concerns.

Not surprisingly, supply problems not directly related to production, such as the series of problems involving specialized work clothing experienced by Podolsk, received little attention from the ministries and chief administrations of Soviet heavy industry. Often, managers tried to solve such supply problems through the officially-approved process of bargaining and trading with other enterprises.[86] One consequence of such policies at Podolsk, surely unintended by officials at the Ministry of Non-Ferrous Metallurgy, was the creation of a group of privileged sluzhashchie, who were effectively expediters (tolkachi), employed within the factory's motor-pool.

The complexities, negotiations, and flexibility apparent in the post-war heavy-industrial system of "dual dependency," belie any reductionist concept of a purely "administrative-command system." The opposing conceptualization of the Soviet industrial system as limping along in a perpetually disordered condition also does not coincide with my evidence regarding the functioning of Soviet heavy industry in the post-war period. The branch ministry structures functioned fairly smoothly. The political elite retained the ability to intervene in specific instances when the structures of heavy industry did not function well. The political elite's priorities were also consistently reflected within heavy industry.

If the post-war industrial system had inherent flaws, they were related neither to inherent rigidity, lack of popular support or chaos. The unbalanced nature of the regime's goals, however, gave disproportionate weight to heavy industry over light industry and agriculture. The related phenomenon of hypermilitarization contributed to the pattern of a wasteful use of resources and inconsistent attention to quality.

Quality control was stressed on military-related projects, but it remained a secondary priority with non-military production. The Soviet political elite had traditionally given "close scrutiny" to military-related projects and had been able to effectively intervene to reinforce its priorities. The military sphere continued to be the subject of successful interventions in the post-war years. Furthermore, competing design bureaus such as Yakovlev and MiG in the sphere of military aircraft, helped to spur innovation. Such competition and elite intervention were notably absent outside of heavy- and military-related industry.[87] Questions of efficient use of resources also were completely cast aside in work on high-priority military projects. Post-war accounts from Admiralty Shipyard reveal a pattern of what amounted to essentially double-building of military orders. In part, this was an assurance against delays due to accidents or quality-control problems.[88]

While issues relating to technological progress will be discussed in greater detail in the following chapter, the overall rapid reaction time of Soviet heavy-industry regarding technological change, however, is also notable. Strongly evidenced as well is the stress placed on technological progress, particularly through trophy technology, in spheres relating to heavy and military-industrial power. One must conclude that scholars who have protrayed the USSR's late-Stalin industrial system as fixated on traditional heavy-industrial technologies and closed to innovation have painted a somewhat misleading picture. Dunmore, for example, cites non-ferrous metallurgy as one of the sectors slighted in favor of traditional steel production. Traditional non-ferrous metals such as lead, zinc, tin and even aluminum indeed declined in significance, only to be supplanted by increased production of new militarily-strategic non-ferrous metals such as wolframite, molybdenum, nickel-based alloys, and titanium. The methods for extracting and utilizing the latter group of non-ferrous metals were based on then quite-recent scientific developments.

The late-Stalinist heavy-industrial system was thus less top-down and not as chaotic, less structurally rigid and not as technologically moribund as has often been assumed. I must also note, however, that this is not an attempt to suggest that the post-war Stalin years were not, in many ways, every bit as morally odious as more traditional scholarly

interpretations have concluded. One need only look at the barbaric internment in the Gulag of millions of repatriated Soviet citizens at the end of World War II to conclude that. Nevertheless, some of the regime's other flaws, such as excessive militarization, indifference toward the environment and a callous attitude toward questions of work safety were, and still are not unique either to the post-war USSR or to state-run economies.

ENDNOTES

1. Quotation from Lewis Siegelbaum, "Review of Donald Filtzer," in Soviet Workers and De-Stalinization: The Consolidation of the Modern System of Soviet production Relations, 1953-1964. (Cambridge: Cambridge University Press, 1992) in Europe-Asia Studies, May 1993, pp. 552-553. **See** also Filtzer, Introduction. A Summary of Glasnost-Era Soviet Characterizations of Soviet Industry as an "administrative-command" system, can be found in R. W. Davies, "The Management of Soviet Industry, 1928-1941," in Lewis Siegelbaum and William Rosenberg, eds., Social Dimensions of Stalinist Industrialization. (Bloomington: Indiana University Press, 1993), pp. 106-108. I will defer discussion of Vera Dunham's work, which does note changes in the Stalinist post-war years, until Chapters Three and Four.

2. Quotation from W. W. Rostow, The Dynamics of Soviet Society. (New York: Dial, 1954), p. 133, as cited in Lewis Siegelbaum and Ronald Grigor Suny in "Making the Command Economy: Western Historians on Soviet Industrialization," in International Labor and Working Class History (ILWCH), no. 43, Spring 1993, p. 66. Siegelbaum and Suny offer a highly useful and cogent summary of the varying historical conceptions of Soviet industrialization.

3. Quotation from Bruno Rizzi, The Bureaucratization of the World. The USSR Bureaucratic Collectivism, trans. Adam Westoby. (London and New York: 1985; originally Paris, 1939), p. 211, as cited in Siegelbaum and Suny, "Making ...," p. 66.

4. For an example of the broad downward transfer of power within heavy-industrial structures in the 1946-1950 period, **see** "O Fonde ..." Direktvy KPSS... Postanovlenie... 5 April 1946, pp. 120-123.

5. Works specifically focused on somewhat narrower aspects of the industrialization drive such as those of Lewis Siegelbaum and Hiroaki Kuromiya convincingly reach conclusions about the 1930s experience without assuming that the Soviet industrial system was incapable of further change or evolution. Their findings about pre-war Soviet industrialization reveal many parallels and also many differences to this dissertation's findings about post-war heavy-industrial reconstruction. **See** Hiroaki Kuromiya, Stalin's Industrial Revolution: Politics and Workers, 1928-1932. (New York: Cambridge University Press, 1988) and also Lewis Siegelbaum, Stakhanovism and the Politics of

Productivity in the USSR, 1935-1941. (New York: Cambridge University Press, 1988).

6. David Shearer, Industry, State and Society in Stalin's Russia, 1926-1934. (London: Cornell University Press, 1996), p. 231.

7. **See** Vladimir Andrle, Workers in Stalin's Russia: Industrialization and Change in a Planned Economy. (New York: St. Martin's, 1988).

8. David Granick, The Red Executive: A Study of the Organization Man in Russian Industry. (New York: Anchor, 1961), p. 120.

9. **See** Katherine Verdery, What Was Socialism and Why Did it Fail? (Princeton: Princeton University Press, 1996), pp. 20-24.

10. **See** Donald Filtzer, Soviet Workers and Stalinist Industrialization: The Formation of Modern Soviet Production Relations. (London: Pluto, 1986), and **also** Soviet Workers and De-Stalinization: The Consolidation of the Modern System of Soviet Production Relations, 1953-1964. (Cambridge: Cambridge University Press, 1992).

11. Kuromiya, p. 318.

12. R. W. Davies, "The Management of Soviet Industry, 1928-1941," in William Rosenberg and Lewis Siegelbaum, eds., Social Dimensions of Soviet Industrialization. (Bloomington: Indiana University Press, 1993), pp. 110-114.

13. Davies, "Management ...," in Rosenberg, Social ..., pp. 105-107 and 118-120.

14. John Barber and Mark Harrison, The Soviet Home Front, 1941-1943. (New York: Longman, 1991), pp. 194-205.

15. Alec Nove contrasted the centralized Stalinist approach to technology with the more decentralized and less successful approach of Stalin's successors. **See** Alec Nove, Studies in Economics and Russia. (New York: St. Martin's, 1990), p. 119.

16. My conceptualization and definition of this structure, while drawing upon the works of scholars such as Timothy Dunmore and David Granick, is also based on my own extensive archival research in materials relating to the Ministry of Non-Ferrous Metallurgy and the Ministry of Shipbuilding. **See** Timothy Dunmore, Soviet Politics, 1945-1953. (London: MacMillan, 1984) and The Stalinist Command Economy. (London:

MacMillan, 1980); David Granick, Red Executive. The relevant fondy pertaining to these ministries are currently held in RGAE.

17. RGAE F. 8899 op. 2 d. 125 Min. sud. prom. Proekty ..., 1947, p. 319. Mekhlis was a long-time close personal aide to and associate of Stalin. Mekhlis had served as head of the Political Department of the Red Army during the early years of the Second World War.

18. At Admiralty Shipyard, managerial representatives such as the director and the chief engineer had to fill out detailed "albums of new technology" that transmitted details about the functioning of "trophy technology" equipment such as a German gas generator installed at the shipyard in late 1946, directly to the Ministry of Shipbuilding. Included in the information provided in that instance were the date of installation, the amount of energy supplied and the savings in terms of labor and energy efficiency. **See** FMLAV Al'bom novoi tekhniki no. 3, 1946-1947, pp. 1-5.

The Minister of Non-Ferrous Metallurgy directly appointed Evgenii Nikolaevich Nikol'skii director of the Podolsk Factory of Non-Ferrous Metals in 1948, but his supervisors in the task of getting production at the factory's shops started were the heads of two separate chief administrations, Belov of Glavvtortsvetmet and Eshchenko at Glavaliuminstroi. **See** RGAE F. 9022 op. 48 d. 47 Min. tsvet. met. Kopii 1948, Prik. no. 1, 1 February 1948, p. 1.

19. As related in Chapter One, Admiralty's managers suffered unwanted attention and penalties from the Ministry of Shipbuilding relating to lagging reconstruction work on the factory's central shipbuilding plaza in 1946. While noted by the Martiets, failures relating to "secondary" production at the factory of items such as baby carriages went unnoticed and unpunished by the bureaucrats of the Ministry or the Third Chief Administration. On April 12, 1946, however, the Martiets ran a cartoon and an article describing the failure to fulfill the factory's baby-carriage production program. The cartoon depicted a worker and a crying infant. The worker asks: "Who has made you cry little one?" The infant replies: "My big daddy from the factory Marti [Admiralty] hasn't given me a baby carriage!" **See** "V bolshoi obide," Martiets, 12 April 1946, p. 2.

20. A decision at the national planning level to give greater priority to production of strategically significant non-ferrous metals such as wolframite would necessarily have led to a greater allocation of resources to the chief administration responsible for the production of wolframite (Glavvolf) and not, for instance, to the organization within

the Ministry of Non-Ferrous Metallurgy responsible for tin production (Glavolovo).

21. While this definition is straightforward, it must be noted that the symbiotic relations existing within an enterprise often caused the fortunes of managers, engineers, technicians and support staff to be intertwined.

22. This would have included personnel working in organizations such as the Department of Quality Control (OTK) directly charged with exercising control over the quality of production in the factory's shops but would exclude sluzhashchie such as telephone operators and members of the fire brigade. While the personal fortunes of these people were tied to that of the enterprise as a whole, their status in the overall production hierarchy was generally inferior to that of direct-production workers. A fuller examination of the position of sluzhashchie in post-war heavy-industrial enterprises will be undertaken in Chapter Four.

23. Naum Jasny wrote that the more open-ended nature of the Fourth Five-Year Plan did not signal "increased maturity" on the part of Soviet economic planners. Eric Duskin, on the other hand, argues that the Fourth Five-Year Plan's targets, while ambitious, were not rigid and "unrealistic" as the targets of some earlier five-year plans had been. **See** Jasny, Soviet Industrialization, 1928-1952. (Chicago: Chicago University Press, 1952), p. 251 and Eric Duskin, "Recruiting the Technical Intelligentsiia: The Politics of the Recruitment and Training of Soviet Industrial Specialists." (Ph.D., 1993, University of Michigan), p. 115.

24. David Shearer, Industry, State and Society in Stalin's Russia, 1926-1934. (London: Cornell University Press, 1996), pp. 2, 74-76.

25. Shearer, p. 203.

26. Borrowing this phrase from Moshe Lewin's description of the social environment prevailing under the First Five-Year Plan, Straus uses it to characterize both the opening phase of Soviet industrialization and the home front during World War II. It also seems applicable in many ways to post-war society as well. **See** Kenneth Straus, "The Hammer and Sickle Steel Plant: Factory and Community Life, 1928-1933." (unpublished manuscript, 1995), p. 110.

27. **See** Dunmore, Soviet Politics ..., pp. 20-22.

28. RGAE F. 8899 op. 2 d. 129 Min. sud. prom. Proekty ..., 1947. Letter from Goregliad to Beria May 9, 1947, p. 5.

29. RGAE F. 8899 op. 2 d. 125 Min. sud. prom. Proekty ..., 1947. Letters from Goregliad ..., pp. 5-7. Some of this technical upgrading work involving barges and barge construction may possibly have involved Admiralty, which was a center for introduction of techniques involving the "speed construction" of barges.

30. None of the changes reflected in the document that Beria signed deprived Goregliad and his Ministry of any of the resources requested in the preliminary draft. In some cases, however, responsibility for the provision of funds, workers or supplies to the Ministry of Shipbuilding was shifted from one organization to another. For example, oil originally requested from the Ministry of Construction's Glavneftsnab was instead to be supplied from fuel stocks controlled directly by the Council of Ministers. **See** RGAE F. 8899 op. 2 d. 125 Min. sud. prom. Proekty ..., 1947, p. 16.

31. Dunmore, Soviet Politics, pp. 20-22.

32. Such functions were of little importance within the direct-production hierarchies. The Ministry of Shipbuilding limited attempts to gather information on the people working in its enterprises in the 1946-1950 period to "a one-time only survey of the numbers of workers and employees" in the summer of 1948. **See** RGAE F. 8899 op. 2 d. 31 Min. sud. prom. Planovyi otdel. Materialy o razrabotke i utverzhdenii tsena produktsii Sudostroitelnoi promyshlennosti vypuskaemuiu zavodami MSP 3-go glavnomy upravleniiu, 1948, p. 9.

33. From 1947 until 1950, control over such equipment in enterprises like Admiralty Shipyards was exercised by the Committee on Sport and Physical Culture which operated directly under the authority of the Council of Ministers. **See** RGAE F. 8899 op. 2 d. 125 Min. sud. prom. Proekty ..., 1947. Letter from Saburov, 5 May 1947, p. 1.

A complex and more important partial exception to the expansion of ministerial authority involved the Soviet state's trade union organizations in the enterprises of heavy industry. Jurisdictional conflicts between trade unions and ministerial structures will be discussed later in this and succeeding chapters.

34. Dunmore, Soviet Politics, p. 56.

35. Dunmore, Soviet Politics, pp. 57-59.

36. Straus refers to so-called "shock enterprises" that received disproportionate amounts of resources and attention during the years of the First Five-Year Plan. **See** Straus, p. 110.

37. Mark Harrison, Soviet Planning in Peace and War. (Cambridge: Cambridge University Press, 1985), p. 78.

38. Nikolai Vladimirovich Martinov, questionnaire, p. 2.

39. RGAE F. 8899 op. 2 d. 125 Min. sud. prom. Proekty ..., 1947, p. 146.

40. David Granick noted that in 1960, 650 "giant factories" with over 4,000 employees apiece employed fully 38 percent of the Soviet industrial workforce. In 1950, 58 percent of the Soviet industrial workforce was employed in plants that employed over 1,000 workers. **See** Granick, The Red Executive, pp. 120 and 209, and also Narodnoe Khoziaistro SSSR. (Moskva: Tsentral'noe statisticheskeii upravlenie, 1956), p. 42.

41. **See** FMLAV Spravka o osnovnoi proizvodstvennoi diatel'nosti Admiralteiskikh verfei s Peterburga, p. 1, and also Shearer, pp. 152-155.

42. TsGASP(b) F. 1511 op. 162 d. 3 Adm. sud. zav. Materialy ..., 1949, pp. 3-10.

43. TsGASP(b) F. 1511 op. 162 d. 3 Adm. sud. zav. Materialy ..., 1949. Letter from Golubev to Riabov September 29, 1949, p. 25.

44. TsGASP(b) F. 1511 op. 162 d. 3 Adm. sud. zav. Materialy ..., 1949, p. 2.

45. TsGASP(b) F. 1511 op. 162 d. 3 Adm. sud. zav. Materialy ..., 1949. Letter from Novikov to Golubev October 13, 1949, p. 19.

46. TsGASP(b) F. 1511 op. 162 d. 3 Adm. sud. zav. Materialy ..., 1949, p. 10.

47. The 1947 dispute had involved "186 tons of hay and 106 tons of concentrated feeds" that Malenkov had forced the Ministries of Agriculture and Supply to hand over to the enterprises of the Ministry of Shipbuilding "for use on their agricultural lands." **See** RGAE F. 8899 op. 2 d. 125 Min. sud. prom. Proekty ..., 1947, p. 16.

In the 1949-1950 impasse involving Admiralty Shipyards, provision of everything originally requested by the factory was completed before January 15, 1950. This was verified in detail by Admiralty's Chief Bookkeeper, Burlankov (although he had complaints about the quality of some of the equipment). The file relating to the resolution of this dispute contained an additional copy of the original July

22, 1949, Council of Ministers' decree bearing what appeared to be the original signature of Georgi Malenkov. This signed copy of the original decree accompanied the detailed report of Burlankov acknowledging the receipt of men and material from the Trust. This breaking of the deadlock may well have also involved a phone call from Malenkov to Ansin. I have found no evidence that Ansin, despite his obstinance, was punished in any way. **See** TsGASP(b) F. 1511 op. 162 d. 3 Adm. sud. zav. Materialy ..., 1949, pp. 35-42.

48. Martinov, 3. According to Martinov, word of Stalin's telephone call quickly spread throughout the shipyards. The cruiser, originally scheduled to be completed in 1950, was subsequently finished and on the water before the end of 1949. The name of the ship was later changed to the **Zhelezniakov.** Beria is reputed to have visited Admiralty several times between 1946 and 1950. This was further evidence of the significance of Admiralty Shipyards in the eyes of the political elite.

49. Moshe Lewin, The Making of the Soviet System. (New York: Pantheon, 1985), p. 32.

50. Dunmore, Soviet Politics, p. 33.

51. **See** TsGASP(b) F. 9510 op. 1 d. 135 Lenobkoma...1948 Svedeniia o vypolnenii proizvodstvennost: programmy za 10 mesiatsev 1948. Trest no. 16, pp. 1-12, and also Alexander Ivanovich Yakov, questionnaire, pp. 1-2.

52. P. F. Lomako, "Tsvetnaia Metallurgiia," Tsvetnye Metally no. 2, 18 March, 1946, p. 10.

53. Granick does judge the stereotype of the 1930s "revolutionary manager" who knew little about the technical "details of his industry and for whom ideology was everything" to be somewhat overdrawn, but he also does conclude that a sweeping process of normalization and professionalization had occurred during the late-1930s.

Analyzing the roles of managers and Party officials in late-1950s industry to be overlapping but cooperative, Granick nevertheless does seem to have found a greatly reinvigorated and independent, rather than superfluous, role for the CPSU in Soviet industry during the late-1950s. **See** Granick, pp. 8, 20-26, and 280.

54. "Rezul'taty zaznaitsva," Martiets, 26 November 1948, p. 2.

55. The Party organizations of Admiralty's shops numbers eight and eighteen "hadn't had a new or candidate member in four-and-one-half years"--a fact blamed on "weak work with the non-party aktiv." **See** "Ukrepliat' sviaz' s bezpartinnym aktivom", Martiets, 16 February 1946, p. 2.

At Sudomekh, the standing meetings and discussion groups of both the "KPSS and the VKLSM simply [did) not seem to be functioning." **See** "Uchitsiia kommunizma," Sudomekhovets, 26 October 1946, p. 2.

Generalized neglect of ideological education by Party members was also noted at Admiralty as well. The collective grasp of Marxism-Leninism among the factory's Communists was poor because many were "simply not working seriously at their own political education." **See** "Na obshchezavodskim partinnom sobranii," Martiets, 24 August 1946, p. 1.

56. "Sereznoe preduprezhdenie," Martiets, 7 April 1950, p. 1.

57. "Kommunisty v avangarde," Martiets, 12 July 1947, p. 1.

58. An example of such a lack of significance at an important gathering was the hotly contested zavkom meeting concerning the end-of-the-year socialist-competition bonuses in 1950 described in Chapter One. **See** TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly ..., 1950, pp. 42-44.

Most of the output of political mobilizational material at the Podolsk Factory was issued through the office of Director Nikol'skii. One example was the lengthy broadside, "Our Soviet Motherland Is the Shining Example of Peace and Democracy in the Whole World" that Nikol'skii wrote for the factory stengazety in 1948. **See** TsGAMO F. 7721 op. 1 d. 9 Pod. zav. tsvet. met. Prikazy ..., 1948, p. 68.

59. While such measures at times lacked a more general formal legal overlay, permission through ministerial channels was clear and explicit. For example, the Ministry of Non-Ferrous Metallurgy Order Number Five from January 1946 authorized enterprise managers to carry out a wide range of transactions with other industrial enterprises and with transport authorities inside and outside out of the purview of the Ministry. Such bargaining was for the purpose of obtaining a broad spectrum of supplies including metals, oil and technical equipment. **See** RGAE F. 9022 op. 40 d. 39 Min. tsvet. met. Kopii ..., 1946, Prik. no. 5, p. 1.

60. This occurred within the Ministry of Non-Ferrous Metallurgy in March 1946, with the creation of a series of commissions to review questions relating to supply, finance,

personnel, technology, etc. **See** RGAE F. 9022 op. 40 d. 39 Min. tsvet. met. Kopii ..., 1946, Prik. no. 91, p. 1.

61. For an example of a crackdown against alleged managerial abuse and embezzlement in the copper industry, **see** RGAE F. 9022 op. 48 d. 44 Min. tsvet. met. Kopii ..., 1947, Prik. no. 258, 8 July 1947, pp. 1-4.

62. RGAE F. 9022 op. 27 d. 346 Min. tsvet. met. Podlinnye direktivnye pis'ma podpissannye Ministerstrom Tsvetnoi metallurgii m. Lomako 1948. Letter from Lomako to the Directors of the Enterprises, 4 June 1948, pp. 14-21.

63. RGAE F. 9022 op. 27 d. 346 Min. tsvet. met. Podlinnye ..., 1948 Letter from Aniskin to Lomako, 11 June 1948, and Letter from Lomako to the Directors of the Enterprises, 29 June 1948, pp. 22-23 and 23-24.

64. **See** Lewis Siegelbaum and Daniel Walkowitz, Workers of the Donbass Speak: Survival and Identity in the New Ukraine, 1989-1992. (New York: SUNY University Press, 1995).

65. RGAE F. 8194 op. 1 d. 31 Min. sud. prom. Prikazy ..., 1948 Prik. no. 193, 7 September 1948, p. 1.

66. RGAE F. 8194 op. 1 d. 31 Min. sud. prom. Prikazy ..., 1948 Prik. no. 137, 18 June 1948, p. 42.

67. RGAE F. 8194 op. 1 d. 31 Min. sud. prom. Prikazy ..., 1948 Prik. no. 193, 7 September 1948, p. 1.

68. Straus attributes the "buyers' market" mainly to the impact of demobilization. **See** Straus, p. 111.

69. **See** RGAE F. 9022 op. 40 d. 40 Min. tsvet. met. Prikazy, 1946. Prik. nos. 109 and 129, 27 March 1946, and 6 April 1946, pp. 1 and 1.

70. RGAE F. 9022 op. 27 d. 232 Min. tsvet. met. Iuridicheskii..., 1946, pp. 144-146.

71. Jasny, Soviet Industrialization, p. 269.

72. Jasny, Soviet Industrialization, p. 406.

73. **See** "O provedenii..." in Direktivy KPSS, pp. 254-261.

74. Jasny, Soviet Industrialization, p. 273.

75. On the issue of discontinuing the Western resettlement bonuses, **see** RGAE F. 9022 op. 40 d. 39 Nar. kom. tsvet. met. Kopii ..., 1946, Prik. no. 46, 1 February 1946, p. 1. For

the figures on the scope of the Eastern settlement programs **see** Dunmore, Soviet Politics, p. 22.

76. Dunmore, Stalinist..., pp. 64-65.

77. Output declined by 40 percent in the Urals. Industrial production grew by only 7 percent overall in the Eastern regions of the USSR during the 1946-1950 period. By 1950, the share of national industrial production coming from the Eastern regions had declined from the high of over one-third during the war years to 19.1 percent. **See** Dunmore, Stalinist..., pp. 64-66.

78. A partial exception to this rule concerned demobilized peasant soldiers who, after 1946, were required to return, at least originally, to their pre-conscription point of origin. Otherwise, the central authorities made few attempts to enforce their regional preferences through coercion. This despite the fact that in the Leningrad region for instance, the numbers of returnees from the Eastern regions where Soviet authorities were offering incentives for them to remain did not even begin to "slow" until 1949. **See** Viktor Anatol'evich Ezhov, Rabochii klass vedushaia sila vosstanovleniia Leningrada. (Leningrad: LGU, 1982), p. 14.

79. P.F. Lomako, "Tsvetnaia metallurgiia," Tsvetnye metally, no. 1, 18 March 1946, p. 1.

80. Through extensive new mining operations at the Kti-Terbedinskii complex and increases in refining and overall production capacities, Soviet planners looked to achieve a more than four-fold increase in the output of wolframite and molybdenum by 1950. **See** Lomako, "Tsvetnaia...," Tsvetnye, no. 1, 18 March 1946, p. 4.

81. **See**, for example, RGAE F. 9022 op. 40 d. 40 Min. tsvet. met. Prikazy, 1946. Prik. no. 187, pp. 1-2.

82. I.V. Stalin, Ekonomicheskie problemy Sotsializma v SSSR. (Moscow: Gospolitizdat, 1952), pp. 55-56.

83. The situation regarding wolframite dust at the Ministry's factory no. 521 is described as "having been continuously overlooked from quarter to quarter." **See** RGAE F. 9022 op. 40 d. 42 Min. tsvet. met. Prikazy ..., 1946 Prik. no. 338, 12 August 1946, p. 1.

84. Nikolai Martinov stated that there "was simply not enough steel in 1946" at Admiralty, but that the situation improved after that year. The scrap-metal collection campaigns were ubiquitous responses to the chronic shortages of 1946 and the spot shortages of later years at the

enterprises of both ministries. **See** Martinov, 2; RGAE F. 8194 op. 1 d. 33 Min. sud. prom. Prikazy 4-ro glavnogo upravleniia 1949. Prik. no. 201, 19 December 1949, and RGAE F. 9022 op. 48 d. 48 Min. tsvet. met. Kopii ..., 1948. Prik. no. 122, 15 March 1948, pp. 85-87 and 1-4.

85. RGAE F. 8194 op. 1 d. 33 Min. sud. prom. Prikazy ..., 1949 Prik. no. 201, 19 December 1949, p. 85.

86. Such shortages at Podolsk involved not only specialized protective gear but also at times standard-issue winter clothing. **See** RGAE F. 9022 op. 48 d. 44 Min. tsvet. met. Prikazy ..., 1947 Prik. no. 210, 3 June 1947, pp. 1-3.

87. **See** TsGASP(b) F. 1511 op. 158 d. 219 Adm. sud. zav. OTK Sertifikaty ..., 1950. 1950 quality control campaigns at Admiralty, for instance, clearly were focused on military rather than civilian production.

For details on the political elite's traditional focus on military projects, **see** Bruce Parrott, Politics and Technology in the Soviet Union. (Cambridge: MIT Press, 1983), pp. 70-77.

88. RGAE F. 8899 op. 2 d. 107 Min. sud. prom. Prikazy ..., 1946. Prik. no. 56, 5 Feb. 1946, pp. 5-10.

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CHAPTER THREE

MODERNIZATION FROM ABOVE AND ABROAD: THE IMPACT OF TECHNOLOGY ON POST-WAR REINDUSTRIALIZATION

The influx of trophy technology to the USSR from defeated Germany had impacts far beyond Admiralty and Podolsk and played a crucial role in the reconstruction era's heavy-industrial expansion and modernization. Beginning with the work of special "trophy battalions" in 1945, Soviet technology acquisition efforts in Germany were both vast and unalterably focused on military technology. In total, over 4,500 German industrial enterprises were either fully or partially dismantled and removed to the USSR. Technology transfer proceeded under the authority of a variety of organizations, ranging from the Ministry of Internal Affairs (MVD) to a system of science and technology offices affiliated with the Soviet Military Administration in Germany. As will be demonstrated below, an important (and heretofore largely overlooked) role was also played by the branch ministries.[1]

The Soviets targeted German atomic research facilities (and their scientists), BMW and Junker Military Aircraft facilities and German rocketry research and production as their highest priorities. Attempts to broaden the focus of the effort to include research or technology with purely civilian applications were summarily rebuffed by Stalin and the other members of the political elite; they closely monitored the acquisition of German technology through the mechanism of

regularly-scheduled meetings devoted solely to the "trophy" efforts. Up to 40,000 German scientists were relocated to the USSR by October 1946; many others, however, continued to work in Germany under the authority of the Soviet branch ministries.[2]

Admiralty Shipyard and the Podolsk Factory of Non-Ferrous Metals were part of this larger effort which also allowed heavy industry to escape the restrictions on intellectual freedom that the Zhdanovshchina imposed outside of the protected heavy-industrial sphere. Progress in fundamental science and in heavy industrial and military technological applications allowed the USSR to achieve super-power status. Developments in the post-war years regarding technology built the foundations of that status and constituted, in a variety of ways, a break with the technologically-backward Russian and Soviet past.

A. C. Sutton, in perhaps the most complete examination of the history of Soviet acquisition of foreign technology to date, linked the USSR's concentration on the acquisition of Western technology to a systemic lack of native industrial innovation. While my work departs from Sutton's conclusions in some important respects, my own definition of modernization and technological advancement (or **innovation**) as the selective application of scientific findings or the adaptation and refinement of existing technologies toward the goal of improving both industrial end-products and production

processes, is partially based on Sutton's conception. My inclusion of the phrase, "refinement of existing technologies," however, makes my conception of "industrial innovation" less narrow than that of Sutton. My definition also more accurately fits the circumstances of technological "catch-up" that the USSR still found itself in vis-a-vis the West at the end of World War II. Sutton himself describes this situation of "catch-up" as one in which it was "cheaper and less time-consuming for the USSR to adopt Western technology than to institute the innovative process herself."[3] Thus, my own judgment of Soviet technological success in heavy industry during the post-war years will rest on the country's demonstrated capacity to absorb and refine German trophy technology in order to overcome relative military and heavy-industrial backwardness.

Importation of foreign technology had, of course, been undertaken before in both Tsarist Russia and the pre-war Soviet Union. Bruce Parrott noted that this was because of an abnormally wide social gap in Russia between basic science and practical application.[4]

The years of the First Five-year Plan had seen heavy importation of foreign technology into Soviet industry. Four-fifths of machine tools installed in 1932, for instance, were of foreign manufacture. Absorption efforts during those years had been severely hampered by misuse due to the chaotic conditions prevailing in Soviet industry and the low skill

level of Soviet workers. Balance-of-payment problems and ideological fears about becoming "an appendage of the world capitalist economy" had also created considerable difficulties.[5]

Concerns about doctrinal or economic contamination and balance-of-payment problems were not at issue during the trophy technology drive. The USSR could absorb massive amounts of German or other technology more-or-less on its own terms.[6] Foreign technology had also been obtained on favorable terms through the wartime Lend-Lease Program from the U.S. and Britain. The Cold War limited further technological opportunities vis-a-vis the West but did not altogether eliminate them.

Development of new heavy industrial and military technologies in the post-war USSR was carried out through a variety of different bureaucratic structures. Similarly, the impact of post-war technological change, in particular the influx of trophy technology, manifested itself in different ways in relation to the various sectors and layers contained within the Soviet industrial system. The powerful branch ministries, however, wielded considerable authority over training and other technical and educational issues, over the specifics of absorbing the trophy resources available to the USSR, and also over the application and utilization of scientific-technical research and new "means-of-production" technologies.

Branch ministries such as the Ministry of Shipbuilding and the Ministry of Non-Ferrous Metallurgy also shared research and technological development responsibilities, especially relating to key military-related science and "end-product" technology, such as new weapons systems, with other organizations. The Ministry of Internal Affairs (MVD), the Ministry of Defense, the armed services, and the Council of Ministers itself, acting directly through its representatives, all played active and often interlocking roles. The MVD ran an extensive system of research and design camp facilities staffed by prisoners (sharashki). Council-of-Ministers plenipotentiaries at times not only oversaw the formulation of broad military-production plans, but also personally supervised individual projects such as the construction of the first production nuclear reactor at Cheliabinsk.[7] Naval officers shared oversight authority with Ministry of Shipbuilding officials and Admiralty's managers on projects involving the construction of military vessels at Admiralty Shipyard.

Within the ministerial hierarchies themselves, authority over new technology was located both with the top layer and with the managements of the various "super" or "shock" enterprises chosen by the branch ministries as loci for new technology introduction. The chief administrations, to which ministerial authority over production and resource allocation had largely devolved, were effectively bypassed and played

comparatively little role in technology research, acquisition or utilization.

Ministerial involvement in trophy-technology acquisition was demonstrated, in the case of the Ministry of Shipbuilding, by the transfer of its entire Technical Bureau to Soviet-occupied Germany until late 1949. After the bulk of the acquisition process had been completed, the Ministry shut down the Technical Bureau's headquarters in Berlin and its affiliates at Jena, Babelsburg, Blankenberg and Dessau. The remaining work on shipbuilding technology acquisition was handed over to the Defense Ministry's Administration for the Study of the Science and Technology of Germany. The reason for this hand-over seemed to involve cost issues, as well as the sense that most of the important tasks on the German side of the "technology pipeline" had been completed. The Technical Bureau's staff would be in a better position to assist in the introduction of the acquired knowledge and technology into Soviet shipbuilding if they returned home.[8]

While the role of the system of factory-based fundamental research facilities in the trophy effort remained small, the branch ministries relied heavily in practice on the cooperation of enterprise managers and production technical staffs in matters relating to actual application of new technology resources within Soviet industry.[9] In theory, however, the technological transformation of Soviet industry was, from 1947 to 1951, supervised by a functional central

authority rather than the various production-branch ministries. This new authority Gostekhnika was formally in charge of modernizing Soviet industrial production processes through "securing the introduction of high-productivity mechanisms and machines into production."[10] Gostekhnika, however, had no authority over production processes in the enterprises and did not physically control trophy-technology resources. Such authority and control, and the accompanying ability to shape the process of technological change, lay with the powerful branch ministries and their key "shock" enterprises.

KPSS publications of the period also stressed the Party's role in promoting greater "automization and mechanization of the production process" in Soviet industrial enterprises.[11] As we have already seen from the examples of Admiralty and Podolsk, however, party organizations in Soviet heavy-industrial enterprises were fairly weak in the post-war period. These groups do not seem to have played any administrative role in regards to new technology at either facility. Technology acquisition in Germany also bypassed the KPSS. The Bitterfeld-Podolsk transfer was carried out, for instance, with a leading role for military intelligence and a secondary one for the Ministry of Non-Ferrous Metallurgy. Uranium mining and other nuclear-related projects in Germany were run solely by the MVD.[12]

The aforementioned activities of the Ministry of Shipbuilding's Technical Bureau in Germany, however, illustrated both the leading role of ministerial bureaucrats over the acquisition of advanced new production technologies and the scope and intensity of the bureaucrats' efforts. On paper, the Technical Bureau's workers labored fifty-eight hour, six-day weeks. In reality, however, their work on the various aspects of technology acquisition took them much longer per week. They had little time for families who had, in many cases, been moved with them to Germany. The Bureau's administrative director in Berlin, Nikolai Pokhodon, constantly pressed both the Ministry of Shipbuilding and Soviet Navy personnel who worked under his authority for faster and better quality work on a wide range of technical questions. In one case, Pokhodon threatened to cut off supplementary food allocations to all the personnel of several lagging subdivisions. In another case, he exercised his authority by formally reprimanding and temporarily placing under house arrest two naval officers, whom he believed had flouted his authority and carelessly carried out work involving technical documents.[13]

Conversely, Pokhodon made extensive use of bonuses to provide positive inducement to his workers; a practice within the ministerial technical bureaucracy that mirrored the managerial practices of the Ministry's enterprises. Pokhodon also extended this practice to include the German scientists

and technicians working under his authority. Grouped into three categories based on the value of their technical skills and knowledge, the Germans were dependent on their Soviet Ministry-of-Shipbuilding bosses for such basic necessities as food, which was allocated to them in accordance with the category assigned to them by the Soviets.

Pokhodon was bluntly determined and effective in using this combination of carrots and sticks to motivate German engineers to help upgrade the technological level of Soviet shipbuilding. In some cases withholding of food was threatened, but in others, rewards flowed from Pokhodon to the most cooperative and capable among the Germans:

> Noting the energy and initiative demonstrated through the fulfillment of the tasks of the groups studying technical questions relating to technologies of ship construction and ship-building materials on the part of Herr-Doctor Engineer Rozer, I decree that Herr Rozer is to be rewarded with a onetime payment of 400 marks.[14]

The Ministry of Shipbuilding also attempted to exploit the increasingly rare opportunities, due to the growth of Cold War tensions, to learn first-hand about technological developments in shipbuilding in the West. In 1947, for example, Deputy Minister of Shipbuilding Olennikov obtained permission and funding from the Council of Ministers to send a team of Soviet Ministry-of-Shipbuilding experts to attend the London Shipbuilding Exhibition.[15]

While the actual introduction of acquired knowledge and equipment into production necessitated a role for selected

enterprises and their managements, the branch ministries tried to keep a tighter rein on this process than they did over labor and production issues in their spheres. One reason for this was the problem of embezzlement or overuse of trophy technology in a production-centered enterprise setting. The Ministry of Non-Ferrous Metallurgy reacted strongly to several cases of embezzlement in early 1946. Ministry officials moved quickly to reduce the number of trophy-technology bases within its system of enterprises and instituted restrictive security plans at the remainder.[16]

Close supervision was necessary as well because of existing traditions of misuse and mechanical cannibalization that were also negative outgrowths of Soviet industry's prevailing productivist ethic.[17] Soviet experiences with equipment supplied by the USSR's wartime allies had often exemplified these problems. Ministry of Non-Ferrous Metallurgy bureaucrats noted that due to cannibalization, misuse and overuse, an average of "only 2 out of every 31 units [of the equipment imported during the war] were fully operational" in 1946.[18]

At Admiralty, Ministry of Shipbuilding officials closely monitored the introduction and utilization of trophy equipment through the use of specific, highly-detailed "albums of new technology" that the enterprise's managers were required to submit to the Ministry's Bureau of Technical Refinement. The Ministry could then compare the in-production performance

specifications submitted by Admiralty with its own German-derived specifications or check on Admiralty's utilization practices through on-site inspections. Among the many pieces of equipment included in the albums were Kel'berg automatic welding machines, gas-powered cutting machines "of the firm Grizgeim" [Grisheim], "Anzergoff" [Anserhoff] metal-polishing machines, various boilers and soldering devices, as well as a number of compressors and turbo-compressors.[19] The information included in an album pertaining to each device had to be verified through the signatures of the relevant shop captain, the factory's chief mechanic, and the factory's director.

The albums, when originally sent out to Admiralty, also provided projected repair schedules for the equipment. A similar system of monitoring was in effect in all the enterprises of the Ministry of Shipbuilding that possessed trophy equipment. Failure to relay the results of new technology installation to the Ministry could bring speedy retribution to factory managers. A system of special bonuses for the proper introduction and utilization of trophy equipment was also established.[20]

The albums were important to assure not only that the new technology was properly used within an enterprise like Admiralty, but also to make it possible for Admiralty and other designated "super-enterprises" to become dissemination points for the new technology and know-how throughout the

system controlled by the Ministry of Shipbuilding. This direct link between key enterprises and high-level ministerial bureaucrats made powerful ministries such as the Ministry of Shipbuilding increasingly independent vis-a-vis the utilization and dissemination of new production technology. Rapidly-produced Soviet versions of pneumatic drills, metal-polishing and detailing devices and other German trophy-technology items introduced first at Admiralty, and later distributed to other Ministry of Shipbuilding enterprises, were manufactured on-site at Admiralty and the Sudomekh Factory. In all cases, these devices represented significant improvements in speed, quality and productivity over the previously existing Soviet technology.[21]

Admiralty became a center for the introduction, production and diffusion of an assortment of welding technologies. The enterprise became the leading hub within the industrial network of the Ministry of Shipbuilding for the production of a variety of types of welding equipment specifically designed for shipbuilding purposes.[22] Modernization through reproduction of trophy equipment, direct production benefits from the introduction of the new technology, and the experience and knowledge gained from its use were all gathered conveniently together "under one roof." While such a system had obvious advantages both for Admiralty Shipyard and more broadly for the Ministry of Shipbuilding as a whole, the process of technological diffusion was completely

attuned to the needs of the Ministry of Shipbuilding itself, rather than to the needs of Soviet industry in general. I found no evidence of any attempt to disseminate advances in equipment or knowledge outside of the Ministry of Shipbuilding's "realm."

On the other hand, the "under-one-roof" system allowed for rapid progression regarding welding techniques inside the purview of the Ministry of Shipbuilding. This progress was clearly the result of the combination of the infusion of trophy technology and the practical experience gained through its immediate and carefully-monitored introduction into production. Successful introduction at other enterprises followed the pattern that had been tested at Admiralty.[23] Moreover, the Ministry of Shipbuilding could simultaneously tailor its technology development and acquisition effort in Germany to the needs revealed by the production experiences of Admiralty Shipyard and other enterprises where welding was replacing riveting. With the basics of welding firmly ensconced at Admiralty, the Ministry of Shipbuilding's Technical Bureau in Berlin was already, in 1949, "energetically mobilizing the German specialists to prepare welding devices for particular tasks, such as specialized work on ship armaments, and for work with special types of new hard and light alloys."[24]

While this particular pattern of technological absorption reflects the at times limiting nature of ministerial power

within the Soviet heavy-industrial structure, this post-war Soviet pattern of technological absorption shares defining features of strong central control and a narrowly-focused "shock" enterprise introduction strategy with other attempts to import and absorb advanced technology by late-industrializing nations. Particularly interesting parallels are offered by the South Korean experience with steel and petrochemical technology imported from the United States in the 1970s.

Like the Soviets at Admiralty and Podolsk, the Koreans operated on the basis of a centralized effort in which training, introduction of new equipment into production, and replication of the transferred technology took place at one or two central sites. In both the South Korean and Soviet cases, central political and planning authorities gave priority to specific types of heavy industry, which were then the targets of intensive government modernization efforts. The Republic of Korea (ROK) authorities attempted to shape production outcomes by use of specific output targets, successive Five-Year Economic Development Plans and heavy commitment of scarce resources by the state to the high-priority steel and chemical industries.[25]

Despite the formally capitalist nature of the Republic of Korea's economy, other structural parallels can be drawn between the processes of technological absorption in the post-war USSR and South Korea in the 1970s. The Korea Pacific

Chemicals Corporation and the Pohang Steel Company, working in joint venture partnerships with American companies such as Dow Chemical, were granted monopolies by the ROK government and functioned in a non-market manner not unlike that of the post-war Stalinist production branch ministries. Corporate managers at the Korean companies granted these technological and production monopolies looked to the government as both benefactor and monitor. The "rapid and successful" absorption of these technologies by the Koreans was, in part, attributable to the government's focus and commitment of resources. Korean chemical and steel workers and engineers displayed an "eagerness to acquire modern technical knowledge"; they and their superiors also were spurred by "fear" of the government that clearly expected them to succeed in technologically modernizing their respective industries.[26]

Nevertheless, the fact that the South Korean businesses involved in the petrochemical and steel joint ventures had been granted monopolies also worked to limit technological diffusion in a manner not dissimilar to the way in which the influence of the branch ministries limited technology dissemination in the post-war USSR. Korean corporate executives, while promoting the dissemination of technology and knowledge inside their own organizations, were loathe to allow outsiders access to their technological "secrets."[27]

Despite these problems with diffusion, the Koreans were able to go from a standing start to full absorption and

production utilization of the new technologies within the framework of a single five-year planning period--an achievement that has been described as "remarkable." Production totals for both of these infant industries rose every year.[28] The parallels with regards to the speed of technical absorption and to the integration of trophy technology at Admiralty and Podolsk between 1946 and 1950 are obvious.[29]

If it is thus fair to judge the experience of technological absorption at Admiralty and Podolsk as successful, while keeping in mind the specific problems at Podolsk and the broader problems associated with technology diffusion, then it is therefore fruitful for the researcher to explore both the somewhat narrow hows and whys of this conclusion and its place in a broader examination of Soviet technological progress in the reconstruction era.

One notable point in explaining the success of post-war heavy-industry's technological absorption effort is the fact that such efforts were hardly new to the Soviet industrial system. Kendall Bailes and A.C. Sutton have noted that, even before the war, the Soviet industrial system was geared toward assimilating Western technology.[30] During the 1930s, the Soviet government had pursued a wide variety of contracts with Western firms in order to acquire technology to be subsequently copied. Imported technology had also played an important role in the wartime production effort.[31]

Soviet post-war attempts to acquire new technology and technological know-how were also not limited to their efforts in defeated Germany. Technology transfer routes established before and during the war did not close completely or immediately with the advent of the Cold War. The Ministry of Shipbuilding, for instance, bought 26 technical films from the United States Government and American private firms in January 1946. The films, many of which had to do with various aspects of the longitudinal method of shipbuilding, were copied, translated into Russian, and shown as training material at Admiralty and other Leningrad enterprises of the Ministry of Shipbuilding. After more copies were made, the films were distributed to Ministry-of-Shipbuilding enterprises across the USSR.[32]

The trophy-technology acquisition effort was on such a massive scale that their experience in absorbing imported technology must have surely been useful to the Soviets. The Ministry of Non-Ferrous Metallurgy's efforts at Bitterfeld and Podolsk from 1946 to 1948, for example, entailed the disassemblage, study, transport and reassemblage of 359 complete machines or pieces of equipment of 122 different types. Technical documentation regarding the transfer filled 950 folders.[33] The post-war Soviet technology transfer effort also went beyond direct-production technology at both Admiralty and Podolsk. The very machines used for actual construction and reconstruction work were often originally

products of German industry; in constructing the Podolsk site, the construction organization SMU-6 used German cranes and a Ramson and Kaiser concrete mixer.[34] At Admiralty, German cranes were used in the reconstruction, expansion and remodelling of the central shipbuilding plaza. By 1950, the shipyard had the capacity to build new 200 hp. diesel engines for these cranes on-site.[35]

These successes had both long- and short-term benefits. By the early 1950s, not only barges, but also giant tanker ships were being built, sometimes two at a time, at Admiralty. This achievement would have been unthinkable before the progress involving the expanded and modernized shipbuilding plaza and the introduction of the longitudinal method that had been made at Admiralty during the post-war reconstruction drive. Other industries besides shipbuilding and non-ferrous metallurgy benefited from trophy technology. Evidently largely on the basis of trophy technology, mining operations in the Moscow Coal Basin were able to achieve a three-fold increase in mechanization by 1950.[36]

It is important to note, however, that even in heavy-industrial enterprises successful technological modernization was largely confined to direct-production processes. Trophy construction equipment was present at both Admiralty and Podolsk, but its use was often handicapped by shortages of qualified workers and supplies (oil, gas, spare parts, etc.). No attempt was made at either facility to move systematically

to reduce the use of "brute" labor (pushing, hauling and so on) in the provision of supplies or energy sources such as coal or oil to the production shops. This weakness would continue to contribute to Soviet industry's overconsumption of labor well after the post-war period.[37]

Direct production and end-product technological advancement within the heavy industrial and military spheres was, however, well supported by stepped-up research, development and education efforts. Investment in scientific research and technical education increased rapidly during the 1946-1950 period. By 1950, the number of scientific researchers had topped 70,000--up from a 1940 level of 26,000. Soviet higher technical education schools (VUZy) had, by 1950, enrollments 36 percent above pre-war levels. The USSR also had 35 percent more degreed engineers working in the Soviet economy.[38] Bruce Parrott notes that the war had strengthened the Soviet political elite's conviction about the importance of achieving rapid advances in military-related heavy-industrial technologies. Research and development budgets showed more than a four-fold increase between 1941 and 1950, with almost all of the increase coming in the post-war period. Shares of productive investment in new industrial plants based on new technology were also at higher levels during the 1946-1950 period than during any later period in Soviet history.[39]

At the enterprise level, a variety of incentives were used by managers to encourage workers to enroll in technical

education courses offered either at the factory itself or in nearby institutions of technical education. Podolsk's managers, for instance, offered technical-training enrollees special food allotments at bargain prices.[40] Publication of technical literature, such as the revived Leningrad journal, Sudostroenie (ship-construction), also increased.

In one sense, particularly at Admiralty, technological progress also represented an opportunity for material gain on the part of managers, technical specialists and skilled workers. In early 1946, for example, the Ministry of Shipbuilding paid bonuses, ranging from 200 to 1200 rubles each, to a group of ten managers, construction engineers, and lathe operators for the performance of "special tasks" in relation to the reception and introduction into production of trophy cutting machines at Admiralty.[41] These men were part of a special type of production team that combined skilled workers with technical specialists for the purpose of smoothing the process of comprehending, duplicating and rapidly introducing trophy technology into production.

A logical outgrowth of the mixing of "hands on" production experience and technical knowledge entailed in the "under one roof" approach, these so-called "complex brigades" played an important role in the USSR's post-war effort to absorb trophy technology by combining the skills of workers and specialists. While these brigades already were in existence at a high priority enterprise like Admiralty in

1946, a truly national campaign to promote their formation did not begin until 1947.[42]

"Innovative" Stakhanovite methods were also still referenced at Admiralty in the 1946-1950 period, but the definition of a Stakhanovite was, in fact, quite indefinite. In general, a Stakhanovite was a worker who consistently outstripped norms in terms of output. Such overfulfillment also had to be considerable; additionally, the worker in question had to be at least loosely classifiable as an "innovator." Classification criteria were highly flexible. The highly-productive metal worker, A. A. Manyshev, was defined by the shipyard's management as an "innovator" simply because he excelled in both quantity and quality of output. On the other hand, Alexander Ivanovich Komarov was declared a Stakhanovite even though there was a 60 percent gap between his gross output and quality overfulfillment numbers. Komarov, however, worked as a welder and had been one of the first to take up the challenge in 1946 to learn the new technology. Other Stakhanovites, such as brigade leader N. D. Bulanov, combined high personal productivity with the leadership of a productive brigade and work as a teacher of other workers in technical education courses. Participation in the efficiency suggestions campaign also often served as a signifier of innovation.[43]

Shock workers (production workers whose rates of overfulfillment were generally lower than those of Stakhanovites and who, for whatever reason, were not

classified as "innovators" by the shipyard's management) and Stakhanovites together constituted a majority of Admiralty's direct-production labor force. Their numbers and individual examples, such as those listed above, lead one to conclude that Stakhanovism (and shock work) continued to function in post-war heavy industry much as they had in the late-1930s and early-1940s. After the movements had ceased to function as a form of pressure on enterprise managers, qualifications for these titles were open to wide interpretation by managers. They constituted a symbiotic reward system; in the words of Lewis Siegelbaum, "a convenient idiom" and "soporific" for the compensation of productive individual workers by managers.[44] The specific connection between Stakhanovism and the sweeping introduction of new technologies that took place in post-war Soviet heavy industry is thus tenuous and uncertain.

Efforts to promote the formation of complex brigades were, however, part of a larger effort to speed up the process of technological absorption in Soviet industrial enterprises through cooperation between technical specialists and production workers. At Admiralty, efforts to promote submission of organizational or technical improvements to the production process were also publicly characterized as the fruits of a cooperative "harmony" (sodruzhestvo) between workers and engineers. Thus, most of the individual efficiency suggestions offered and accepted were officially described as the products of such collaborative efforts (often among

workers and engineers working in the same "complex brigade").[45] Ministry and trade-union officials explicitly stated that one of the chief goals of the efficiency suggestion (ratspredlozhenie) movement was to create a unified "cadre of innovators" among workers and engineers. Ministerial officials also wanted to create partnerships among skilled workers and technical personnel in Soviet industrial enterprises in order to better train new industrial recruits.[46]

As in productivity campaigns, the main incentive for such worker-engineer cooperation in efforts to put forward efficiency suggestions was the possibility for material reward. Bonuses were generally forthcoming if the suggestion put forward was deemed worthy of introduction into production by the relevant review commission. The scope of such bonus programs within favored heavy-industrial ministries was impressive. In March and April of 1946 alone, about 2000 such awards, of varying amounts, were made within the domain of the Ministry of Non-Ferrous Metallurgy. Within the purview of the Ministry of Shipbuilding, city-wide and national ratspredlozhenie competitions were established. For a first-place finish in the all-union competition in March 1947, Admiralty Shipyard earned 200,000 rubles for distribution through its Director's Fund.[47]

The efficiency suggestion movement in post-war Soviet industry had another explicit purpose as well--to make Soviet

industry more cost-efficient. Indeed, claims of improved efficiency and resource economization were common. At Admiralty, for the first ten months of 1948, it was claimed that 134 instituted efficiency suggestions had produced a savings of 567,000 rubles. For just two months in 1946, an overall economy of 250,000 rubles was claimed.[48] While productivity and output claims had a certain verifiable and tangible quality (a missing or defective **Whiskey**-class submarine was, after all, unlikely to be overlooked by the Soviet Navy), these less tangible efficiency-savings figures have been viewed with skepticism by some analysts. This skepticism has been expressed most vigorously by Eric Duskin, whose work on the post-war technical intelligentsia led him to examine the ratspredlozhenie movement.

Duskin's research caused him to dismiss such efficiency claims. Ignoring or downplaying the role of the efficiency suggestions movement in encouraging worker-engineer cooperation, Duskin concludes that any claims of improved efficiency attributed to the postwar "rationalizer movement" were also "farcical" and artificially scripted.[49] While Duskin's slighting of the widespread movement's contribution to worker-specialist cooperation is problematic, it is hard not to agree with his verdict on the movement's "Potemkin-village" quality in terms of economization. The sources I reviewed are also rich in indications that the difficult-to-verify savings were little more than window-dressing.

At Admiralty, the whole ratspredlozhenie process was basically pre-scripted. For instance, at a December 1949 meeting, concern was expressed that the shipyard would not meet its annual quota for the introduction of efficiency suggestions, either in terms of number or in terms of estimated savings. So, ten new suggestions with a total savings of over 150,000 rubles were proposed, reviewed, approved, introduced into production and had their real economy estimated in the next two weeks. Without such deadlines to meet, however, Admiralty's managers and top technical specialists paid scant attention to many of the efficiency suggestions submitted by the enterprise's employees. Earlier in 1949, the factory's Technical Bureau, in response to complaints from ratspredlozhenie authors, was found to be in possession of stacks of unread efficiency suggestions. Some suggestions had been collecting dust in the desk drawers of Bureau Chiefs S.I. Chistiakov and I.A. Petrov for over two years.[50]

Admiralty's overall failure to fulfill its 1946-1950 efficiency-related (economization of material resources utilized in or to support production), as opposed to productivity-related (actual output as judged against planned output) targets, could also be partially attributed to the bankruptcy of the economization aspects of the ratspredlozhenie movement at the enterprise. In general, many post-war conservation efforts had a gimmicky quality. Indeed,

Admiralty's own investigations exposed some rationalizers as wasteful frauds. In one shop, where numerous workers and engineers had received bonuses for ratspredlozhenie related to the conservation of steel, it was reported that the shop's personnel simply could not account for over twenty tons of "the gold of industry" at the end of 1949.[51]

In the post-war era, however, the term 'rationalization' meant more than just the ratspredlozhenie movement, organizational changes with marginal production returns (such as pre-positioning the workplace), or generally improved cooperation between engineers and workers. Rationalization also meant the transformation of Soviet industrial production through the introduction of new technologies and techniques. It meant the "replacing of hand labor with new [trophy] technology" in direct-production work, as well as the growing use of new imported techniques and technological processes, such as the longitudinal method of ship construction employed at Admiralty and the Tottenguss aluminum-production method employed at Podolsk. At Podolsk, rationalization involved close cooperation, not only between workers and the factory's technical specialists, but also between production personnel and the scientists working in the factory laboratory.[52] Rationalizers were not only workers who submitted ratspredlozhenie or proposed organizational changes to eliminate production bottlenecks, but they were also people who were personally "mastering new technology."[53]

While the motivations and attitudes of heavy-industry workers will be reviewed in detail in the following chapter, it is appropriate to now examine more briefly some of the impacts of technological change on labor morale and the circumstances of workers. Admiralty's experience provides many telling examples that demonstrate the breadth of the effects of technological advances on the shipyard's workforce.

The worker Nikolai Vasilievich Klenov remembered a fruitful exchange of personnel and ideas between Admiralty and Sudomekh, particularly in relation to the submarine-building program. He also felt that he had personally responded positively to the challenges entailed in learning and understanding the longitudinal method, as well as the other unfamiliar skills necessary to utilize the new "German technology." Alexander Ivanovich Iakov, who was Chairman of the enterprise's Knowledge (Znanie) Society, felt that his own work of promoting training programs related to the introduction of the new equipment had been very successful.[54] While such positive responses to a potentially jarring series of changes were probably due in part to the general feelings of pride, unity, dedication, faith and validation inspired by victory in war, the existence of technology-related bonuses also highlighted the fact that other, more concrete, factors were at work among Admiralty's laborers as well.

The new technology presented a multitude of opportunities for workers to better themselves materially, not only through

the proliferation of new skilled positions (a phenomenon seen at both Admiralty and Podolsk) but also, in the case of Admiralty, a chance to earn extra bonuses. Late in 1948, 19 of the plant's most highly-bonused producers hailed the "real help" given them by new technology in fulfilling and overfulfilling their norms. Enterprise managers clearly promoted the examples of quick studies like the cutting machine operator Filipov, who was using trophy-technology cutting machines to overfulfill the established norm by 500 percent on a monthly basis. Thus, any workers at high-priority plants who might reflexively resist using the new technology would not only be reassured by their superiors and specially-appointed "prompters," such as members of the Knowledge Society, but also would be tempted out of their reluctance by the possibility of bonuses.[55]

Workers and supervisors who mastered the new methods took pride in the feeling that they were personally contributing to the national reconstruction effort. At times, the lag between the introduction of highly-productive new technologies and the establishment of new, higher norms also led workers to put pressure on managers to give them more opportunities to increase productivity and earn bonuses through increased provision of, at times scarce, new-technology resources to their respective shops.[56]

Learning the new methods was often an intimidating process but one that Admiralty's workers viewed as a necessary

"rite of passage." A true production fable from that time and place was later recounted by welder V.P. Emel'ianov:

> I and a lot of my comrades in the large-ship bodies shop were used to employing riveting techniques, but then they came to us and suggested that we train and educate ourselves in welding methods. We agreed because we knew that riveting was undergoing its last days, but at that time there were still relatively few welders in the factory. All of us studied the new profession independently, under the watchful eyes of more experienced and skilled comrades. I clearly remember the first time that I did my own welding seam. I was very frightened. I so wanted to perform my first welding task without "nips" [of damage], as they called them, but for whatever reason my hand would not listen to me and the metal was ruined and the welding rod itself damaged ... Eventually, of course, I learned how to perform a perfect welding seam and how to repair and maintain the welding rod. Indeed, I learned the whole regime of welding. With every passing month, more and more men in the shipyard became welders. They were esteemed and hailed as "Masters of the Blue Flame".[57]

There are elements of trial and conquest in this account that were more generally felt in the shipyard. The difficulties of learning unfamiliar devices and techniques were, in the end, outweighed by the "magical," yet tangible, results produced. The longitudinal method, which entailed "each brigade being sent simultaneously to a predetermined spot" to carry out its duties, must have seemed strange at first to Admiralty's workers. It soon became clear, however, that it allowed them to construct barges and other vessels with unprecedented speed. New technology thus helped to boast morale at the enterprise.[58]

Another important labor-related issue involving technological change in post-war Soviet heavy industry was its impact on workers' production norms. On this related point, my evidence is less clear than on the issue of overall labor morale. In general, however, my conclusions bear out the verdicts reached by R. W. Davies and Vladimir Andrle regarding the relationship between technological investment and progress and upward pressure on output norms in Soviet industry during the 1930s.

Both scholars noted that while new technology may have been a stimulus to norm raising by bureaucrats outside the enterprises, implementation of such changes on the shop floor was not assured. Managers, specialists and foremen did not simply function as "cogs in the machine." The shop-floor reality inside a Soviet enterprise was the result of a complex process of bargaining between enterprise managers and their workers.[59]

Production norms at post-war heavy-industrial enterprises constituted complicated and varied sets of standards. Even for the same general type of work, there could be different norms of time, output, quality, economization of materials, etc. Norms could also vary greatly depending upon the kind of equipment being used to carry out a task (i.e. Beringer versus Komsomolets cutting machines at Admiralty). Enterprise managements also had broad authority to alter norms for their workers. Judging by the pattern of alterations at Admiralty,

the general inclination of enterprise managers was to lower norms.[60] At Admiralty in 1946-1947, workers pressed for the opportunity to work on new, more advanced machines while attempting to slow or block the introduction of significantly higher norms. Indeed, during that period much of the factory continued to operate on norms established in 1940. A national campaign to jump forward to the use of 1950 norms in 1947 was reflected, however, to some degree at Admiralty.[61]

Both the Ministry of Shipbuilding and the Ministry of Non-Ferrous Metallurgy attempted to move toward higher norms in 1948. Again, however, the evidence is not conclusive about whether or not this was actually done. Within the enterprises of the Ministry of Non-Ferrous Metallurgy, an overall average norm increase of 10 percent was claimed. The Ministry planned annual norm increases of similar size for 1949 and 1950. Ministry documents specifically linked the increases with the introduction of new advanced production technology.[62] Since its shops were just coming on-line, data from Podolsk is essentially impossible to interpret in this context. At Admiralty, many norms remained unchanged, but others climbed by as much as 40 percent in 1948. A broad revision of norms within the Ministry of Shipbuilding, however, does not actually seem to have taken place until March 1950.[63]

In order to better tackle a range of complicated problems dealing with rapid technological progress in post-war industrial enterprises, the Soviet political, planning, and

ministerial elites consistently stressed technical education at all levels and also sought to normalize relations between themselves and the technical intelligentsia. Trophy technology offered opportunities for rapid progress, increased military-industrial power, and the potential for alleviation of the labor-shortage problems that could have hampered the reconstruction effort. Responding to those opportunities required not only cooperation between Soviet political elites and the technical intelligentsia (ITR), but also elite support for efforts to expand the technical intelligentsia and elevate its level of skill.

As Eric Duskin notes in his study of the post-war ITR, the Soviet technical intelligentsia had, for most of its history, been in a "precarious" position vis-a-vis the political leadership.[64] Deemed untrustworthy by Soviet political elites in the 1920s and 1930s, technical specialists had seen their authority challenged through a range of voluntarist campaigns and practices supported by both political elites and workers. "Spetsy" had also often been the targets of both formal and informal persecution. Scientists and engineers had been prominent as scapegoats during political show trials such as the Promparty Trial in 1930.[65]

Despite such problems, however, the technical intelligentsia continued to expand in size. The ITR grew six-fold between 1928 and 1941. The technical intelligentsia also

managed to deflect or soften the impact of some voluntarist movements such as Stakhanovism in the mid-1930s.[66]

Still, pre-war technical training programs, as well as actual work duties, often stressed the importance of political education over technical expertise. The direct promotion of upwardly-mobile workers who lacked formal technical education or training (praktiki) to positions such as shop boss also continued to pose a challenge to the authority of technical specialists. Distrust of the specialists by political elites lingered even as presumably more politically-reliable "red experts," who had received their technical education under the Soviet system, began to replace the old bourgeois "spetsy."[67]

Duskin, giving a more detailed and concrete foundation to arguments originally put forward by Vera Dunham in the 1970s, convincingly argues that the post-war era marked a departure from the established pattern of troubled relations between engineers and political elites in the USSR. In the post-war era and afterwards, the relationship between the Soviet state and its technical intelligentsia was far more "cozy," a shift originally labeled by Dunham as the "Big Deal."[68] One of the most important post-war trends cited by Duskin to buttress his claim of increased status, authority, and security for the technical intelligentsia was the changing nature of its composition. Simply put, from 1946 on, the representation of praktiki declined and that of technical specialists with diplomas increased. The improved status of degreed technical

specialists was reflected in the choices of demobilized soldiers who streamed into all forms of technical education in record numbers. In 1945-1946, the number of these veterans in technical education programs increased by 600,000. By 1950, the total number of students enrolled in the higher technical schools stood at an all-time high of 1,247,400. By 1950, the USSR had easily surpassed pre-war numbers of degreed engineers.[69]

The explosion of formal technical training meant the decline of the tradition of praktiki in Soviet industrial enterprises. During the 1946-1957 period, the percentage of praktiki employed as technical specialists in Soviet industrial enterprises declined by one-third. Praktiki, while still a presence on Soviet shop floors in 1950, accounted for less than 10 percent of new specialists entering the workforce between 1946 and 1950.[70]

The more prominent industrial role for specialists with diplomas after the war was mirrored by the rise of many technical specialists into the ranks of the political elite. From Leonid Brezhnev on down, a high percentage of the coming generation of political leaders would be men with extensive technical training. Technical training became, in the words of Harley Balzer, the "major path to social mobility in the USSR."[71] Salaries for heavy-industry technical specialists, particularly those lucky enough to be employed fairly high up in enterprise managements or in the bureaucracies of the

branch ministries and their chief administrations, also were relatively high. Available data from the Ministry of Shipbuilding's Fourth Chief Administration suggests an average figure of around 1500 rubles a month (not including bonuses). This was five times the base salary paid to some support staff personnel in heavy-industrial enterprises.[72]

A theme that will be explored more thoroughly in the subsequent chapter is the national drive for a more technically-literate workforce. For now, it is sufficient to note that this effort presented new opportunities for both technical specialists and workers. Although chances for upward mobility as praktiki may have been more limited, workers could attempt to become degreed engineers or technicians themselves or upgrade their skills beyond the obligatory "tekhminimum" courses through a variety of different avenues. At Admiralty and Podolsk, there were secondary technical training schools (tekhnikumy) on or nearby the factory premises. Workers could also earn bonuses for enrolling in, or teaching, night classes to improve worker skills. At both Podolsk and Admiralty, however, participation in these courses did not allow a worker time off from his or her production duties. Podolsk and Admiralty also maintained extensive technical libraries that included many translated German documents relating to the use of trophy technology. Admiralty's technical library drew praise from the Ministry of Shipbuilding for its service to workers and engineers, its handling of the German materials,

and the staff's careful reconstruction of technical catalogs and manuals that had been damaged in German air attacks during the war.[73]

Some authors, however, such as Duskin, view the whole post-war technical training and professionalization effort as fundamentally "ineffective." Duskin argues that, despite the scope of the effort and some progress in "improving technical competence," the technical training effort was severely hampered by a number of problems, ranging from overcrowded buildings and classes to political interference.[74] This, in turn, caused a failure to overcome a variety of problems relating to the overall technical level of Soviet industry.

One does not have to accept this verdict completely to acknowledge that problems relating to skill, knowledge, and technical culture levels remained. Despite the extent of training programs, even favored heavy-industrial enterprises such as Admiralty found themselves, at times, short of technical specialists.[75] Podolsk and other enterprises of the Ministry of Non-Ferrous Metallurgy experienced many problems because of "poorly qualified people" working in the Ministry's factories. Podolsk's records contain instances of truly shocking technical ignorance causing accidents or other problems. One such incident at Podolsk involved a newly recruited and evidently inadequately-trained worker who, opening a panel that he believed was a tool closet, was immediately thereafter scalded on the hands and face by an

outflow of hot soda ash. Other non-ferrous facilities such as the Zaporozhets Aluminum Plant had records of destructive and fatal accidents, largely attributable to technical incompetence and insufficient familiarity with new technology, every bit as bad as Podolsk's.[76]

While inadequate technical training and the deprioritization of high-grade aluminum production undoubtedly contributed to the accident problems of the Podolsk Factory of Non-Ferrous Metals, Loren Graham cites an additional factor that had been indirectly evident in Soviet industrial policies since the late 1920s. Graham concludes that, at all levels of the Soviet industrial hierarchy, losses due to industrial accidents of inadequately-trained workers and peasants were basically viewed as an "acceptable cost" of technological and industrial progress--that is, not worth the effort and resources necessary to protect them. Graham's conclusion seems to be born out by a variety of choices made by managers at both Podolsk and Admiralty. Even later, in the late-1950s, Soviet heavy-industrial accident rates exceeded comparable U.S. rates by 20 times or more.[77]

Rather than being direct or indirect consequences of morally-odious tradeoffs, other problems were more clearly and solely the result of strains and structural weaknesses in Soviet heavy industry. The perceived need to rebuild quickly (in part due to the increasingly tense international situation), the post-war labor shortage, and the productivist

orientation of the whole Soviet industrial system also helped create situations where new industrial recruits began production or reconstruction work without having received even a minimum level of training. Duskin cites the case of a construction brigade at a heavy-machine building factory composed of newly-recruited kolkhozniki. These former peasants were immediately put to work even though they had no idea of how to use the sledgehammers and chisels issued to them.[78]

Frequent breakdowns of newly-introduced German and other equipment were a problem at both Admiralty and Podolsk. While the Ministry of Shipbuilding's monitoring system, discussed earlier in this chapter, was effective in blocking certain harmful practices (such as cannibalization) regarding new technology, the Ministry's cumbersome repair-authorization scheme almost certainly contributed to inadequate repairs to all types of new equipment introduced in the Ministry's enterprises between 1946 and 1950. Ministry guidelines, evidently designed to limit production stoppages, basically instructed repair brigades to delay repairing equipment that was working imperfectly as long as possible. Three different authorizing signatures (from the relevant shop boss, the shop's Department of Quality Control (OTK) foreman, and the factory's chief mechanic) were also required before an operable piece of equipment could be shut down for preventative repairs. Unsurprisingly, Admiralty experienced a number of breakdowns due to inadequate or infrequent

repairs.[79] Repair, maintenance, output, and production-quality problems at both Admiralty and Podolsk were, at times, blamed on inadequately-trained technical specialists. Some of the problems at Admiralty, however, were alleviated by an invigorated OTK presence in the factory's shops.[80]

Despite these undoubted shortcomings, however, the overall track record of technical progress and increases in technical know-how at the two facilities was impressive; at Admiralty, a wide variety of new technologies and techniques were successfully absorbed and introduced into production. Progress was also considerable in end-product technologies, such as the thirty-four submarines built at the facility on the basis of captured German trophy designs. Output and labor-productivity gains were also considerable. The successful introduction of new technology also helped boost morale at the shipyard.

Podolsk's record was more mixed. Nevertheless, going from a standing start to full technological realization of the advanced Tottenguss process in less than five years was an impressive achievement--fully comparable to the widely-hailed record of a successful late-industrializer and absorber of imported industrial technology such as South Korea. Podolsk also managed to consistently increase aluminum and other yearly output totals.

Thus, the experiences of Podolsk and Admiralty contradict the assertions of waste, incapability and overall failure

(with "rare" successes) put forward by authors who have analyzed post-war Soviet technical education or trophy technology absorption efforts.2[81] Admiralty's results were, almost without exception, highly favorable. The eventual partial abandonment of Podolsk was certainly wasteful, but this did not prevent the rapid achievement of fundamental technological goals and was, as stated earlier, in part due to technological advances in related military and metallurgical technologies.

The technological success at Podolsk and Admiralty was also indicative of a broader post-war heavy-industrial technological revolution that extended beyond production technologies to end-product technologies and lifted the USSR, albeit incompletely and unevenly, to an entirely new technological level. Much of the progress was due to the opportunistic and keen interest taken in German military and heavy-industrial technologies by the Soviets and their successful efforts geared towards absorption and reproduction of them.

Toward the end of the war, the desperate Nazi regime had turned to the production of technologically-advanced "wonder weapons" to try to turn the tide of battle. While these weapons, which ranged from the King Tiger heavy tank to the Me-262 jet fighter and the V-2 rocket, failed to accomplish their intended purpose due to insufficient German production capacities and allied airstrikes on their production

facilities, they nevertheless often represented significant advances in military end-product technology. Ironically, the Soviets in many instances became the beneficiaries of ground-breaking German research. The **Type XXIII** and **Type XXI** U-boats, that served as the technological foundations for the submarine building program undertaken at Admiralty and Sudomekh, were representative of this phenomenon.

These late-model submarines embodied a series of technological advances that produced improved submerged speeds, increased ability to avoid detection, and the ability to remain submerged for much longer periods of time. The **Type-XXI** was described by allied military analysts as an "epoch-making" craft. A limited number of smaller **Type-XXIII** submarines scored a string of successes toward the end of the war. The Soviets, in producing their own versions of the **Type-XXIII** and the **Type XXI** at Admiralty and Sudomekh after the war, proved themselves capable of updating the original German designs and introducing a variety of improvements.[82] The manner in which the submarine-building program, as well as other military projects, were carried out at Admiralty Shipyard is also revealing about a number of the emphases and orientations of Soviet post-war heavy industry.

The submarine-building program undertaken jointly at Admiralty and the affiliated Sudomekh Factory began when the two facilities were transferred together to the authority of the People's Commissariat of Military Shipbuilding on February

5, 1946. This transfer immediately led to large increases in the allocation of material resources assigned to the two factories and to large infusions of money into their Directors' Funds. The latter would be used to pay additional bonuses to workers, engineers and managers involved with trophy-technology submarine projects.[83]

Technical standards, specifications and production norms for each individual project were determined at Admiralty under the joint supervision of two special plenipotentiaries, Soviet Navy Admiral Leonid Galler and Ministry of Shipbuilding Deputy People's Commissar Anatoli Redkin. Work would generally proceed on both a basic model of the craft in question and on an experimental model that would "be developed simultaneously with the basic project." Such an approach not only served as insurance against delays or accidents, but also provided a way in which the latest technological suggestions or new mechanisms could be incorporated into the project's construction without any lag or risk of pushing the technological envelope and ending up without a functional submarine.

Production and technological standards on these projects were strictly enforced and monitored. Any local supply shortages were reported immediately and simultaneously by Galler and Redkin to the Ministry of Defense and the Ministry of Shipbuilding, respectively, in order to minimize delays due to supply shortages. Both ministries were thus jointly

obligated to make up any shortfalls. Existing shipyard guidelines for economization of materials were eliminated or relaxed for work on such projects. Conversely, work dealing with technical documentation was subjected to standards that were much more rigid than those generally in use at Admiralty. These regulations went so far as to mandate the exact types of paper and folders that were to be used in the preparation and storage of documents relating to work on trophy-technology submarine projects and other types of naval construction.[84]

Such "double-building" practices, while highly wasteful of resources, were also indicative of both the care and effort devoted to military production and the commitment to keep it on the cutting edge of technology through constant experimentation and fine-tuning in actual application. The post-war production runs of the Mig-15 jet fighter were also characterized by similar practices involving constant patterns of "adjustments and improvements." By emphasizing the integration of the absolutely latest technology, such practices also embodied a shift in Soviet weapons' production strategies from the more quantitative emphasis of the pre-war and (most particularly) the war years.[85]

The overwhelming desire to improve the USSR's military-technology capabilities also was a driving force in much of the progress made in the area of non-ferrous metallurgy during the post-war period. Molybdenum and wolframite, the focus of intensive research and extraction efforts by the Soviets, were

militarily valuable as high-strength alloying agents. Titanium, nickel-steel and other new hard and light materials, the development of which so negatively impacted Podolsk, were seen as crucial to the development of militarily-related aviation and astronautics. The perfection of a magnetically-based method for titanium's extraction in 1946 led to an "under-one-roof" rapid-development effort that linked ongoing research and production efforts at the enterprise level.[86]

Soviet efforts regarding the German rocket program were among the more intense and remarkable of the trophy technology drive. After having tracked and successfully recovered the rocket program's archives from a Prague railroad siding, the Soviets managed to eventually restart German V-2 rocket and guidance system assembly lines at Bleicherode and Nordhausen. This was despite American efforts to deny them access (U.S. troops had occupied these areas before they reverted to Soviet control) by removing rockets, documents, and the leading German scientists.[87] A special scientific team that included Sergei Korolev, later the mysterious "chief designer" of Soviet spacecraft, worked in Germany until 1947. The rocketry program begun in 1945-1946 produced the massive R-14 and a clear lead in rocketry over the West by 1949. The Soviet rocketry program born in the 1946-1950 period also steadily became more diversified. Work begun in the early 1950s produced submarine-launched ballistic missiles by the mid-1950s. Full intercontinental ballistic missile capability was

achieved in 1957, which also saw perhaps the proudest moment for Soviet science and technology--the launching of Sputnik.[88] The Soviets had once again demonstrated their astonishing capability to absorb trophy technology and then rapidly expand upon the technological foundation that they had appropriated.

Another area of intense focus for the Soviets in the post-war years was military aviation. Here, progress was also rapid. At the end of the war, the Soviets had managed to capture several intact Me-262 jet fighters. As mentioned earlier, however, the unexpected availability of British equipment in 1946 caused the Soviets to duplicate it instead. As with the rocket program, Soviet developmental efforts quickly became more diverse. During the war, the Soviets had possessed no long-range bombers like the American B-29s. Beginning with the piston-engine Tu-4 in the late-1940s, however, the Soviets rapidly developed a series of bombers that culminated in the jet-powered 103M and turbo-propeller Tu-95. Early development of the Tu-4 had been based on a crashed U.S. B-29. German and British jet-engine technology was also integrated in Soviet bomber development. The Tu-95 aircraft gave the USSR intercontinental attack capability by 1955.[89]

Impetus for these end-product military technology development programs came from the very top of the Soviet power structure. Stalin took a personal interest in many of

the projects, but a heavy veil of secrecy also seems to have kept even some of his closest associates in the dark. Khrushchev and other members of the Soviet leadership, when briefed on these programs after Stalin's death, were amazed at the momentum the military technology development programs had gained and the amount of progress made in the late-1940s and early-1950s. Khrushchev and his associates sat stunned "as if we were a bunch of sheep seeing a new gate for the first time."[90]

The greatest emphasis of all was nuclear technology. David Holloway, who details the Soviet atomic bomb project and other aspects of Soviet nuclear policy in his distinguished monograph Stalin and the Bomb, includes a quotation that gives insight into Stalin's thinking on the question of how to mobilize and motivate those working to make the USSR a nuclear superpower:

> Our state has suffered very much, yet it is surely possible to ensure that several thousand people can live very well, and several thousand [other] people can live better than very well, with their own dachas, so that they can relax, and with their own cars.[91]

This strategy was a more narrow and intensified version of the strategy applied to favored heavy-industrial enterprises like Admiralty.

As at Admiralty, the atomic-bomb project benefitted from an intense concentration of resources and will. The first Soviet atomic bomb was detonated in 1949. The world's first atomic power station was operational in the USSR by 1954; the

first Soviet hydrogen bomb was detonated in 1953, and it was of an original "layer cake" design that in no way depended on data stolen by Soviet "atom spies."[92] The Soviets also made significant progress in a variety of other areas of military technology such as radar.[93]

Certainly, the chief areas of resource concentration and ensuing progress in the post-war era were directly related to military power or to the production of military technologies. Other heavy industries, linked more indirectly to the Soviet state's military power, also saw important technological achievements. Many of these developments were strongly linked to trophy technology. Others were indicative of native innovation supposedly uncharacteristic of the Soviet system. The late-1940s and early-1950s also saw significant progress in fields as diverse as optics, steel-making, electrical energy and electronics, chemicals, oil-drilling, and non-ferrous metallurgy.[94]

There are examples from the post-war years of successful technological "spin-offs" from military projects. One prominent example of this concerned the Soviets' later achilles-heel, computer technology. Soviet computer technology arose out of the need to perform, more speedily, calculations on thermonuclear weapons projects. The resulting Soviet BESM computers were among the very best in the world in the early 1950s.[95] The jumping-off point for progress in other Soviet industries was a relocated German factory. A nylon-6 plant

that was disassembled and transferred from the German city of Landsberg to the Soviet city of Klin, paved the way for "considerable diversification and technical progress in the Soviet manmade fibers industry."[96]

In a comparison of Soviet and American technological levels for a variety of types of military and heavy-industrial technologies, a certain chronological pattern becomes evident. A Soviet post-war technological surge that achieved parity, a Soviet lead, or a "diminishing lag in the last years of Stalin appears to have been replaced by an increasing lag" in the late-1950s to mid-1960s. This pattern held true for a wide range of technologies that included plastics, industrial machine and cutting tools, chemicals, rockets and missiles, military aircraft and their engines, submarines, military armored vehicles, and nuclear technologies.[97] Another indicator of the relative power and high technological level of Soviet heavy industry after the war was the fact that the USSR was a net exporter of machine tools from 1947 until the mid-1950s. By the 1970s, the USSR was a heavy importer of machine tools.[98]

Thus, in many senses, the late-Stalin period could be characterized as the "golden years" of Soviet technology. The vast scope of innovative success in solving the problems of absorption that characterized post-war Soviet trophy-technology efforts certainly was a major contributor to Soviet technical and scientific progress. This reality has been

improperly overlooked by many otherwise capable scholars. Any suggestion that the Zhdanovshchina, for instance, caused backwardness and "post-war isolation" from Western technology is demonstrably wrong--at least in regards to heavy and military industry.[99]

The overwhelming military emphasis of the reconstruction era's technological effort, however, is very apparent. The intensified stress on technologies likely to produce an "enormous impact on warfare" can be broadly attributed to a combination of several rather obvious causes. Soviet industrial policies had traditionally been highly militarized; the role these technologies had played in saving the USSR during the war could have only intensified this pattern. Rising Cold War tensions with the West also certainly further focused Soviet technological efforts on the military sphere and, by definition, the heavy-industrial sphere. The histories of both Admiralty and Podolsk, however, strongly suggest that the general military direction of Soviet post-war technological development was already set even before Cold-War tensions became generally apparent.

Due in part to a lack of access to archival sources that could shed light on what the Soviets were actually doing with technology in the post-war years, scholars have tended to characterize the post-war era as one of technological stagnation and an anti-scientific mindset on the basis of the public prominence of such personalities as Andrei Zhdanov and

Trofim Lysenko. Zhdanovite and Lysenkoist discourses of the period do reveal an anti-scientific, anti-technological mindset composed in equal parts of crude Marxist-Leninism, Russian nationalism, and personal opportunism. Loren Graham writes of the "calcification" of Soviet science and technology under this assault; Bruce J. Allyn suggests that the post-war USSR was a place where "superstition" and political ideology were valued over scientific fact. Both authors contend that the prevailing anti-scientific discourse broadly retarded Soviet scientific and technological progress.[100]

David Holloway's conclusions about the real impact of these tendencies and their originators are much more in line with the findings contained in this work. Holloway concluded that Stalin, focused on the creation of a technologically-advanced, powerful military-industrial complex based in heavy industry after the war, reined in Zhdanov and the other dogmatists whenever they threatened something important to Stalin's goals--such as the well-being and intellectual autonomy of Soviet physicists. As for Lysenko, it mattered "little to Stalin whether he [Lysenko] was a charlatan or not." Stalin showed low regard for agriculture and agricultural sciences, and he and other Soviet leaders reacted to post-war rural famine in the Ukraine and elsewhere with brutal indifference in 1946 and 1947.[101] The fact that Soviet physics did not go the way of Soviet genetics was not a random occurrence. Instead, it was a matter of conscious choice by a

political elite that wanted the atomic weapons and other defense and heavy-industrial technological advances that they were counting on the physicists to deliver.

Heavy industry as a whole displayed a similar pattern. Duskin, whose conclusions about the impact of the Zhdanovshchina upon industrial development are mixed, nevertheless believes that Zhdanovite discourse (particularly its xenophobic abhorrence of "toadyism" toward foreign technological achievements) retarded post-war Soviet industry's technological development in "theory and practice." Tellingly, however, the example he cites is drawn from the light, low-priority textiles industry rather than from the heavy industries, non-ferrous metallurgy or machine-building, which were also subjects of his study.[102]

As for heavy industry, my research reveals very limited effects from the rhetorical flourishes of dogmatists such as Lysenko or Zhdanov. One Admiralty document had a German name scratched out and a Russian name substituted for a piece of trophy equipment used for cleaning and polishing metal surfaces. Technical publications at times contained broad, boastful statements and assumptions of questionable veracity.[103] Yet the impact of such actions or statements on the nuts-and-bolts of technology policy in Soviet heavy industry was nil. Nor did the Soviets, in internal documents from the post-war era, often display insecurity or coyness about their acquisition of German technology. The documents

reveal fascination, respect, and an awareness of possible benefit. The use of the term "trophy" denoted a feeling that the new equipment was a valuable and rightful "spoil of war."

As a whole, the tone of the discourse inside the Soviet heavy-industrial and strategic-technological establishments was non-xenophobic, de-politicized, serious, and non-dogmatic. Technological necessity, rather than political concerns related to the Zhdanovshchina, set the tone. For instance, Tsvetnye Metally, the journal of the Ministry of Non-Ferrous Metallurgy, openly discussed Soviet technological advances made on the basis of the study of advanced German technology used in the production of such non-ferrous metals as aluminum, zinc, nickel and a range of other light metals. Achievements of pre-war technology in Czechoslovakia and other nations were also reviewed in detail. A section that reviewed the significance of the latest developments in Western metallurgical technology, called "News of Foreign Techniques" (Novosti inostrannoi tekhniki), was also a regular feature in post-war issues of the publication. The tone of the section, which covered a wide range of metallurgical developments in the United States, Great Britain, France, allied-controlled areas of Germany, Canada and South Africa, was serious and boastful assumptions of Soviet superiority were absent.[104] The journal also contained an article devoted to detailing the advanced nature of "the new German aluminum electrolysis

factories," such as Bitterfeld, where the Germans had produced aluminum output of the "highest quality."[105]

Within the ministries and on heavy-industrial shop floors, a similarly sober technology-focused atmosphere prevailed. Gimmicky, short-term record mania (rekordmenstvo) in production processes, that had characterized parts of the pre-war industrialization drive, was eschewed in favor of long-term, more gradual productivity increases. Solutions to industrial problems lay in the "resolution of outstanding technical difficulties," rather than in the power of a politically-inspired working class.[106]

On the whole, the post-war experiences of Admiralty and Podolsk, their respective ministries, and Soviet military-related industry as a whole, give specific foundation to the broad conclusion of Harley Balzer that the post-war period saw Soviet heavy industry finally and fully come to terms with a less heavily politicized "scientific ethos" in its approach to production and technology issues. Despite extensive Cold War militarization, a problem not confined to the USSR, the reconstruction of Soviet heavy industry in the late-Stalin era was characterized by a much less "overwrought tone" than were earlier stages of the Soviet industrialization process. While it avoided the "pervasive apathy that would later characterize the Brezhnev era," Balzer notes that post-war era heavy-industry valued "serious, stable and consistent work" over abruptly-increased tempos. Workers and engineers who met the

plan could expect to "receive the reward in relative peace--and fulfilling the plan [was] a relatively peaceful process, in comparison to the pre-war environment."[107]

While the role of technology in defining the post-war reconstruction drive and in shaping its longer-term consequences will again be a central focus in this dissertation's concluding chapter, I will now turn my attention to an examination of the position of industrial labor in this era of technological progress and "relative peace."

ENDNOTES

1. **See** Norman Naimark, The Russians in Germany: A History of the Soviet Zone of Occupation, 1945-1949 (London: Belknap Press, 1995), pp. 141-250. Naimark mentions the work of the ministries, but concentrates almost exclusively on the work of the Soviet Military Administration in Germany.

2. **See** Naimark, pp. 141-250, and **also** Bruce Parrott, Politics and Technology in the Soviet Union (Cambridge: MIT Press, 1983), pp. 83-104. Both of these accounts largely overlook ministerial work with German scientists who remained within occupied Germany after the 1946 forced exodus.

3. While Sutton's work devotes greater attention to Soviet technological acquisition through Lend Lease and trade with the United States, Great Britain and other Western powers, his analysis of post-war technological "reparations" taken from Germany by the Soviets and their extensive impact upon the Soviet economy is cogent and convincing. Sutton refutes accusations of wastefulness and inability leveled against Soviet industrial dismantling projects in occupied Germany. He also rightly notes the extent of previous Soviet experience in such matters and presents evidence that the Soviets were both more perceptive in their choices and more efficient in their execution of such challenging operations than were the Western elites (who carried out smaller-scale dismantling operations of their own).

Sutton's failure to define such efforts, and subsequent Soviet progress rooted in trophy technology acquisition, as "innovative," seems to be linked to the openly advocatory nature of his work. Sutton argued for technological isolation of the USSR as a "dedicated enemy of the free world" that was totally incapable of technological progress without continued Western technological assistance. The rigidity of Sutton's arguments and his zeal in debunking Soviet "propaganda" cause him to overstate the case for Western contributions in a number of areas, ranging from atomic energy to icebreakers (where the Soviets achieved significant technological firsts). Sutton also ignores examples of Western technological borrowing, such as the contribution of German scientists and rocket technology to the United States' space program. **See** A. C. Sutton, Western Technology and Soviet Economic Development, 1945 to 1965 (Stanford: Stanford University Press, 1973), xxv-xxxvi, 18-31, 232-294.

4. Parrott, pp. 8-9.

5. Parrott, pp. 26-29.

6. The monetary value of the truly massive European haul for the USSR in terms of trophy technology is unknown. The much smaller effort aimed at Japanese industry in Manchuria is estimated by Parrott to have netted the USSR not less than $2 billion worth of industrial equipment. Parrott, p. 104.

7. David Holloway, Stalin and the Bomb. (New Haven: Yale University Press, 1994), p. 183.

8. RGAE F. 8899 op. 2 d. 371 Min. sud. prom Prikazy, 1949. Prik. no. 117, 23 Dec. 1949, p. 1.

9. Deprioritization of the factory research network had begun with a centralization drive by the branch ministries in the 1930s. **See** Stephen Fortescue, Science Policy in the Soviet Union (London: Routledge, 1990), p.93.

10. RGAE F. 9022 op. 48 d. 47 Min. tsvet. met. Prikazy, 1948. Prik. no. 115, 2 Feb. 1948, p. 2.

11. I. I. Shedrov, "V borbe za vnedrenie novoi peredovoi tekhniki," Bloknot agitatora no. 9, 1950, p. 20.

12. **See** TsGAMO F. 7721 op. 1 d. 4 Pod. zav. tsvet. met., Materialy... pp. 1-3 and **also** Holloway, p. 194.

13. **See** RGAE F. 8899 op. 2 d. 367 Min. sud. prom. Prikazy, 1946. Prik. no. 53, 23 Dec. 1946, p. 1, and **also** Prik. no. 49, 11 Dec. 1946, pp. 6-19.

14. RGAE F. 8899 op. 2 d. 367 Min. sud. prom. Prikazy, 1946. Prik. no. 49, 11 Dec. 1946, p. 14.

15. RGAE F. 8899 op. 2 d. 125 Min. sud. prom. Materialy ... Letter from Deputy Minister of Shipbuilding Olennikov to Deputy Chairman of the Council of Ministers A. I. Mikoyan, dated 5 March 1947, p. 280.

16. RGAE F. 9022 op. 40 d. 40 Min. tsvet. met Prikazy, 1946. Prik. no. 118, 2 April 1946, pp. 1-3.

17. Such traditions are noted by Sergei Alasheev in his essays "On a Particular Kind of Love, and the Specificity of Soviet Production" and "Informal Relations in the Soviet System of Production," in Simon Clarke, ed. Management and Industry in Russia (Cambridge: Cambridge University Press, 1995). Practices such as cannibalization and overuse led to breakdowns, reduced long-term productivity and caused problems with technological dissemination both within an enterprise and within an industry. Foreign equipment within Russian factories was especially vulnerable to a kind of gradual and informal

metamorphosis that led, in the end, to uniquely altered technical specifications and non-uniform production of unpredictable quality. According to Alasheev, such problems continue to plague Russian industry today.

18. RGAE F. 9022 op. 40 d. 40 Min. tsvet. met. Prikazy, 1946. Prik. no. 166, 5 May 1946, p. 1.

19. **See**, for example, FMLAV Al'bom novoi tekhniki no. 1, 1946-1947. Min. sud. prom. i Zav. im. A. Marti, pp. 1-34, and **also** no. 3 Kompressory, pp. 1-15.

20. **See** RGAE F. 8899 op. 2 d. 111 Min. sud. prom Prikazy, 1946. Prik. no. 443, 16 Oct. 1945, pp. 280-281. **See also** RGAE F. 9400 op. 2 d. 8 Min. sud. prom. 2-go glav. up. Prikazy, 1947. Prik no.15, 7 March 1947, pp. 194-197. Meshchaninov, the Director of the Ministry's factory no. 175, ran seriously afoul of his supervisors by failing to return the completed albums of new technology in a timely manner.

21. Turnaround times for beginning production of Soviet versions of German trophy devices, which in some cases were more than mere copies, varied. Certain machines were already being replicated at Sudomekh by the fall of 1946. By the end of 1948, a broad range of production technologies were being produced at Admiralty and Sudomekh. Admiralty's quick progress was made in spite of the demands of re-installing equipment that had been evacuated to Siberia during the war. **See** FMLAV Al'bom novoi tekhniki no. 1, 1948 Min. sud. prom. i Zav. im. A. Marti, pp. 1-39, and **also** no. 3, 1946-1947 Kompressory, p. 1. **See also** "Povsednevno vnedriiat' novuiu tekhniku," Sudomekhovets, 21 Sept. 1946, p. 1.

22. Practical experience was gained through ministry-designated target projects such as order no. 68. Training of workers was also undertaken on the basis of materials supplied by the Ministry to Admiralty's managers. All aspects of the project, including duplication and training, lagged behind schedule in 1946. The pace seems to have picked up in 1947, however. **See** FMLAV Al'bom novoi tekhniki no. 2, 1950. Otchet o vnedrenii avtomaticheskoi i polu avtomaticheskoi svarki, Min. sud. prom., pp. 2-35. **See also** RGAE F. 8899 op. 2 d. 111 min. sud. prom. Prikazy, 1946. Prik. no. 405, 28 Sept. 1946, pp. 1-3; and **also** no. 409, 30 Sept. 1946, pp. 57-58.

23. Some of the claimed productivity gains were significant. The Kel'berg automatic welding machine, for example, produced 250 percent productivity gains. By 1950, a Soviet version of the Kel'berg, known as the AS-5, was in use in Ministry of Shipbuilding enterprises such as Admiralty. **See** FMLAV Al'bom novoi tekhniki no. 1, 1946-1947, pp. 1-3, and **also** Al'bom novoi tekhniki no. 2, 1050 Otchet... pp. 4-5.

24. In addition to revealing the interplay between the ongoing process of trophy-technology acquisition and the experience of new technology introduction within the hierarchy of the Ministry of Shipbuilding, the reference to "hard and light alloys" probably can be interpreted as a sign that the Ministry of Shipbuilding was also reacting to the strategic emergence of titanium, nickel-steel and other types of alloys. By late-1948, basic welding techniques had "become the accepted practice, both at Admiralty and at other factories of this type." **See** RGAE F. 8899 op. 2 d. 371 Min. sud. prom. Prikazy, 1949. Prik. no. 101, p. 62, and **also** "V borbe za tekhnicheskii progress," Martiets, 16 Dec. 1948, p. 1.

25. Woo Hee Park, "Absorption and Diffusion of Imported Technology: A Case Study in the Republic of Korea," in David Steedum and A.D. Tillett, eds. Absorption and Diffusion of Imported Technology. (Ottawa: IDC, 1983), p. 80.

26. Park, pp. 81-83.

27. Park, p. 81.

28. Park, p. 86.

29. Even at the troubled Podolsk facility, aluminum production increased yearly, and the technology of the Tottengus method was in full operation by 1950. Production of other metals turned out as secondary production, such as lead, also increased considerably. As noted in Chapter One, the failure of the plant to reach full production capacity by the end of that year was demonstrably due to a decision of the central authorities to direct resources away from the facility. While this indicates other shortcomings and problems within the post-war Soviet industrial system, it does not indicate that it was any less effective in absorbing new technology than the "remarkable" South Koreans. **See** Seria peredovoi proizvodstvennoi tekhnicheskii opyt--otrakhel'naia plavka aliuminievnoi loma i otkhodov na Podol'skom zavode tsvetnykh metallov. (Moskva: Tsvet. met., 1974), pp. 3-21, and **also** TsGAMO F. 7721 op. 1 d. 31 Pod. zav. tsvet. met. Osnovnye..., 1950, p. 2; TsGAMO F. 7721 op. 1 d. 11 Pod. zav. tsvet. met. Osnovnye..., 1948-1950, p. 1; TsGAMO F. 7721 op. 1 d. 29, Pod. zav. tsvet. met. Doklad, 1948-1950, p. 1; TsGAMO F. 7721 op. 1 d. 22, Pod. zav. tsvet. met., Obiasnitel'naia zapiska..., 1949, pp. 1-3.

30. **See** Sutton and **also** Kendall Bailes, Technology and Society under Lenin and Stalin. (Princeton, Princeton University Press, 1978), p. 230.

31. Mark Harrison estimates that up to two-thirds of Soviet industry during the war was dependent on equipment or other forms of technical assistance obtained through the Lend Lease Program. **See** Mark Harrison, Soviet Planning in Peace and War (Cambridge: Cambridge University Press, 1985), pp. 257-259.

32. RGAE F. 8899 op. 2 d. 107 Min. sud. prom Prikazy, 1946. Prik. no. 34, 28 Jan. 1946, p. 141.

33. TsGAMO F. 7721 op. 1 d. 4 Pod. zav. tsvet. met. Materialy..., 1946, p. 1, and **also** F. 7721 op. 1 d. 9 Pod. zav. tsvet. met. Proektno..., 1947, p. 2.

34. RGAE F. 9022 op. 1 d. 58 Min. tsvet. met. Prikazy, 1948. Prik. no. 100, 5 March 1948, p. 1.

35. **See** TsGASP(b) F. 9510 op. 1 d. 41 Lenobkoma ..., Prikazy, 1946. Prik. no. 514, 19 Dec. 1946, p. 2, and **also** V.M. Iurasov, Admiralteitsy (Leningrad: Lenizdat, 1976), p. 204.

36. The first Soviet big tankers were those of the 16,000 t/d. **Leningrad** series. These were later replaced by the 62,000 t/d. **Sofia** series. Later in the 1950s, the gigantic **Lenin**, the world's first atomic-powered ice-breaker, was constructed at Admiralty Shipyards. **See** Iurasov, pp. 200-220. Soobshchenie gosudarstvennogo planovogo komiteta SSSR i tsentral'nogo statisticheskogo uprovleniia SSSR, Itogakh vypolneniia chetvertogo piatiletnego plana. (Moskva: Gosizd, 1951), p. 5, and **also** V. M. Iurasov, Admiralteitsy. (Leningrad: Lenizdat, 1976), pp. 200-220.

37. David Granick noted, in the early 1960s, the typically large number of Soviet factory workers who were "busy doing some manual job other than directly working on the product." The lack of mechanization of transport within the factory accounted for many of these workers. For some of the many examples of the continued lack of mechanization of the labor process in construction and production-support work at Admiralty Shipyards and the Podolsk Factory of Non-Ferrous Metals. **See** David Granick, The Red Executive. (New York: Anchor, 1961), p. 209; "Sotsialisticheskaia oblazhel'stva," Martiets, 19 Jan. 1946, p. 2; "Bystro vstranit' nedostatki," Martiets, 7 Sept. 1946, p. 1; "Remontiruiut medlenno, plokho," Martiets, 26 Sept. 1947, p. 2; "Otdel snabzheniia," Martiets, 27 Feb. 1948, p. 1; TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly ..., 1950, pp. 67-71; TsGASP(b) F. 1511 op. 1 d. 256 Adm. sud. zav. Dokladnye ..., 1948, pp. 2-6; TsGAMO F. 4855 op. 1 d. 23 Moskovskoi ... Dokladnye ..., 1950, pp. 1-7.

38. **See** Parrott, pp. 101-102, and **also** Duskin, pp. 85-87.

39. **See** Parrott, pp. 100-101, and **also** Philip Hanson, "The Soviet System as a Recipient of Foreign Technology," in Ronald Amann and Julia Cooper, eds., Industrial Innovation in the Soviet Union (New Haven: Yale University Press, 1982), p. 421.

40. TsGAMO F. 4855 op. 1 d. 23 Moskovskoi ... Dokladnye ..., 1946, p. 16. These were construction workers who were being trained to work in the factory that they were reassembling.

41. RGAE F. 8899 op. 2 d. 107 Min. sud. prom. Prikazy, 1946. Prik. no. 58, 5 Feb. 1946, p. 5.

42. As with most such campaigns, the initiative for the formation of complex brigades in Soviet industrial enterprises to help introduce "new technology and techniques" was portrayed as arising from the shop floor. Specifically, in this case, the initiative was said to have begun at the Kolomenskoe L-1 Locomotive Plant with a female worker named Shternova. At Admiralty, the exact origin of the initiative was unclear; it was promoted by both the bureaucrats at the Ministry of Shipbuilding and Admiralty's managers. The national campaign, which continued through 1950, explicitly linked complex brigades with the successful introduction of new technologies and the promotion of "automization and mechanization of production processes." **See** "Nepreryvno sovershenstvovat' tekhnologiiu," Bloknot agitatora no. 15, 1947, p. 9, and **also** Shedrov, pp. 18-20.

43. **See** TsGASP(b) F. 9510 op. 1 d. 137 Lenobkoma... Otchet tsentralnogo biuro standartizatsii no. 4, o provedenii konkursa MSP po sboru i vnedreniiu izobretenii tekhnicheskikh usovershenst vovanii i ratsionalizatorskikh predlozhenii 1947, pp. 2-13, and **also** TsGASP(b) F. 9510 op. 1 d. 320 Lenobkoma... Stakhanovtsy..., 1950, 11.1-40.

44. **See** TsGASP(b) F. 9510 op. 1 d. 135 Lenobkoma... Svedeniia o vypolnenii proizvodstvennosti programmy za 10 mesiatsev 1948, pp. 1-5, and **also** Lewis Siegelbaum, Stakhanovism and the Politics of Productivity in the USSR, 1935-1941. (Cambridge: Cambridge University Press, 1988), p. 303.

45. "V sodruzhestve s inzhenerom," Martiets, 30 Sept. 1949, p. 2.

46. **See** TsGASP(b) F. 9510 op. 1 d. 137 Lenobkoma ... Otchet tsentral'nogo biuro standartizatsii no 4, 1946, p. 2, and **also** RGAE F. 9022 op. 40 d. 39 Narkom. tsvet. met. SSSR Prikazy, 1946. Prik. no. 32, 30 Jan. 1946, p. 1.

47. **See** RGAE F. 9022 op. 40 d. 39 Narkom. tsvet. met. SSSR Prikazy, 1946, Prik. no. 33, 31 Jan. 1946, p. 1, and **also** Iurasov, pp. 203-204. **See also** "Vsesouiznoi konkurs

ratsionalizatorov sudostroeniia," Martiets, 14 April 1947, p. 1.

48. **See** TsGASP(b) F. 9510 op. 1 d. 135 Lenobkoma ... Svedeniia ..., 1948, p. 5, and **also** "Na obshehezavodskim ..., Martiets, 26 Feb. 1946, p. 2.

49. Duskin, p. 37.

50. **See** "Trudovoi pod'em," Martiets, 9 Dec. 1949, p. 2, and **also** "O ratspredlozheniakh kotorye mariniutsiia dva goda," Martiets, 21 October 1949, p. 2.

51. An example of a gimmicky conservation practice at Admiralty was for a shop or a brigade to devote "one day a month" to the conservation of materials. **See** "Povysit rol' profgruppov," Martiets, 29 Sept. 1950, p. 1, and **also** "Itogi podveli," Martiets, 19 March 1949, p. 2.

52. Quotation from 'Vsesoiuznyi...," Martiets, 14 April 1947, p. 2. **See also** TsGAMO F. 7721 op. 1 d. 7 Pod. zav. tsvet. met. Kollektivnyi..., 1947, p. 41.

53. "Shire rasprostraniat' opyt peredovikov dobivatsiia obshchego pod'ema," Bloknot agitatora, no. 14, 1947, p. 15.

54. Klenov, questionnaire, pp. 1-2; Iakov, p. 2. Glozman and Martynov also recorded similar views. Glozman, p. 1; Martynov, pp. 1-2.

55. **See** "Pedovaia tekhnologiia," Martiets, 24 Dec. 1948, p. 1, and **also** "Bystree," Martiets, 11 Dec. 1948, p. 2.

56. "Tormoziat' perekhod na potochnyi metod postroiki," Martiets, 5 July 1946, p. 1.

57. Iurasov, p. 205.

58. Quotation from "Novaia tekhnologiia v deistvii," Martiets, 23 March 1946, p. 2.

59. **See** Vladimir Andrle, Workers in Stalin's Russia (New York: St. Martin's Press, 1988) and **also** R. W. Davies, "The Management of Soviet Industry, 1928-1941," in William Rosenberg and Lewis Siegelbaum, eds., Social Dimensions of Soviet Industrialization (Bloomington: Indiana University Press, 1993), p. 119.

60. For details on the broad array of types of norms and the powers of enterprise managers regarding them in the Ministry of Shipbuilding **see** the following: Aleksei Mikhailovich

Chelnokov, Organizatsiia i planirovanie sudostroitel'nogo predpriiatia. (Leningrad: Sudopromgiz, 1954), pp. 50-89; TsGASP(b) F. 1511 op. 158 d. 23 Adm. sud. zav. p. 16; TsGASP(b) F. 1511 op. 158 d. 169, Adm. sud. zav. Vedomost' norm vremenii, 1949, pp. 1-3.

61. **See** "Skorostnoe frezerovanie," Martiets, 20 Dec. 1947, p. 2, and **also** "Ratsional'no ispolzovat' rabochee vremia, Martiets, 18 May 1946, p. 1; TsGASP(b) F. 1511 op. 158 d. 30 Adm. sud. zav. Metodika rascheta i eksperimental'noi proverki normativov, pp. 1-21; "Po normam 1950 godu," Bloknot agitatora, no. 34, 1947, p. 32; "Pervyi den' raboty po novyi normam," Martiets, 5 July 1947, p. 1.

62. RGAE F. 9022 op. 48 d. 48 Min. tsvet. met. Kopii ..., 1948, Prik. no. 142, p. 1.

63. **See** TsGASP(b) F. 1511 op. 158 d. 30 Adm. sud. zav. Metodika ..., 1950, pp. 1-21, and **also** TsGASP(b) F. 9510 op. 1 d. 135 Lenobkomy... Svedeniia... 1948, pp. 20-21; RGAE F. 8194 op. 1 d. 33 Min. sud. prom. 4-go glav. up. Prikazy, 1949, Prik. no. 242, 3 Dec. 1949, p. 1.

64. Duskin, p. 6.

65. Bailes, pp. 82-83.

66. **See** Bailes, p. 218, and **also** Siegelbaum, pp. 294-303.

67. Bailes, pp. 186-218.

68. **See** Vera Dunham, In Stalin's time: Middleclass Values in Soviet Fiction (London: Cambridge University Press, 1976), and **also** Duskin. While Duskin's work is archivally-based, Dunham rested her conclusions on the basis of a close reading of post-war Soviet fiction.

69. See "Iz kantseliarii na proizvodstvo," Bloknot agitatora, no. 32, 1946, p. 28, and **also** Duskin, pp. 85-86.

70. **See** V.P. Ostrovskii, O sostave inzhenerno-tekhnicheskikh rabotnikov v sisteme tiazhelogo mashinostroeniia. (Leningrad: Isr. nauk., 1972), pp. 18-26, and **also** V.E. Komarov, Ekonomicheskie osnovy podgotovki spetsialistov dlia narodnogo khoziaistva. (Moscow: Gos. izd., 1959), p. 25.

71. Harley Balzer, "Engineer: The Rise and Decline of a Social Myth" in Loren Graham, ed., Science and the Soviet Social Order. (Cambridge: Cambridge UP, 1990), p. 141.

72. RGAE F. 8194 op. 1 d. 31 Min. sud. prom. 4-go glav. up. Prikazy, 1947. Prik. no. 262, 16 Dec. 1947, p. 8, and **also** TsGAMO F. 7721 op. 1 d. 9 Pod. zav. tsvet. met. Prikazy... 1948, no. 53, 11 June 1948, p. 1.

73. RGAE F. 8899 op. 2 d. 125 Min. sud. prom. Direktivy... 1947, V tselakh vsileniia protivopozharnoi bezopastnosti, pp. 81-82.

74. Duskin, pp. 168-170 and 227.

75. Mosykhin, questionnaire, p. 3.

76. RGAE F. 9022 op. 40 d. 39 Min. tsvet. met. Prik., Prikazy, 1946, no. 81, 27 Feb. 1946, pp. 1-2. **See also** TsGAMO F. 7721 op. 1 d. 9 Pod. zav. tsvet. met. Prikazy ..., 1948, Prik. no. 111, 15 April 1948, p. 1; RGAE F. 9022 op. 48 d. 46 Min. tsvet. met. Prikazy ..., 1947, Prik. no. 408, 15 Nov. 1947, pp. 1-2.

77. Graham, Science p. 162. For instance, while Admiralty's managers devoted significant resources to upgrading the shipyard's technical library, important fire-safety units were allowed to wither on the vine. The squads were grievously undermanned and staffed with poorly-paid and inadequately-trained new recruits. **See** RGAE F. 8899 op. 2 d. 125 Min. sud. prom. Direktivy... 1947, V tselakh... p. 85. For a comparison between accident rates in Soviet and American steel production, **see** Granick, p. 144.

78. Duskin, p. 17.

79. **See** Sistema planogo predupreditel'nogo remonta zavodskogo oborudovaniia. (Leningrad: Sudopromgiz, 1949); and **also** "Berezhno i pravilno ispolzovat' oborudovanie," Martiets, 3 Aug. 1946, p. 1. This rigid repair-authorization scheme was eased somewhat in the early-1950s. **See** Chelnokov, p. 47.

80. **See** TsGAMO F. 7721 op. 1 d. 9 Pod. zav. tsvet. met. Prikazy..., 1948, Prik. no. 41, 15 April 1948, pp. 1-7; TsGAMO F. 7721 op. 1 d. 27 Pod. zav. tsvet. met. Prikazy ..., 1950, Prik. no. 190, 21 July 1950, p. 1; TsGAMO F. 7721 op. 1 d. 7 Pod. zav. tsvet. met. Kollektivnyi... 1947, pp. 40-41; RGAE F. 8194 op. 1 d. 33 Min. sud. prom. Prikazy 4-go glav. up. Prik. no. 186, pp. 105-106; RGAE F. 8899 op. 2 d. 107 Min. sud. prom. Prikazy, 1950, Prik. no. 4, pp. 5-14.

81. **See** Naimark, pp. 186-187, and **also** Parrott, pp. 104-105.

82. **See** Nathan Miller, War at Sea: A Naval History of World War II. (New York: Scribner, 1995), pp. 418-502.

83. RGAE F. 8894 op. 2 d. 107 Min. sud. prom. Prikazy ..., 1946. Prik. no. 58, 5 Feb. 1946, pp. 285-293.

84. RGAE F. 8899 op. 2 d. 107 Min. sud. prom. Prikazy ..., 1946. Prik. no. 58, 5 Feb. 1946, pp. 285-298.

85. **See** Wings..., and **also** Parrott, pp. 72 and 114.

86. **See** V. P. Protasov, Effektivnost' rekonstruktsii i rasshireniia predpriatii tsvetnoi metallurgii (Moscow: Metallurgiia, 1981), p. 71, and **also** "Azot v karbide titana i titanavol' framovykh tverdykh splavakh," Tsvetnye Metally, no. 4, 1947, pp. 41-47.

87. Naimark, pp. 215-216, 228.

88. Holloway, pp. 147-303.

89. Holloway, pp. 147-303. The Tu-95's ability to attack the United States was limited somewhat by the necessity for mid-air refueling.

90. Quotation from Holloway, p. 324. Stalin is said to have been able to recite by heart the performance and other specifications of new weapon systems such as the R-1 rocket. **See** Ronald Amann, et al., The Technological Level of Soviet Industry. (New Haven: Yale UP, 1977), pp. 471-472.

91. Holloway, p. 148.

92. Holloway, pp. 306-353.

93. Soviet progress in radar technology utilized absorption of German, British and American technology. **See** Holloway, p. 145.

94. **See** Graham, Amann, Technological ..., and Fortescue. Progress in non-ferrous metallurgy included gains in geological survey techniques and mining.

95. Holloway, p. 314.

96. Amann, Technological ..., p. 282.

97. Amann, Technological..., pp. 42, 274 and 458-459.

98. Amann, Technological..., pp. 146-147.

99. **See** Amann, Technological..., p. 12. Duskin also incorrectly overlooks the breadth of the trophy technology effort by asserting that the USSR had no access to "state-of-the-art" technology in the post-war period. **See** Duskin, p. 69.

100. **See** Graham, pp. 115-200, and **also** Bruce Allyn, "Fact, Value and Science," in Graham, p. 233.

101. Holloway, p. 211.

102. Duskin, pp. 73 and 140-146.

103. **See** FMLAV Otchet Al'bom no. 3... 1948, p. 3. One example of a false boastful statement can be found in Tsvetnye Metally. Minister of Non-Ferrous Metallurgy Lomako wrote that, during the war, Soviet weapons were superior to those of the Germans. **See** P.F. Lomako, "Tsvetnaia Metallurgiia, 'Tsvetnye Metally," no. 2, 1946, p. 1.

104. **See** "Opyt raboty tsinkovykh zavodov Germanii"; "Metallurgiia legkikh metallov Germanii"; "Novosti inostrannoi tekhniki," Tsvetnye Metally, no. 1, 1946, pp. 1-10, 26-38 and 39-59. **See also** "Po stranitsam inostrannykh zhurnalov," Tsvetnye metally, no. 3, 1946, pp. 40-54.

105. "Metallurgiia...," Tsvetnye metally, no. 1, 1946, pp. 44-45.

106. Quotation from "Kollektiv 16 tsekha raportaet," Martiets, 26 Nov. 1948, p. 1. **See also** Chelnokov.

107. Balzer, pp. 153-154.

CHAPTER FOUR

THE REBUILDERS:

POST-WAR WORKERS IN SOVIET HEAVY INDUSTRY

1946 - 1950

This chapter furnishes a portrait of the structures of work, social and community life, ideals, as well as the perceptions faced and held by those who rebuilt Soviet heavy industry. Given the vastness, complexity, and variety of its subject, my rendering will, of necessity, be incomplete. So too, in a material sense at least, were the lives of many post-war heavy-industrial workers. Living conditions, particularly in the two years that followed the end of the war, were often harsh. Nevertheless, I will demonstrate that the post-war years were characterized by enthusiasm, hope, and perceptions of progress among heavy-industry workers.

My portrait of heavy-industrial labor will move beyond the sharply-focused Admiralty-Podolsk narratives and comparisons undertaken in Chapter One. It will, however, use the histories of the two plants as a foundation for looking at larger issues involving labor-management relations, Vera Dunham's "Big Deal" analysis of workers' places in the post-war USSR, worker attitudes, gender and nationality issues, workforce composition, stratification, and the overall post-war economic and social atmosphere for heavy-industry workers.

In perhaps the most renowned historical work about the post-war Stalin era, Vera Dunham argued that the Soviet political elite shifted decisively away from the notion that

the industrial working class was the state's chief base of support. Instead, the leadership began to favor a burgeoning Soviet middle class that consisted of managers and engineering-technical personnel. Possessing social power and 'kulturnost' that other groups lacked, the new middle class increasingly lived far "above the world of plain clerks and **factory workers** [emphasis added by this author], of farm workers and sales girls."[1]

This chapter argues for an extension of Dunham's "Big Deal" to include, rather than exclude, skilled direct-production workers in heavy industry. As will be demonstrated, sharp workforce stratification existed within Soviet heavy industry. The emphasis on technology, the continuing productivist bent of Soviet industry, and the realities of the post-war labor market, however, all contributed to high status for **both** engineering-technical personnel and skilled workers within Soviet heavy-industrial enterprises. Construction workers and support staff, were, on the other hand, clearly excluded from the "Big Deal" both morally and materially. A continued sense of playing a valuable role in society and national recovery, combined with relatively high pay and status (when compared with other social groups), as well as considerable opportunities for further upward mobility gave heavy-industry workers a strong perceived stake in rapid recovery of their industries and, more broadly, in the political system.

Admiralty's workers and, to a somewhat lesser extent, those at Podolsk, had interdependent and symbiotic relationships with their paternalistic factory managements. Managers relied on workers to fulfill or overfulfill production quotas; they, in turn, rewarded them through monetary, moral, or other incentives and opportunities for advancement. Production workers relied on favorable treatment and continued allocations of resources from supervisory personnel in order to earn these promotions or bonuses. Resources were endemically scarce in state socialist societies and particularly so in the post-war USSR; even the most devoted and productive workers needed to make sure of a fairly uninterrupted flow of materials from managers in order to earn rewards and promotions through overfulfilling their production norms.

In this sense, Soviet shop floors constituted a sort of micro-scale reflection of the industrial structure as a whole; the fulcra of resource allocations and performance analysis functioned on a personal, as opposed to organizational, basis. A key intermediary role in this process was played by the shop bosses. Formally known as a shop captain (nachalnik tsekha), such men were, in the post-war years, still often directly-promoted workers (praktiki).

Effectively, the shop boss represented the interests of the entire work collective of the shop in a variety of matters before the factory director and other top managers. One

example of this lobbying function of the shop bosses at Podolsk has already been discussed in detail in Chapter One--the debate between the shop captains of the Extraction Shop, the Aluminum Shop, and the Garage over bonuses. Workers depended on their shop bosses to facilitate the provision of both the means to the resources required in order to continue to produce and to earn collective and individual rewards for productivity. Workers' rewards and the bargaining power of their respective shop boss also often depended on the shop's productivity and place in the production process. Shops devoted to work that was skilled and proximate to the end-product stage were managerial priorities.

Admiralty's shop no. 18, for instance, did stamping, detailing and other close-to-end product metal work on special sections of ships (turrets, bridges, anchors and so on). It was a frequently-rewarded shop and its boss Manevich was "well-known throughout the factory." No less than 23 workers (the most of any shop in the factory) from this specialized production shop were enrolled in the Factory Book of Honor for the first half of 1948. Although the shop's 112% over-fulfillment rate was just 2% over the factory's average, the shop and its workers had been awarded the Red Banner (with accompanying bonuses) twice in the first nine months of 1948. This was the best record for any shop in the factory during that year.[2]

Shop bosses also served as problem-solving intermediaries between workers and managers. At Admiralty in 1948, Molochnik, who headed shop no. 15, persuaded managers to allow him to "equalize" norms in his shop after some had been raised 42 percent and others not at all for similar types of work by a Ministry of Shipbuilding order. This "equalization" was put into practice after Molochnik consulted with the shop's workers.[3]

Workers, acting either through their shop bosses or the trade union factory committee, tried to extract the maximum benefits for themselves from managers. Such deals often transcended the more formal incentive structures that will be discussed in detail later in this chapter. Again, these exchanges were part of a more-or-less open and generally cooperative bargaining process that gave each side something it wanted. Admiralty workers, laboring on what was most likely a high-priority submarine project, received special rations of apples and watermelons (delicacies during those lean days). Podolsk workers toiling in the factory's metallurgical "hot shops" received extra food disbursements and special milk rations.[4] Other non-monetary rewards for high productivity within post-war heavy industry included vodka, beer (or, in some cases, the special construction of breweries on enterprise grounds), slaughtering of cattle from factory herds, and the provision of free vacation passes after the successful completion of high-priority work.[5] Gaining access

to such skilled work assignments was both part of the system of symbiotic paternalism and an inducement for workers to upgrade their skills through technical education.

Workers often used trade union factory committee meetings as a tool for obtaining benefits from managers in return for greater productivity or a willingness to work more overtime. At Admiralty, for instance, workers in 1946 were most concerned about their grim housing situation; they promised higher overall labor productivity if managers could improve the housing situation and arrange for extra milk rations to be distributed among the enterprise's workforce.[6]

Indeed, formal and informal bargaining relating to the extension of scarce housing, goods and services to workers by managers often began with the recruitment process. Food, clothes, transport, and the promise of housing were regularly offered in order to induce workers to sign the standard one-year labor contracts (two years in the eastern USSR). By June 1948, factory directors were in full control of the recruiting process. Wartime restrictions on movement for heavy-industrial workers had been abolished, and competition for skilled labor could be fierce. In devastated Leningrad, which seems to have served as something of a test case, effective control over recruiting had shifted to enterprise managers through the various ministerial hierarchies, and away from the Ministry of Labor Reserves, in 1946.

In addition to allowing, and even encouraging, managers to offer material inducements to potential recruits, the central leadership also reformed and liberalized the system of releases (l'goty) that allowed kolkhozniki to be recruited as badly-needed industrial and construction laborers. From 1946 on, newly-recruited peasants could also take their families with them when they left for industrial work in the cities.[7] Such a move was designed to reduce negative turnover and eliminate "seasonal" patterns of labor in industry that interfered with the creation of a skilled and technically-literate workforce.

During the industrialization drive of the 1920s and 1930s, patterns of low-skill seasonal work had led to difficulties in integrating new technology into production processes and an over-reliance on "brute labor" methods even in direct-production work. Such circumstances had also led to a "crisis of proletarian identity" among Soviet workers during the years of the First Five-Year Plan.[8] Post-war concentration on modernizing Soviet heavy industry on the basis of imported trophy technology, and a skilled workforce able to use it, prompted Soviet political elites to relax restrictions on choice and movement.

Within their enterprises, workers were most strongly affected by the managerial pillar of the management-trade union--Communist party troika. This was due to management's control over the whole range of resources needed by workers.

While party organizations in enterprises such as Admiralty and Podolsk were fairly moribund, the role of the trade union in shaping workers' lives was somewhat greater. Even during the crisis that gripped Soviet industry during 1946, trade union membership was generally 90 percent or greater.[9] As noted earlier, trade unions did occasionally play a protective role at the ministerial level by vetoing policies, in areas such as housing, that might have had a negative impact on workers.[10]

Within individual heavy-industrial enterprises, however, trade unions in the post-war period were very reluctant to challenge the power of factory directors, even when official work rules were being violated. The principle of one-man management made the trade unions, despite their omnipresence in Soviet enterprises, definite junior partners to managerial authority in shaping the shop-floor environment. Workers who wanted relief from overtime while engaged in technical-training courses were universally rebuffed. Managerial failure to abide by restrictions on mandatory overtime, even for workers under the age of 16, were also occasionally the source of complaints to trade-union representatives. The unions, while often acknowledging that "formal" or "technical" violations were involved, generally failed to intervene for the complainants against enterprise managers.[11]

Trade union representatives did conduct safety, health, and other sorts of investigations in heavy-industrial enterprises that were designed to improve conditions in a

variety of ways for workers. The investigators had the power to impose fines on supervisory personnel for violations deemed detrimental to work safety. In practice, however, these violations do not seem to have been imposed on engineers or managers whose authority was factory-wide (i.e., above the level of shop boss).[12] The fines imposed were also generally small and evidence that they were actually collected is absent from the factory records of both Admiralty and Podolsk, as well as from the relevant union records.

Such investigations often failed to produce the desired effects. Admiralty's troubled dining rooms were a constant problem despite numerous trade union investigations of their operations.[13] Trade union intervention on behalf of workers against managers was limited to instances where managers were withholding bonuses earned by workers in socialist competition (which the trade union played a critical role in promoting) and disputes between workers and managers that clearly indicated feelings of personal antagonism on the part of the manager.[14]

The strong position of technically-degreed managers and the fairly weak position of trade unions within the state's industrial hierarchy might be taken as support for an unmodified version of Vera Dunham's post-war era "Big Deal" thesis of the political elite's preference for the technical intelligentsia over workers. Certainly, the relationship between all levels of the state's industrial hierarchy and the

ITR was much cozier than it had been before the war. Much has been made of this improved position for engineering-technical personnel in the reconstruction years; some of the arguments voiced by Dunham, Eric Duskin and others that the fates of workers and engineers diverged sharply in the post-war years may also stem from in-built Western assumptions that favor mental over manual labor. During the Soviet reconstruction era, both groups broadly received and benefitted from incentives offered by managers. Differences in status between the ITR and skilled production workers existed, but the overall complex situation in Soviet heavy-industrial enterprises tended to unite rather than divide engineers and skilled workers.

At Admiralty, the two groups both enjoyed privileges simply not available to non-primary (and direct) production employees. At Podolsk, ITR and workers displayed a similar aversion to duties that involved them, even temporarily and with no change in pay level, in non-skilled labor such as construction work.[15] Lack of conflict and state promotion of unity and upward mobility through technical education also caused the lines between skilled workers and engineers to become blurred at times. Even the still numerous direct-production workers without formal technical education were required to upgrade their skills in evening courses due to "the demands of scientific-technical progress.[16] Skilled workers and engineering-technical personnel also faced similar

challenges in regards to the influx of unfamiliar trophy technology into Soviet heavy-industrial enterprises.

Dunham and Duskin correctly noted the post-war trend toward a greater valuing of technical "culturedness" (kul'turnost'), as well as the decline in the number of praktiki, as signs of growing authority and more favorable circumstances for engineering-technical workers (ITR) after the difficult 1930s. In arguing that higher status for the ITR automatically translated into a lower priority for workers, the proponents of the "Big Deal" also implicitly assert that the post-war relationship between the two groups was conflictual and that the boundaries between them were clearly defined.

Easy upward mobility for workers into the post-war ITR and the overall atmosphere of unity in heavy-industrial enterprises, as opposed to the "class war" tensions that characterized the pre-war years, belie such assumptions. Duskin himself notes that the hectic pace of reconstruction often necessitated the shortening of education or training programs through which workers upgraded their skills or entered the ranks of technicians. A further blurring of boundaries between ITR and workers was also surely brought about by the state's thoroughgoing effort to return ITR working as administrators to actual production duties in complex brigades on the shop floor.

Specific features of the post-war industrial environment prompted a wide variety of individuals to undertake technical training. The efficiency suggestions (ratspredlozhenie) movement, for example, indirectly encouraged some workers to take on the challenge of more formal advanced technical training. At Admiralty, where technical specialists were in great demand, the worker G. V. Il'in, already one of the factory's most active worker-rationalizers in 1946, was encouraged by his ITR ratspredlozhenie collaborators to attend the shipyard's industrial academy (FZO) at night. Il'in became an engineer by 1950.[17] Other Admiralty production workers portrayed their advancement into the ranks of the ITR at the shipyard as the fulfillment of a lifelong ambition. The cutting machine operator Gennadi Smirnov stated that he had "always wanted, since childhood, to become an engineer ... to understand the secrets of complex machines and to be able to build them myself."[18]

If Admiralty best exemplifies upward mobility of production workers into the ranks of the ITR, Podolsk better exemplifies another sort of vydvizhenstvo--that of kolkhoz peasants, often brought to the factory through recruitment drives (orgnabor), into the production workforce. At first, these unskilled recruits were funneled by the factory's managers into less desirable construction jobs. Construction work was not a dead end, however, for many of these former kolkhozniki. As Podolsk's shops came on-line, the need for

production workers increased. After a time, construction workers who showed discipline or initiative could train to move up into the higher-paid ranks of production workers. In 1947, for instance, over a quarter of the factory's construction workforce was enrolled in training programs to prepare them to work in the factory's soon-to-be-opened shops. Podolsk's high turnover rates indirectly helped keep such avenues open throughout the 1946-1950 period.[19]

Given the emphasis on technology in heavy industry and the greater possibilities open to the ITR in terms of further upward mobility, both inside and outside the walls of heavy-industrial enterprises, the large number of workers seeking to join the ITR was unsurprising. The movement of peasants, construction workers and others into the ranks of skilled production workers often brought about a greater improvement in status, however, within the context of the day-to-day realities prevailing on post-war heavy-industrial shop floors.

Direct-production workers, along with the ITR, were privileged in post-war heavy-industrial enterprises in many ways. At Admiralty Shipyard, for instance, none of the direct-production workers or engineers whom I interviewed in 1994 had been asked to perform weekend agricultural labor on weekends. Petr Ivanovich Ryzhkov (a carpenter who worked in a support capacity producing secondary production in the factory's woodworking shop and performing construction tasks) was,

however, told to "volunteer." This was despite the fact that he was a foreman and a Communist Party member.[20]

On an equal basis with engineers, skilled workers were given priority access to scarce housing at Podolsk and at other enterprises within the purview of the Ministry of Non-Ferrous Metallurgy throughout the 1946-1950 period.[21] In a similar vein, at Admiralty, engineers and skilled direct-production workers received disproportionate numbers of passes to the shipyard's resort in the Caucusus (as opposed to support staff and construction workers).[22]

While problems such as lateness and absenteeism plagued some of the support staff and construction brigades at both Podolsk and Admiralty, engineers and production workers at both facilities (particularly at Admiralty) seem to have viewed themselves as part of an elite into whose willing hands reconstruction and technical progress had been entrusted by the Motherland. Indeed, widespread problems among the younger, more female, less skilled, and less disciplined support staff and construction workers in heavy industry were, at the national level, often attributed to these workers' failure to adopt the methods, attitudes and overall shop-floor culture of skilled production workers.[23] Perfecting and learning to love one's own work was a valued part of official shop-floor culture among skilled heavy-industrial workers. At times, this process took on a generational aspect as well, as the old and experienced passed on their skills to younger workers:

> With particular love, Nikolai Pavlovich [Martynov] remembered his first teacher Vasilii Kharitonovich Braushkin. This Braushkin taught Martynov everything about his work--right down to which details of a job it was necessary to do by hand so that there wouldn't be any adverse remarks when the work was reviewed by the OTK.[24]

Whether such a statement was scripted or not, workers demonstrated a willingness at all levels of the shipyard's production structure to take on the challenge of additional technical training. Much of this training was undertaken by workers "without leave from production"; a testament that workers were willing, if often also self-interested, converts to the post-war era's technologistic methods. This is not to say, however, that the "Big Deal" thesis is flawed in its attribution of a prevailing post-war "cultured" social stereotype to engineers and an "uncultured" one to workers.

When evidenced, however, such a stereotype often worked, in practice, to the detriment of engineers and the benefit of workers. The existence of a free labor market for workers, and a more restricted one for ITR, also played an important role in influencing managerial behavior toward the two groups. Some examples of specific practices and incidents from Admiralty and Podolsk are illustrative of the complex relations among workers, engineers and managers at the two enterprises.

Podolsk's Director Nikol'skii at times expressed irritation that a cultural difference that he felt clearly should have been present between engineers and workers at the Podolsk Factory was, in reality, absent. For example, the

somewhat prudish Nikol'skii noted that engineering-technical personnel at Podolsk were indistinguishable from the workers in terms of swearing and other forms of vulgar behavior.[25]

Nikol'skii's attitude effectively implied that, while the ITR should be above such uncouth behavior, little else could be expected from workers. Such patronizing stereotypes of managers toward workers extended into other areas as well. One area where such attitudes benefitted workers, by helping to justify and reinforce lenient tendencies of managers towards workers, was in the area of petty theft and labor-discipline violations. In any case, factory directors had little incentive to lose valuable workers to the judicial and police organs through strict adherence to harsh "on book" labor laws. Managerial belief in workers' ignorance at times served as a further method of justification for handling disciplinary matters in-house, even when the offense was of a fairly serious nature. Podolsk's records detail the case of the mechanical shop worker Aborinikov who, while in temporary possession of a trophy automobile that had been loaned to him by the factory in order to carry out a special assignment, misused it for his own personal purposes and, in the process, damaged it. The act itself infuriated Nikol'skii, who wrote:

> This shameful act of misuse of state property by the worker of the repair-mechanical shop Aborinikov must be considered as criminal. It was in fact an embezzlement of socialist property and for that it is established through the applicable Decree of the Supreme Soviet of the USSR that a judicial referral with a resulting prison sentence ought to be in order.[26]

Nikol'skii soon had a change of heart, however, deciding the matter within the "factory community" through an administrative warning and two separate fines. Nikol'skii, in explaining his own leniency, repeatedly made reference to Aborinikov's crudeness and foolishness. Describing Aborinikov's actions as stemming from "ignorance rather than malice," Nikol'skii's forgiveness of Aborinikov was akin to that of a parent toward a boy deemed too young to understand or to distinguish right from wrong.[27]

More was expected from ITR than from workers. This negated some of the apparent advantages enjoyed by the ITR. Top enterprise managers and ministerial bureaucrats, many of whom were from the ranks of engineers and technicians themselves, were quick to blame failings of all sorts on ITR rather than on workers. Engineers and technicians were also the option of first resort when certain types of sacrifices were called for, such as temporarily withholding of pay or bonuses due to wage-fund shortfalls.[28]

The base rate of pay for workers was lower than for the ITR. As will be shown later in this chapter, however, workers' opportunities to earn bonuses were extraordinarily varied. Workers also possessed more freedom to market their labor skills. As noted above, by June 1948, all the wartime restrictions on labor mobility were removed. At-will departures by workers in heavy industry were permitted, even in the face of continued high labor turnover. Engineering-

technical personnel, on the other hand, needed the permission of the relevant ministry or chief administrator to change jobs.[29] This mobility allowed workers, in turn, to put pressure on enterprise mangers "to create favorable conditions that would enable them [skilled workers] to choose permanent work" at an enterprise.[30] As an end result of these multiple circumstances, Admiralty Engineer Mikhail Glozman noted that while workers' pay was good, pay for technical specialists was "poor in comparison." This statement takes into account the greater training and knowledge that Glozman attributed to the ITR. His own career, however, was also indicative of the greater opportunities for continued upward mobility enjoyed by engineers.[31]

At Podolsk, the issue of status in regards to direct-production workers and other employees was made more complicated by the factory's supply problems and the lack of a Director's Fund from which to pay bonuses. Few workers or engineers, whether engaged in direct-production work or not, had consistent opportunities to earn bonuses. While salaries for skilled production workers outstripped those for most of the factory's support staff, a fairly large group of motor pool workers, whose tasks often took them far afield to scrounge equipment for the factory, received salaries equal to or greater than those of production workers. These expediters (tolkachi) also received favorable treatment regarding the loan of all means of transportation from factory resources. At

times, the line between official and personal use of these resources became blurred. These support staff workers thus enjoyed a favorable and somewhat unusual situation vis-a-vis their fellows working in the factory's shops.[32]

In so many other ways, however, even at Podolsk, direct-production workers enjoyed the status of an elite with a wide variety of advantages. One basic advantage possessed by troubled Podolsk's skilled production workers was their ability to market their labor in the post-war "seller's market." Bonuses at Podolsk, when available, also went to workers. Social mobility into the ITR through technical education courses at night was also readily available to production workers.[33] The status and interests of both workers and ITR, in an overall sense, were closely intertwined. Together, the skilled production workers and engineers of privileged heavy industry were part of a production elite with much that united it. Its members had much more in common with each other than they did with either the support staff and construction workers within the enterprise walls or the peasantry, light-industry workers and others outside of them.

Demobilized veterans, and in particular, the large number of former front-line soldiers (frontoviki) among them, constituted a favored group of workers and engineers within the larger production elite in Soviet heavy-industrial enterprises. Veterans were seen by managers as a valuable

resource, not only for their technical knowledge and high morale, but also because of their ability to impart a spirit of teamwork and organization to younger workers and rural recruits often deemed to be undisciplined and unreliable. Many worker frontoviki had risen to the level of foreman or brigade leader by 1950. Indeed, some disabled veterans also received technical training at Admiralty to assume duties as norm assessors. Others, such as the lathe operator Vasilii Iakupin, who had won medals for the valor he had displayed in the storming of Koenigsburg, were among the most widely lauded and highly-bonused workers at the shipyard.[34] The frontoviki, according to former Admiralteitsy such as Glozman, Yakov, Martinov and Sheskatov, played a key role in keeping morale high and in assuring good relations between younger and older workers. The production prominence of frontoviki and other demobilized veterans was reflected in the Books of Honor of both Admiralty and Sudomekh.[35]

Veterans were recruited with such special bonuses as extra vacation passes for them and their families. An enterprise like Admiralty, closely associated with military industry and having far-above average monetary and material resources to attract veterans, brought over 600 former servicemen to work as shipbuilders even before the end of the first quarter of 1946. At Podolsk, as late as 1948, Nikol'skii used the factory's atypically available and clean housing stock as the main method of recruitment. Demobilized veterans

hired at Podolsk as production workers or engineers were given "pre-eminent rights for the reception of living space."[36] The privileged and important role assumed by veterans in the heavy-industrial reconstruction effort has been an overlooked post-war trend.[37] While the promise of scarce housing or consumer goods played an important role in attracting veterans and other skilled workers to heavy-industrial enterprises, monetary bonuses often played a large role in managers' attempts to retain workers.

In heavy-industrial enterprises with a Director's Fund, the production elite could earn a wide variety of bonuses. Other, more generally offered, bonuses for industrial workers included resettlement awards that were eliminated for the formerly-occupied Western zones in 1946, but were continued for the Eastern areas throughout the Fourth Five-Year Plan period. Within enterprises such as Admiralty, bonuses created an environment where consistent productivity was consistently rewarded with extensive material incentives. Rewards were also available for specific work relating to the introduction of new technology and for work on specific high-priority military projects.

While managers used these campaigns to spur greater productivity, workers found a stake in them as well. Some bonuses, as we have already seen with those associated with the efficiency suggestions movement, were used by managers essentially as a subsidiary form of compensation for favored

skilled workers or engineering-technical personnel. That workers valued such bonuses is established by events such as the dispute among the factory shops over rare bonuses available at Podolsk.

One important characteristic that differentiated production bonuses in the post-war years from the record-mania (rekordmenstvo) of the early-to-mid-1930s was the emphasis on fulfilling longer-term monthly or yearly plans, rather than on single shifts or daily production quotas. This longer-term emphasis reflected the more unified, sober, and less-politically charged atmosphere in post-war Soviet heavy industry. Another difference was the increased emphasis on the "collective aspects" of competition. While individual bonuses remained in the overall mix within Soviet heavy-industrial enterprises, competition among brigades, shops, or even whole enterprises assumed a more prominent role. The centrality of shop-based competition at Admiralty and Podolsk exemplifies this trend, which seems to have begun in the late-1930s. Other favored post-war industries, such as the coal industry, were suffused with a similar collectivist bent in the distribution of bonuses.[38]

The shift toward collectivism in bonus distribution was evidently part of the broader state-promoted atmosphere of unity and cooperation in Soviet industrial enterprises. Soviet scholars such as M. A. Srebnyi, who studied the post-war coal industry, linked the transformation "of the records of

individual innovators" into the "achievements of brigades, sections, or entire mining enterprises" with the need to promote cooperation among all workers and engineers engaged in the critical work of industrial reconstruction and technological modernization.[39]

Bonuses resulting from victory in inter-shop competition within an enterprise, or from inter-enterprise competition within a ministry, were generally disbursed as a lump-sum payment to be divided among a shop or enterprise work collective. Special additional bonuses were allocated to a factory's managers or a shop's supervisors on a personal basis. Celebratory production competitions, another carryover from the late-1930s, could commemorate events such as the October Revolution or the recent victory over Germany. Other competitions were designed to accelerate work on specific projects; such competitions were a fairly common occurrence at Admiralty and not unknown at Podolsk.[40] Workers in enterprises of both the Ministry of Shipbuilding and the Ministry of Non-Ferrous Metallurgy could also occasionally earn bonuses for activities such as scrap metal collection or helping to prepare their shops for winter conditions.[41]

Teaching and training new recruits, a task divided between the ITR and skilled workers at heavy-industrial enterprises, was also a source of above-salary pay for some workers. Evidently concerned about ensuring that training would proceed apace in its enterprises, the Ministry of

Shipbuilding took a series of steps to speed up the payment of these educational and training bonuses to workers in its enterprises who had earned the awards.[42] Bonuses for all Soviet industries increased from 6.9 to 9.2 billion rubles paid in 1946 and 1947. The ability to award bonuses to workers was, in a de facto sense, distributed down throughout ministerial hierarchies from top-level ministry bureaucrats to shop-floor foremen. This decentralization was probably one factor that worked to defeat attempts to revise norms or limit bonuses. Indeed, in 1948 and 1949, there was a national movement to reorient the rapidly-expanding bonus system to take greater account of production quality and to reduce the overall ratio of bonuses to workers' base salaries. Individual premiia were to be cut by 50 percent and collective premiia by 25 percent.[43]

Neither Admiralty or Podolsk, however, seems to have been greatly affected. Podolsk rarely had paid bonuses in any case. On military projects at Admiralty, Director Oreshkin avoided the ratio reductions (evidently with the approval of the Ministry of Defense and the Ministry of Shipbuilding), by instituting the practice of tying lump-sum bonus payments to the completion of specific tasks.[44]

The functioning of the quality control campaign at Admiralty in 1949 also provides an excellent example of how many workers at this privileged facility actually benefitted from the supposedly stricter regime instituted by Admiralty's

Department of Quality Control. Hundreds of workers won "high quality" merit badges and bonuses as part of the quality control campaigns linked to work on military orders. The specific initiative for this program came from the shipyard's OTK itself.[45] Bonuses were accepted as an integral part of the system, and workers at Admiralty were focused on accomplishing what they needed to do in order to receive them. The quality control campaign, like other post-war production-competition campaigns, quickly shifted toward collective forms of competition. Several brigades at Admiralty won city-wide competitions in 1949 and 1950 sponsored by the Leningrad Oblast Council of Trade unions.[46]

Workers were also often the indirect beneficiaries of ministerial and political elite priorities. Admiralty's status as a key enterprise in Soviet naval construction allowed its workers to be in a position to benefit from post-war naval expansion. Bonuses were also the option of first resort to leverage specific production results in other heavy-industrial enterprises. For instance, at the end of 1950, top officials at the Ministry of Non-Ferrous Metallurgy wished to pad the Ministry's five-year plan production statistics for a group of high-priority metals that included lead, zinc, nickel, wolframite, titanium, and molybdenum. A month-long production drive targeting these metals, that continued right up through January 1, 1951, included a doubling of the volume of bonuses

normally paid to workers in the relevant ministerial enterprises.[47]

While it might be assumed that a direct correlation between bonuses and productivity existed at a privileged and productive enterprise such as Admiralty, such an assumption would not be supported by the existing evidence. The complexities of the norm system and the aforementioned panoply of different forms of socialist competition may have worked to obscure such a direct link between productivity and incentive. Other factors, such as the availability of production materials and other resources, might have also played a significant role in accounting for discrepancies between bonus and productivity levels. Examples of such discrepancies are legion in the shipyard's records. In May 1946, for instance, overall plan overfulfillment rose by 2.6 percent, but the overall amount of bonus pay actually fell sharply.[48]

Podolsk's experience before its supply crisis in 1950 also provides interesting data that would call into question any firm conclusion of a primary role for monetary bonuses in stirring greater productivity in post-war heavy-industrial enterprises. In 1949 at Podolsk, only 14 of 554 production workers were failing to fulfill their norms and almost 60 workers were overfulfilling their norms by 200 percent or more. The infant factory was meeting its production targets. Yet Podolsk's management did not have the resources to pay workers monetary bonuses in most cases. When funds were

available, however, direct-production workers were the most common beneficiaries.[49]

Along with monetary bonuses, socialist competition had a moral and inspirational aspect that helped create an atmosphere of social pressure within post-war industrial enterprises that may well have spurred workers to be more productive. Factory Books of Honor, factory newspapers and wall bulletins (stengazety) were all often replete with linkages between the recent wartime triumph and the desperate need to rebuild and keep the nation strong. These outlets for mobilization together formed a shop-floor communications system that allowed for dissemination of results, lauding of the productive, and upbraiding of the laggard. While there was nothing particularly new about such approaches in Soviet industry, one must remember the different post-war social contexts in which these methods functioned. The divisions and themes of class struggle that had characterized Soviet shop floors in the 1930s were not a part of the post-war atmosphere. Honor and esteem for high productivity were surely less divisive in the "validated," more unified heavy-industrial environment that followed World War II.

Control over production norms was obviously a key component in the actual winning of either monetary or moral rewards by workers. As noted in Chapter Three, technology did impact production norms, but not in an uncomplicated or unnuanced way. In this matter, the public pronouncements of

central ministerial bureaucrats were often disregarded by enterprise-level officials chiefly worried about keeping their skilled workers happy. In 1948, officials at the Ministry of Non-Ferrous Metallurgy made an attempt to spark a "spontaneous" move away from existing norms by denouncing them as outdated "brakes on the further growth of labor productivity." At enterprises such as Podolsk, however, those who acted on such sentiments did not receive support from the factory's management. Two supervisors who sharply raised norms were reversed by Nikol'skii. The Director also reprimanded the men for "creating impossible and abnormal working conditions detrimental to labor productivity."[50] Ministerial bureaucrats and enterprise managers thus both invoked the icon of "productivity" to justify opposing viewpoints.

Admiralty displayed a similar pattern; managers were slow to raise norms and often engaged in informal bargaining with their workers over them. In 1948, for example, several of Admiralty's shops were said to be engaged in an attempt, by the shop bosses and their workers, to rework norms "through their own plan." In 1949, even after the Ministry of Shipbuilding had formally raised norms, Admiralty's Director Oreshkin lowered a number of the new, centrally-decreed standards.[51] Such lags between the introduction of new, more productive technologies and the revision of norms gave workers additional chances to earn bonuses. Such practices were fairly widespread throughout Soviet industry.[52] Ministerial

bureaucrats, however, seem to have largely refrained from trying to force the issue.

Bonuses and wages that were higher than before the war worked in conjunction with other state economic policies to provide urban workers with more plentiful and, in real terms, lower-cost foodstuffs. Currency reform, price controls, and the elimination of rationing all met with extraordinarily positive responses from heavy-industrial workers such as those at Podolsk and Admiralty. Admiralty's workers also actively disliked private peasant traders, whom the Admiralteitsy viewed as speculators. By 1950, overall kolkhoz marketing prices stood at only 24 percent of their 1947 level (before the elimination of rationing). This greatly eased the lives of urban industrial workers such as those at Admiralty.[53] The elimination of rationing reduced the percentage of workers' incomes that was spent at the collective farm markets. This policy also amounted to sharp official economic discrimination, through lower procurement prices, against the peasantry.[54]

Particularly in contrast to the grim war years, the food situation for heavy-industrial workers was good during most of the 1947-1950 period. Food was available in more than subsistence quantities for production workers at Admiralty by 1947. Given the level of thievery by weekend agricultural laborers (ogorodniki) and support staff documented for 1947, however, it seems that this was still a difficult year for

non-skilled employees at the shipyard. Thefts fell off dramatically, however, after the abolition of rationing. While Podolsk's workforce was afflicted with high turnover and what Nikol'skii termed "hooliganism," thefts of food were also uncommon after the abolition of rationing.[55] As noted earlier, however, the sanitation and food quality in industrial cafeterias often left much to be desired.

A dangerous post-war reality that afflicted heavy-industry workers was the issue of industrial accidents. It is important to note once again that the experience of Podolsk, while perhaps an extreme case, was indicative of a larger pattern and mindset. This mindset could be characterized as one of worker "expendability" among managers and one of fatalism among workers. Ministerial officials occasionally attempted to address long- and short-term work safety issues, but such attempts too often produced nothing beyond cosmetic results. Other problems such as exposure to radon gas on the part of Soviet miners were essentially ignored in the workplace.[56] Resources for health and safety allocated to industrial enterprises were often not fully utilized or were shifted into other uses. As previously stated, the established procedures for preventative repair and responses to minor accidents effectively reflected the "production first" ethos prevailing in the enterprises. These procedures were designed, first and foremost, to minimize "downtime." Larger accidents involving death, serious injury, or extensive damage to valued

equipment and products were treated more seriously. Even in these cases, however, once an official investigation found "the guilty" [of negligence rather than of sabotage], deeper analysis of structural problems was eschewed in favor of a rapid return to full production.[57]

In light of the above, it is indeed unsurprising that accidents in enterprises of the Ministry of Non-Ferrous Metallurgy seem to have occurred at a rate of epidemic proportions for most of the Fourth Five-year Plan period and at pandemic proportions during the chaos of early-1946. The enterprises of the Ministry of Shipbuilding were also far from even reasonably safe places to work.[58]

The mindset of "expendability" in Soviet heavy industry that permitted such widespread carnage in the post-war years was probably exacerbated by the horrors of the recent war and the numbing loss of tens of millions of lives. One of the widely-hailed and decorated wartime heroes at besieged Admiralty had been the brigade leader Mosei Moseevich Matsov. He had invented a device that extracted inflammable gas from corn maize. Matsov's device had helped keep repair and munitions work going at the shipyard--but at a time when thousands were starving to death on the shipyard grounds.[59]

The major difficulty for heavy-industrial workers in the post-war years was, in their own minds, not food, work safety, pay levels, or status vis-a-vis engineers, but the housing shortage. This is clearly demonstrated in a national survey of

workers' suggestions for formal collective agreements between workers and managers (koldogovory) during the years 1947-1950. Concern about housing problems ranked first for every year of the survey. Both the percentages and the real number of suggestions declined, however, by 1950. This suggests a slight and gradual improvement of the housing situation that had been at its worst in 1946 through 1948.[60] Serious problems, however, remained throughout the 1946-1950 period and beyond.

The experience of Admiralty reflected the national picture. Managers consistently failed to fulfill their housing commitments. This failure was also indicative of the particularly poor housing conditions in Leningrad; the city's total housing fund did not regain pre-war levels until 1951. The shipyard's workers demanded that managers produce "real construction not pledges," but work lagged behind schedule. Problems were attributed to understaffed and unskilled construction brigades and shortages of building materials. Despite the fact that the construction brigades often possessed large amounts of trophy equipment, the relative undesirability of construction jobs, in terms of pay and prestige, also helped account for the slow pace of construction work.[61]

Conditions at Admiralty were very bad in 1946; workers complained of incredible overcrowding, lack of heat, no hot water, long lines for communal toilets, noise, and unlit corridors. Admiralty workers whom I interviewed, such as

Nikolai Martinov, confirmed these early difficulties. Martinov also noted, however, that the situation improved somewhat after the completion of the new Griboedeva apartment building for the factory's workers. Martinov also praised both the factory's then newly-constructed children's center and school and its rest home; veterans like himself received two-week free passes to the latter after initially coming to work at the facility.[62]

Overall, however, housing problems proved to be particularly intractable at Admiralty and elsewhere. A state campaign to assist workers in building their own small, single-family homes was tried in the 1946-1948 period. The costs of such an undertaking, however, placed it beyond the financial reach of all but a tiny elite of workers.[63]

Simmering anger over the housing problem among Admiralty's workforce led to a rare conflict between managers and workers at the shipyard in late-1948. Factory Committee (zavkom) member and veteran ship constructor I. I. Sudorobov reacted angrily to the year-end report on the housing situation for the shipyard's workers presented at a December 1948, Factory Committee meeting by Deputy Director Golubev:

> Repeatedly, the Factory Committee has listened, over the last three years, to the reports of Deputy Director Golubev. He has again and again acknowledged the history of shortcomings in our housing situation here. But for all his words, the necessary results are simply not forthcoming. Apartments that ought to have been given to workers this year to live in are not ready! The Factory Directorate has really given no answer to the zavkom that would explain this deficiency![64]

The shipyard's managers were sufficiently concerned by the continuing problems in early 1949 that they effectively forced the shipyard's support personnel to perform "volunteer" construction labor on weekends. The subsequent completion of the Griboedeva complex in 1949 did alleviate, if not eliminate, the housing problem at Admiralty.[65]

The breakdown in management's post-war prevailing "paternalist bargain" with heavy-industrial workers over housing was explicable not only by the "production first" emphasis of Soviet industry, but also by the functioning of the dual dependence hierarchy in conditions of labor shortage and the physical devastation caused by the war in many areas of the USSR.

The housing situation of Leningrad during the 1946-1950 period was, as noted above, particularly acute and therefore presents a good example for examining the choices made by heavy-industrial managers. In part due to the poor housing situation, Leningrad's population and labor force rebound was slow. Even by 1950, Leningrad's workforce was only 82.4 percent of the 1940 employment level. Employment levels in the city did not fully rebound until 1953.[66]

Industrial production, however, rebounded more quickly. By 1949, the pre-war level had been surpassed. Workers chose the higher-paying, skilled direct-production jobs over construction work. The heavy industries that dominated Leningrad's industrial landscape, shipbuilding and heavy-

machine building, led the production rebound.[67] Trophy technology certainly played a role in this production achievement, given Admiralty's example, but the shipyard's construction brigades possessed trophy equipment as well. They were, however, as has been noted, undermanned. Putting resources into higher wages for construction workers was not often an option for managers whose performance was being analyzed on the basis of defense-related primary-production work at their enterprise. National comparisons of the pay and productivity of construction labor with that of heavy and other industrial production labor revealed considerable disparities in favor of industrial work.[68]

Podolsk's experience reflected this broader pattern in some respects and was atypical in others. The factory's newness, small size and rural location gave it certain inherent advantages over Admiralty in relation to the question of housing. For all of 1946 and 1947, construction rather than production was the main focus of work on the site. The construction administration SMU-6's top manager Nikol'skii was focused on both reconstruction of the trophy factory and construction of housing for his employees. Some of this emphasis was retained during Nikol'skii's tenure as Podolsk's Factory Director. As noted in Chapter One, however, the constant upward mobility of construction workers into production work and the defunding of the factory eventually caused work on both housing and social facilities to lag.

One major group of workers that not only suffered in regards to housing, but were also excluded from the more positive aspects of managerial paternalism, were women workers who had worked in Soviet heavy-industrial enterprises during the war. Wartime industrial labor by women had been a crucial component of the Soviet war effort. In heavy industry, women had taken on direct-production jobs that had been held exclusively by men. In many cases, women workers who took the place of men who were at the front achieved a level of productivity that had "equalled or surpassed" that of the remaining men.[69]

With returning veterans available for employment, however, women workers, especially those engaged in what was thought to be "masculine" skilled-production work, were viewed as unskilled "liabilities" by Soviet heavy-industrial managers. Women in direct-production work were often replaced by returning male veterans whom managers made "extraordinary efforts" to recruit.[70] Effectively declassed, many women were forced out of heavy-industrial workforces altogether. Many others were pressured to take less advantageous support-staff positions. Women had constituted over 50 percent of the Soviet industrial labor force in 1944. By 1946, their role in heavy industry was already diminishing, with "a pattern of layoffs" of women in order to make room for returning veterans. Rapid demobilization in the last seven months of 1945 had produced

a net total demobilization for that period of 3.49 million men.[71]

Evidence of formal resistance by wartime women direct-production workers to displacement or demotion is absent, for whatever reasons, from the enterprise and trade union records relating to Admiralty and Podolsk. I did, however, find a particularly detailed example of formal protest by a woman worker in trade union records relating to a case at the Red Metal-Stamper Factory" in Moscow oblast'.

Sofia Potapova had worked at that factory as a metalworker in 1944 and 1945. In early 1946, she was sent on what turned out to be a week-long assignment (komandirovka) at another nearby non-ferrous metallurgy enterprise. On her return to her own factory, however, she discovered that her job as a metalworker had been filled by a man. She protested to the enterprise's Director Loiko, but he rebuffed her. Potapova was then faced with a choice of a new position at the factory from among a number of (to her) unappealing support staff positions. She had filed a grievance with her trade union over the loss of her metal worker's job, but the prospect for a quick and favorable resolution appeared dim. In desperation, she accepted a job as a hauler. She feared for her health because of the strenuous nature of the work, but it was the only job open to her at the factory that paid a salary of more than 400 rubles a month. Potapova believed that living

on less for a single woman like herself was "simply impossible."[72]

She was subsequently ordered to carry a heavy sack of coal over several kilometers--an assignment she seems to have viewed as being punitive. After this experience, however, she refused to again "carry a heavy load over snowy ground wearing worn shoes." After confronting Director Loiko and once again demanding her job as a metalworker back, she was fired. The trade union "resolved" the dispute by giving Potapova a two-month vacation at the 450-ruble pay level in order to allow her recover her health. Her request to be restored to her old job as a metal worker was denied. If, after the vacation, she chose to once again return to Red Metal Stamper, she would again be faced with unappealing job options.[73]

Podolsk and Admiralty both exemplified this post-war trend of women being relegated to lower status support staff jobs. As previously noted in Chapter One, women in Podolsk's newly-recruited and generally male workforce were most often assigned to low-paying jobs such as telephone operators. At Admiralty, where women had held a majority of the direct-production jobs during the war years and had made up 67 percent of the plant's total work collective in 1943, the year 1946 saw a dramatic decline in the representation of women in Admiralty's workforce. The percentage of women working at Admiralty fell from well over half in December 1945 to 41.2 percent in November 1946. Although the total number of workers

at the plant increased by nearly 20 percent during this period, the number of women fell in real terms. This decline was particularly steep within the sub-group of direct-production workers.[74]

This change reflected the zeal with which Admiralty's managers recruited demobilized veterans. The ex-soldiers were assumed to have had experience with fairly sophisticated mechanical equipment during their military service. Their knowledge would presumably come in handy in dealing with the challenges posed by the new trophy technology arriving at the factory. Recruitment bonuses offered to the demobilized veterans included goods, services and money. In 1946 alone, Admiralty's managers paid out 100,000 rubles in recruiting bonuses to newly-hired veterans.[75]

There is some more informal evidence that the women who remained in Admiralty's work collective resented the privileges extended to the veterans who were arriving at the factory. The recently-demobilized veteran and new production foreman at Admiralty, Boris Grubaev (later Chairman of the Factory Committee), made the following complaint in the pages of the factory's newspaper:

> To me, as a demobilized veteran, coupons were issued for the reception of three kilograms of potatoes. I went with my coupons to the ORS (Department of Worker Services). The women workers of the pantry, Orlova and Starodubtseva, greeted me resentfully and discourteously. They pulled out a rucksack and poured into it [a portion of] 'potatoes' that was composed more of dirt than of potatoes. After my refusal to take such [a portion of] 'potatoes,' the women answered me rudely and

> insolently. They laughed at my threat that I would report them to their ORS supervisors and shouted, 'No one can say that we didn't fight too, in our own way, and so we aren't afraid of anyone. If you complain, we'll throw your potatoes out of the pantry window.' An ORS supervisor, Starikova, saw our argument and didn't intervene. When I arrived home, I examined the contents of the rucksack and found that my three kilograms of 'potatoes' contained 850 grams of dirt.[76]

Soviet authorities officially characterized the replacement of women by the returning veterans as part of a natural return to peacetime normalcy that would allow the women a "complete opportunity to continue their education."[77] In reality, the consequences of such a shift were negative for women. At Podolsk, newly-hired male machine operators made more than twice as much money as newly-hired female telephone operators and had far greater opportunities for advancement through technical education courses.[78]

Probably as a result of their comparatively poor economic status, problems were somewhat more frequent among the often female support staff than among direct-production workers at Admiralty. Thieving and absenteeism were recurring problems both among ogorodniki and among employees working in such areas as the cafeteria and the cloakroom.[79]

Withdrawal from the workforce was not usually a viable economic option for women, whether they were married or single. Such withdrawal was discouraged in practice. Despite the state's anti-abortion, pro-natalist, pro-family rhetoric and exaltation of the mother-heroine (mat'geroiniia) as an ideal, women made up 47 percent of the total Soviet labor

force in 1950 as opposed to 39 percent in 1940.[80] David Granick notes that, even later in the 1950s, as demographic normality began to return and the labor shortage eased, 80 percent of Soviet women were employed.[81]

The highly-skewed nature of the Soviet post-war male-female ratio added an additional level of economic hardship for many women who could not rely on a second paycheck to support their families. In 1946, there were 59 men to every 100 women in the 35-59 age group. Even by 1959, fully 30 percent of Soviet households were headed by women who were the sole wage earners. These demographic realities, along with the pattern of declassing evident in the heavy-industrial sphere almost certainly led to a "feminization of poverty" in the post-war USSR.[82]

Women who, out of necessity or not, remained employed in heavy-industrial enterprises as either direct-production workers or members of the support staff were largely absent from the official rolls of "outstanding" workers. In spite of the fact that women had composed over two-thirds of the wartime workforce that had collectively won the Red Banner for heroic labor under siege conditions, forty pages of biographical information profiling Admiralty's leading Stakhanovites in 1950 contained no biographies of women workers. Women were also severely under-represented in Admiralty's Book of Honor.[83] Women workers received extensive

bonuses or recognition at Admiralty only around March 8th (International Women's Day).

On March 8, 1946, for example, Kovalenka, a support staff worker from the transport shop, received an unusual (for a non-direct production worker) month's wages in bonuses "for outstanding work and overfulfillment of the orders of the transport shop."[84] At times, these annual March 8th bonuses seem to have been awarded on the basis of prominence rather than for any specific production achievement. An article in Martiets announced a monetary award to the shipyard worker Moiakova, "whose name is well-known in the factory and also in the city. She is known not only as a producer, but also as a deputy of the Supreme Soviet." Steven Kotkin noted a similar yearly pattern for Magnitogorsk's heavy-industrial establishments in the 1930s.[85]

Such symbolic awards and continued lip service to the idea of equality, however, hardly altered the fact that demobilized veterans, who had pushed wartime women workers out of the direct-production jobs, were receiving the lion's share of production bonuses within heavy-industrial enterprises, as well as other perks such as free trips to the factory's dom otdykha. These former soldiers were often described, as a group, in the pages of Martiets in glowing terms that linked their masculinity and military service to production successes. For instance, the "manly officer and exemplary Stakhanovite worker" Aleksei Feodorovich Makarov was

characterized as being part of a "production vanguard" composed of those who had "personally defended our Russian land." It was this vanguard that was said to be "leading the way to labor success" in the post-war industrial reconstruction effort.[86]

Privileges extended to this new "production vanguard" also negatively affected women employed at Soviet heavy-industrial enterprises in the already difficult area of housing. While Director Nikol'skii made great efforts to attract veterans by expanding housing for single male workers at Podolsk, single women received no such additional housing space and remained in very crowded conditions.[87] Women were also deprived of apartments that were being given to veterans. At times, the women involved seem to have resisted such handovers.

In response to the request of the Moscow Oblast' Committee of the Metal Workers Union, a Moscow Assistant Procurator (Ivanov) issued the following order:

> The worker K. I. Romazanova and all those persons living with her are directed within a seven-day period to vacate the apartment assigned to the demobilized veteran I. S. Chikov. This apartment (no. 12) is located in building sixteen on Khoroshovskoe Shosse. The 54th Militsia Division is given the responsibility for carrying out this order.[88]

Female and male unskilled support staff and construction workers, with the exception of the motor pool workers at Podolsk, more broadly constituted groups that lacked the opportunities and status afforded to veterans and other

direct-production workers. This situation prevailed at both Admiralty and Podolsk. As noted in Chapter One, at Admiralty, even clerical workers with skill in reproducing technical documents were unable to convince Admiralty's bookkeeper Burlankov to award them bonuses despite the existence of a ministerial decree that clearly provided for such awards.[89] Burlankov probably did not want to deplete the Director's Fund of money that could be used to pay bonuses to direct-production workers.

Along with women workers, recently-recruited young male peasants, assigned to fire-prevention squads, construction work, and other duties with less pay and prestige in heavy-industrial enterprises than primary direct-production work, were also often considered "unskilled and unqualified" by enterprise directors.[90] They had few, if any, opportunities, even at Admiralty, to earn bonuses. They also received much lower base salaries than did direct-production workers. They enjoyed less clout within the confines of the shipyard's bargaining mechanisms than skilled-production workers did. Amendments accepted to the yearly collective agreements between the troika's trade union and managerial branches were disproportionately authored by workers and reflected specific direct-production concerns.[91]

At Admiralty's close affiliate Sudomekh, a woman who indirectly subverted the enterprise's prevailing masculine skilled-production hierarchy came in for scathing criticism in

the pages of the factory's newspaper Sudomekhovets. Young Liza Shevchuk, the Factory Director's personal secretary, was criticized for rude, arrogant and insensitive behavior toward a shop boss from "one of the great [production] shops of the factory." Shevchuk, who had refused to allow the man to enter the Director's office, was critiqued not only for her gatekeeper-type behavior, but was also portrayed in the newspaper in a highly unflattering manner that extended to her Westernized style of dress and use of makeup.[92] Shevchuk had clearly violated not only certain social conventions of the prevailing, highly-nationalistic atmosphere after the war, but she had also affronted Soviet heavy industry's male-dominated "caste system" that gave priority to those directly involved in production through skilled labor.

On the other hand, at least at Podolsk, cases of harassment of female employees by drunken and/or rowdy male workers were handled firmly. Evidence concerning such incidents at Admiralty, and from ministerial records more generally, was lacking. Thus, any overall conclusions about how managers were prone to handle such situations remain tenuous.[93]

Yet another aspect of the unenviable situation of post-war female employees at Soviet heavy-industrial enterprises involved the renewed drive for supplemental agricultural production on weekends carried out by "volunteer" laborers. At Admiralty in 1948, these ogorodniki were over 80 percent

female. At that time, women composed only about 40 percent of the shipyard's work collective. Weekend ogorodnik work entailed not only agricultural labor, but also construction duties such as road repair.[94]

As I noted earlier, none of the engineers or primary production workers that I interviewed were required by the troika to become ogorodniki. These men uniformly stated that they were never asked or told to go (a revealing statement about both the stratification of Admiralty's work collective and the "voluntary" nature of ogorodnichestvo). A majority of the interviewees were veterans who were automatically entitled to food disbursements in any case. Several of the men stated that their crucial production duties kept them too busy to engage in weekend agricultural labor.[95]

Admiralty's managers did attempt to highlight the, in reality rare, participation of engineers and production workers in volunteer agricultural labor. The engineer B. N. Diukov painted a blissful picture of the agricultural work of the ogorodniki in the factory's newspaper:

> I leave the city together with my wife and my children. I get away to the sun and the clear air. For my work as an ogorodnik, I secure for myself beets and potatoes in sufficient number to last me two months and not less.[96]

In reality, in-kind distributions were low. This was due both to poor yields and because of disbursements to veterans and other skilled production workers who were not working as ogorodniki. For members of the production elite, participation

was not only rare but unnecessary; they often received privileged disbursements in any case. In a perhaps unintentionally revealing comment about the situation, Miklashevskii, the head of Admiralty's agricultural commission, noted that there were "many comrades who still hadn't made a firm decision whether to join in [the agricultural work] or simply to consume the food that the ogorodniki produce." The ogorodnik campaign at Admiralty Shipyard continued to grow in size throughout the 1946-1950 period. By 1950, the ogorodniki were still overwhelmingly female, but the number of total participants had reached 3,000.[97]

In 1947, before the elimination of rationing eased the food situation in Leningrad, a number of female ogorodniki do seem to have tried to shape ogorodnichestvo to their own ends. Encouraged or backed by the campaign's Chairman Miklashevskii, they asked to be allowed to be released from their (almost certainly support staff) jobs at Admiralty to join the relatively small numbers of people laboring full-time on the shipyard's livestock breeding farm and vegetable-growing plots. The women did not request increased pay; as full-time ogorodniki their salaries would have been quite low (a mere 360 rubles a month), but they did request the institution of practices that would allow for in-kind bonuses for their work. This plan, however, foundered on the joint opposition of both management and trade union at the shipyards. Factory Committee

Chairman Svanidze categorically opposed the idea of dividing the agricultural campaign's produce through production bonuses (which might have limited, for instance, recruitment food bonuses for veterans), and the shipyard's management refused to release the women from their jobs.[98]

The unfavorable position of women in the production hierarchy in Soviet heavy-industrial enterprises in the post-war years unfolded against a broader background of conservative social policies and ideals that moved further away from earlier "revolutionary" attempts to redefine gender roles. The post-war conservative consolidation of traditional roles for women was reflected in the discourse of Soviet heavy industry in a variety of ways. As we have seen, a masculinized archetype of the skilled-production worker dominated within Soviet heavy industry. The growing dominance of male veterans in Soviet heavy-industrial enterprises was publicly attributed to their masculine energy and initiative. Veterans were portrayed at Admiralty as taking the initiative in "rendering active help to the collective in the matter of labor productivity and obligations."[99]

The direct-production achievements of wartime women workers, however, were characterized differently. These women were seen as having been a temporary necessity. Their successes were attributable, not to initiative on the part of the women workers themselves, but rather to the management of the "woman question" by the Soviet government and Stalin:

> The role assigned to Soviet women during the war only became possible because of the fact that the Soviet government and Stalin personally had ceaselessly educated the women patriots.[100]

Construction and promotion of a traditional gender identity in the post-war period was also reflected in educational policy through increased gender segregation and differing curricula in the schools. Records from Admiralty's children's center further illustrate the post-war period's traditionalist approach to gender.

Participation in soccer and other sports was limited to the boys. Overall, gender segregation prevailed, with sharply different programs for boys and girls; both groups, however, pursued their activities under large identical portraits of Stalin which bore the inscription: "The Best Friend of Children, the Beloved Comrade Stalin - Praise to Stalin!"

Under the watchful gaze of the portraits, boys pursued extensive military-style calisthenics and worked on crafting highly-detailed models of modern submarines and warships. Clearly, they were being prepared for their roles as adults in the shipyard's community: skilled workers and engineers who would build real submarines and warships in the future. Girls pursued such activities as painting, ballet, quilting, and sewing.[101]

Given the often physically demanding labor that women performed in the post-war years as members of often poorly-paid support staff or construction brigades, such "training" for young girls was both deceptive and impractical. The

traditionally "feminine" nature of such education may have, however, also indirectly spurred optimism among women that the future would indeed be more stable and brighter. Indeed, such optimism about "tomorrow [being] better" seems to have been a broadly prevalent belief at Admiralty Shipyard.[102]

While the activities for girls emphasized domestic and artistic components, the curriculum for boys was clearly geared toward creating exemplary workers as the state defined them. Soviet President Kalinin articulated the state's view of the ideal worker in 1946:

> We want to develop in the worker a multi-sided man (muzhchina) so that he will be able to run well, swim quickly and move gracefully. His health will be in perfect order. He must be a vigorous healthy man well-prepared to work and defend.[103]

The whole pattern of industrial ideals and practices worked to curtail female participation in direct-production work after the war. Family duties, low-paying support staff jobs, and the compulsory participation in unrewarding ogorodnichestvo often saddled women working in Soviet heavy-industrial enterprises with a "triple burden" that made their position generally unenviable in comparison with that of their male counterparts. Indeed, evidence from Podolsk's records strongly indicates most strongly that male workers left housework and child-rearing duties wholly to their wives, even when they also worked.[104]

Despite their difficult overall position and "triple burden," women workers' participation in Admiralty's amateur

performing arts groups far exceeded that of men. By dominating singing, dancing and theatrical groups at Admiralty, both in terms of a basic majority of those involved and in terms of these groups' leaderships, women effectively carved out a small sphere within the masculine-dominated culture of a heavy-industrial enterprise. Even artistic performances, however, were subject to strict oversight by largely male reviewing commissions from the Factory Committee. Commissions often demanded the insertion of props, changes in dialogue, costuming, and alterations to the overall presentation and content of the performances.

For instance, in reviewing a performance of the play "Moscow Character" by the shipyard's drama club, the commission recommended a series of changes. A rug was to be placed as a prop in the office of a factory-director character. An army officer character's profile was changed in order to portray him as demobilized. The play's director and star, Pozniakova, was criticized for her own "improper" costuming and for urging two male actors to portray a district party secretary and a factory director in ways that the commission thought made the two characters out to be "crude and ignorant" boors. Interestingly, one of the traits of the factory director's character found objectionable by the zavkom commission was the actor's exaggerated and evidently intentional mispronunciation of the Russian words for "her" and "women."[105] Though the situation is somewhat unclear, it

is possible to infer that the women involved in the shipyard's amateur groups might have been using them to express veiled criticism of their treatment by Admiralty's managers.

The masculinized production hierarchy of the enterprise essentially prevented women from being hailed as labor heros, but they could achieve the status of "community celebrities" through performance as actresses and dance or music soloists. A variety of performances consistently packed the factory's small 225-seat auditorium. If a performance passed muster with the reviewing commission, its participants could receive an additional chance to perform at larger regional festivals of "artistic self-doers" sponsored by the Union of Workers of the Shipbuilding Industry.[106]

Thomas Lahusen's study of Soviet personal diaries of the 1930s suggests that participation in artistic groups also contributed to a greater sense of personal "rootedness" and community "connectedness" in a society that was often destructive of the personal sense of both. Lahusen discerned "rooting" patterns in men as well as women. While men were enabled to "root" their sense of identity and community primarily in their work, women's differing circumstances led them to put down "multiple" roots that included greater participation in artistic groups within the community.

Lahusen's concepts are particularly applicable to the post-war years in that he sees such patterns of behavior not as an oppositional response to the anomie of totalitarian

social "atomization," but rather as both an officially-encouraged and highly personal refuge. Such activities were also a way of expressing and reinforcing hope for the future.[107] The broader post-war social realities that might have prompted women to engage in such behavior are clear. The strong possibility of having recently been widowed or losing other family members in the war was often combined with geographical uprooting caused by evacuation and resettlement. Given the period's demographics, the prospects of marriage or remarriage were often remote. Wartime labor mobilization and subsequent declassing would be another obvious contribution. The notable stability of the largely female leadership of amateur theatrical, musical and dance groups at Admiralty Shipyard indicates that such a search for personal and community continuity was indeed at work.[108]

If generally male skilled workers and engineers at heavy-industrial enterprises such as Admiralty were favored in many ways by the Soviet state, all Admiralty's workers were also urged by the shipyard's troika to take patriotic and community pride in being associated with military power and a tradition of wartime heroism. The awarding of the Red Banner to the factory by the State Defence Council in 1946 and the links with the Navy through the "Worthy of the Fleet" society both reminded the Admiralteitsy of the role their enterprise played in strengthening the nation. At Podolsk, Nikol'skii's

mobilizational broadsides often directly linked the efforts of all laborers to the military readiness of the USSR.[109]

Managerial mobilizational discourses, aimed at the almost wholly Russian workforces of Admiralty and Podolsk, were interspersed with heavy doses of Russian nationalism. Traditional Russian songs and stories played an important inspirational role both in mobilizational meetings and in the performance of the aforementioned amateur artistic groups whose official goal was to both entertain and motivate. Even May Day celebrations at Admiralty emphasized Russian national achievements and traditions as much or more than Marxist-Leninist themes. The post-war years at Admiralty also witnessed celebrations in honor of such traditional Russian nationalist heroes as General Suvorov, as well as the celebration of the 245th anniversary of Admiralty's construction by Peter the Great.[110]

The prevalence of Russian nationalist themes at Admiralty and Podolsk was a move away from the "subordination" of Russian ethnicity to an idea of Soviet nationhood that Steven Kotkin describes in his study of the heavy-industry dominated town of Magnitogorsk in the 1930s.[111] This shift seems to have largely occurred during the war. In their articles in Culture and Entertainment in Wartime Russia, Argyrios Pisiotis and Harold Segel provide convincing evidence that "Soviet culture from 1941 to 1945 became predominantly Russian."[112] This was reflected in the war era's popular plays, such as

Konstantin Simonov's The Russian People (Russkie liudi) and Vladimir Soloviev's Feldmarshal Kutuzov. Official motivational themes had often centered on praise for traditional Russian military heroes such as Dmitrii Donskoi and Alexander Nevskii. Popular songs among Red Army soldiers also reflected, according to Robert Rothstein, a growing sense of particularly Russian national pride.[113]

Having seen the rallying effect of Russian nationalism during the war, the Stalinist regime increasingly relied on it after the war. Podolsk and Admiralty are again indicative of a larger pattern. As Solomon Schwarz noted, Russian nationalism assumed an increasingly important role in the Soviet state's official belief system:

> Official Soviet ideology after the end of the war began to assume the character of militant national-communism. With this change, the extremely actively-disseminated Soviet national-communist propaganda stridently sounded the note of Russian nationalism ... The Soviet press began freely spreading the idea that the Russian people--not the peoples of the Soviet Union--not the Soviet people--but that specifically the Russians were the most talented people, not only in the USSR, but in all of the world. ...[114]

While at Admiralty and Podolsk this emphasis on Russian nationalism played well with these enterprises' overwhelmingly ethnic-Russian workforces, it is doubtful that such appeals were received with as much sympathy in industrial enterprises in non-Russian areas of the USSR. Indeed, this new official emphasis on Russian nationalism had a very dark side that manifested itself not only in the mass deportations of

"disloyal" non-Russian peoples like the Chechens and the Crimean Tatars, but also in phenomenon such as the anti-Semitic anti-cosmopolitan campaign. The nationalist boasting that was a key component of the Zhdanovshchina, while bypassing strategic heavy industries such as shipbuilding and non-ferrous metallurgy, damaged Soviet scientific and technological progress in other fields such as genetics.

At Admiralty, personal gain and national-patriotic feeling were also linked to Soviet traditions of "factory patriotism" from the 1930s in ways that centered the shipyard in the conceptions of its workforce as their near total conceptual, material and geographical community. The shipyard's presence in the forefront of the recovery effort reinforced the idea that the Admiralteitsy themselves were making an exceptional and heroic contribution to reconstruction and national strength. Progress at Admiralty, in turn, had been seen by the workers I interviewed as symptomatic of a positive direction for their society as a whole. The post-war Admiralteitsy thus also shared a reinforced belief that things "would get better and better" for both shipyard and nation despite at times difficult conditions and "baffling events" such as the Leningrad Affair.[115]

Viktor Nikolaevich Mosykhin characterized the 1946-1950 period as one of "high patriotic feeling" and "faith." Mosykhin noted that he could see the progress around him at

Admiralty between 1947 and 1950. He also compared the era's fast-paced and high-quality work (despite shortages of technical specialists) with the declining standards that began creeping in later on. Alexander Yakov noted the tough conditions in 1946-1947, but he stressed the critical role of falling food prices in the subsequent two years in greatly improving the situation for himself and his family. Yakov, Petr Ivanovich Ryzhkov, and Nikolai Klenov all characterized Admiralty's work collective as having "high morale." Yakov also characterized the 1946-1950 period as an exciting time of scientific-technical progress and of widespread faith in Stalin's leadership.[116]

Many of Admiralty's workers viewed industrial reconstruction as a way to build upon the nation's victory in World War II. They felt that they had a prominent personal role and stake in this "heroic achievement." Shestakov and Klenov noted that Admiralty's workers displayed "great enthusiasm" and were willing to take on the challenge of learning new technologies in night classes despite grueling work schedules.[117] Pride in Admiralty's close tie to national military strength was also an important part of a post-war mix of views and perceptions that buttressed their faith in the Soviet system. The Admiralty lathe operator (tokar') Bryzgalov noted:

> Soviet power has given us here [at Admiralty] so much. I can raise my daughter and educate my children. My daughter will be an engineer and my eldest son a naval officer. My youngest is already

> serving in the Red Army. In my later years, I'll have fulfilled my obligations and will no longer have to work. Yet, it is still a bit too early for me to retire now. While I have the strength, I'll continue to work for the defense of our people.[118]

Bryzgalov's words may have been scripted for him. He may have been, to use Steven Kotkin's phrase, "speaking Bolshevik." Nevertheless, the mix of personal interest, confident hope for a better future, and a proud "factory patriotism" linked to a heavy-industrial contribution to national military power is clearly present. Indeed, this same mix was present in the descriptions of the period given by Admiralteitsy nearly 50 years later.[119]

There is also some evidence that heavy-industrial, non-production employees experienced moral and material circumstances that were dependent not only on their own relatively poor position in their enterprise's hierarchy, but also on their enterprise's status. In most cases, their children attended factory-affiliated schools and whatever medical and dental care they received came from factory clinics. Housing and food also often came from the factory. Sick or injured employees turned to their enterprises for support available through "socialist insurance" funds controlled by their factory's leadership troika.[120] The Stalinist welfare state, such as it was in the post-war period, was "centered on large factories." Heavy-industrial enterprises possessed superior resources and presented other comparative advantages for employees as well.[121] Petr

Ivanovich Ryzhkov's woodworking shop at Admiralty, like one described by Steven Kotkin in Magnitogorsk's giant metallurgical complex in the 1930s, generally turned out consumer goods and other secondary production only for the shipyard community. This "factory community" autarky was one more comparative advantage of heavy-industrial employment in the USSR.[122]

Ryzhkov's own attitudes, while far from definitive, are interesting in regards to the attitudes of Admiralty's non-primary production workforce. Although he was a carpenter, an ogorodnik and not a primary-production worker, Ryzhkov still took pride in the scientific-technical progress and high labor productivity for which Admiralty Shipyard was known. While careful not to identify himself as a "shipbuilder," Ryzhkov also warmly remembered that post-war Admiralty shipbuilders were well-known in Leningrad and elsewhere in the USSR as important workers who were playing a significant role in the national rebuilding effort.[123]

In such broader moral and material senses, female Admiralteitsy also had a stake in Admiralty's prominence that was greater than before the war when women had represented only 18 percent of the shipyard's workforce. There is also some more general evidence of increased upward mobility for women into the ITR within Soviet heavy industry. This pattern, however, was not reflected at Admiralty or Podolsk. Some women

continued to work, however, in Admiralty's prestige direct-production shops, such as shop no. 18.[124]

While evidence about overall labor morale at Podolsk is less extensive and more muddled, it is important to note that, at least until 1950, signs of a well-motivated and productive workforce were not absent. Nikol'skii cited high morale as one of the reasons behind the factory's "good results" for 1949, in spite of the lack of funds for "monetary bonuses."[125]

It might be argued from the differences in the experiences of workers at Admiralty and Podolsk, that there was little that united post-war heavy-industrial workers. Podolsk's workers clearly did not see the growing stability that characterized the relatively privileged lives of the Admiralteitsy. In the same way, it could be argued that a metallurgical worker fortunate enough to labor in a plant that produced wolframite rather than aluminum was better positioned to reap a variety of the era's benefits. In conditions of a prevailing labor shortage and a free labor market, however, the realistic possibility of marketing one's heavy-industrial skills worked to mitigate such apparent differences. Stability and mobility could both produce advancement.

Indeed, many commonalities occurred in the experiences of the heavy-industrial workers. These shared realities bridged regional and ministerial divides. As a group, heavy-industrial workers fared much better in the post-war era than did the peasantry. This was in large part due to the state's

deliberate tilting of the economic balance in favor of urban industrial workers. As a result, the difference in real wages between the two groups reached record levels in the immediate post-war period.[126]

Heavy-industrial workers, as a group, faced the same challenges furnished by the influx of trophy technology. An increased opportunity for upward mobility through technical education, also due in large part to that influx, was another broadly-shared feature of the post-war labor experience. Problems such as the prevalence of industrial accidents and the shortage of quality housing also were features found in varying degrees at Admiralty, Podolsk, and scores of other Soviet heavy-industrial enterprises within the ministerial purviews of Non-Ferrous Metallurgy, Shipbuilding, and other production branches. Workers at Admiralty and Podolsk also shared a common life of total immersion in their enterprises. Not only workers' work, but also their housing, vacations, recreation, adult and youth education, health concerns, social status, intellectual life, etc., all functioned within their enterprise's "sphere of influence."[127]

Those laboring in the heavy-industrial sphere, in particular those working there in direct-production capacities, can be said to have enjoyed more favorable conditions during the post-war years not only than peasants, but also than other social groups such as workers in less-favored light industry, service workers, and the vast camp

population that included many war prisoners and repatriated Soviet citizens. State motivational strategies offered incentives and allowed opportunities for choice and upward mobility that helped in turn to increase productivity. Skilled workers in certain high-priority heavy-industrial establishments were particularly favorably affected by the overall thrust of a combination of state labor, technological and economic policies.

The situation of Admiralty's workers was, in this last sense, certainly highly favorable. The shipyard's workforce was better compensated and less troubled by turnover and discipline problems than Podolsk's workforce; it was also more productive. Admiralty's history and prominent place in the life of the city of Leningrad allowed for greater development of feelings of "enterprise patriotism" among the shipyard's workers. Nevertheless, although they lacked many of the advantages enjoyed by the Admiralteitsy, Podolsk's skilled workers often displayed high morale by producing despite a lack of material resources, funds for bonuses, and adequate training in dealing with the new technologies in use at the factory.[128]

Further evidence of a broader shared pattern of largely positive circumstances and perceptions among post-war Soviet heavy-industrial workers, that transcended specific enterprises devoted to shipbuilding or non-ferrous metallurgy, can be found in interviews conducted by Lewis Siegelbaum and

Daniel Walkowitz for their book, Workers of the Donbass Speak: Survival and Identity in the New Ukraine, 1989-1992. While the main focus of this work is the labor unrest in the Donbass that formed an important preface and postscript to the Soviet Union's fall, the book also contains much information about the region's post-war labor experiences. Siegelbaum concludes that for the older generation of coal and steel workers of Donetsk [Stalino], "the Great Patriotic War and the reconstruction era still evoke the nostalgia of hardships overcome, of a world rebuilt from ashes." Workers evidenced dedication to what had been a personal mission to rebuild; this task had often dovetailed with opportunities for individual advancement.[129]

Donetsk interviewees, such as the kolkhoznik turned miner Ivan Kushch, displayed sentiments similar to those of the Admiralteitsy that I interviewed. Kushch also saw the post-war period as a time of validation and faith in both Stalin and the war-tested system. Kushch singled out Stalin's abolition of rationing as a particularly key step in improving workers' living conditions. As Siegelbaum notes:

> Indeed for Ivan--and one suspects many others who survived those hungry years--the availability and cheapness of foodstuffs became the touchstone for judging the mettle of political leaders. Stalin, according to this criterion wins high marks, but not Khrushchev... and not by 1989 Gorbachev.

Though he had felt politically stifled under Stalin, Kushch, along with many other post-war workers and engineers,

felt gratitude for the surprisingly well-stocked stores so soon after the war's devastation. Kushch mourned Stalin's death in 1953 and stated that the miners who passed through the reconstruction era "remember him in our hearts."[130]

Other Donbass workers interviewed by Siegelbaum largely echoed Kushch's sentiments. Viktor Ignatov also saw the end of rationing and the food price reduction of 1948 as a crucial step toward progress and a better life. Faith in Stalin, the system, and themselves drove workers to produce. In Ignatov's words, "people worked really hard." This, in turn, made for a fast recovery from the war's wounds. The Donbass workers also noted, however, some of the reconstruction era's problems and dangers. Grisly industrial accidents, for instance, were not confined to Podolsk or the aluminum and shipbuilding industries in general, but were commonplace throughout post-war Soviet heavy industry, including the mines and steel works of the Donbass.[131]

Further interesting comparisons can be drawn with labor experiences and attitudes outside of the USSR but inside the new Soviet block that emerged in the war's aftermath. In a study of industrial workers in Poland, Padraic Kenney presents considerable evidence about Polish workers' reactions to post-war developments. Poland, like the USSR, was a devastated society with a labor shortage. Polish Communists, like their Soviet counterparts, latched onto the working class as an important force in reconstruction and a crucial pillar of

political support. Direct parallels with the post-war Soviet heavy-industrial experience are most evident within Kenney's work when he details the functioning of incentive systems within Polish enterprises and in workers' responses to the war over trade (bitwa o handel) launched by the Polish Communists to crack down on peasant "speculators" and secure lower food prices for urban workers. The Polish Communists, capitalizing on workers' anger over high prices and food scarcity, found favor with workers by abolishing rationing in a way that favored urban workers over peasants. Incentive schemes were also used "quite effectively" by the Polish Communist Party and its loyal enterprise managers to co-opt workers. Workers, particularly in the favored heavy industrial and transport sectors, saw such rewards as important "tangible benefits" from the new authorities.[132]

Kenney contends "that for a time at least, one could say that the working class as a whole benefitted from these [incentive] systems as much as did the authorities."[133] The issue of nationalism, which worked as a source of support at Soviet enterprises such as Admiralty and Podolsk, remained a barrier, however, between Polish Communists and Polish workers. Post-war Poland was the scene of an intense political struggle between Communists and non-Communists. The eventual victory of the Polish Communists can, in no small measure, be attributed to the presence of Soviet Red Army troops on Polish soil. Thus, despite some successes in wooing industrial

workers, as with the bitwa o handel, Party and state officials never fully overcame the widespread belief among workers that their bosses were essentially puppets of the Russians. Distrust surfaced in a variety of ways; in the case of one famous and highly-bonused "hero miner" who died prematurely in 1948, many Polish workers believed that, driven on by his superiors, "he had died of overwork."[134]

Such mistrust, by and large, does not seem to have existed among workers at Soviet heavy-industrial enterprises. The "total" and symbiotic relationship between workers and their enterprises worked against this. Workers' perceptions of the post-war years as ones of opportunity, rebirth, and progress, were crucial in the labor successes of the reconstruction drive in heavy industry. Soviet workers felt a strong tie between their own fortunes, whether exercised through stability or various forms of mobility, and the national technical might that they were helping to create. Their identification of themselves, and of their society, with that might was also an important, and definitely mixed, legacy for the USSR.

ENDNOTES

1. Vera Dunham, In Stalin's Time: Middleclass Values in Soviet Fiction (London: Cambridge University Press, 1976), pp. 4-5.

2. TsGASP(b) F. 9510 op. 1 d. 135 Lenobkoma... Svedeniia 1948, pp. 16-18.

3. TsGASP(b) F. 9510 op. 1 d. 135 Lenobkoma... Svedeniia... 1948, p. 20.

4. **See** "Bolshie...," Martiets, 2 Sept. 1946, p. 1; and **also** TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly... 1950, no. 6, p. 20.

5. All these examples are drawn from the records of the Ministry of Non-Ferrous Metallurgy. **See**, for example, RGAE F. 9022 op. 40 d. 39 Narodnyi... Kopii... 1946, Prik. no. 10, 10 Jan. 1946, p. 1.

6. "Zabota otrudiashchikhsiia," Martiets, 25 May 1946, p. 2.

7. "O poriadke...," Direktivy KPSS..., 21 May 1947, pp. 205-209.

8. **See** David Shearer, Industry, State and Society in Stalin's Russia, 1926-1934. (Ithaca: Cornell University Press, 1996), and **also** Hiroaki Kuromiya, Stalin's Industrial Revolution: Politics and Workers, 1928-1932. (New York: Cambridge University Press, 1986).

9. **See**, for example, TsGAMO F. 4855 op. 1 d. 17 Pod. zav. tsvet. met. Protokoly... 1946, p. 81.

10. **See** RGAE F. 9011 op. 27 d. 346 Min. tsvet. met. Podlinnye... 1948, Letter of Lomako..., pp. 14-16, and **also** Letter of Aniskin..., pp. 23-24; Letter of Lomako..., pp. 22-23.

11. **See** TsGAMO F. 4855 op. 2 d. 1 Moskovskoi ... Zapiski predsedatelei komissii ..., 1947, Letter of citizen Ivan Grigor'evich Poliakov to Chairman of the Trade Union Central Committee Fartunin [undated] and **also** TsGAMO F. 4855 op. 2 d. 1 Moskovskoi ... Zapiski ..., 1947, Letter of Chairman of the Moscow Oblast Committee of the Trade Union Fomin to Fartunin [undated]; TsGAMO F. 4855 op. 1 d. 23 Moskovskoi ... Dokladnye ..., 1946, p. 4.

12. **See** TsGASP(b) F. 9510 op. 1 d. 147 Lenobkoma... Obiasnitel'naia zapiska po sostoianiiu traumatizma na

leningradskikh predpriiatiiakh sudostroitel'noi promyshlennost... 1948, pp. 4-7.

13. **See** V. A. Ezhov, Rabochii klass vedushaia sila vosstanovleniia Leningrada. (Leningrad: LGU, 1982), p. 51.

14. TsGAMO F. 7721 op. 1 d. 9 Pod. zav. tsvet. met. Prikazy ..., 1948, Prik. no. 60, 18 June 1948, pp. 152-153.

15. V. P. Ostrovskii, Istochniki popolneneniia proizvodstvenno tekhnicheskii intelligentsii SSSR v gody 4-i piatiletkii [aftoreferat]. (Leningrad: Istoricheskii nauk, 1973), p. 9.

16. Eric Duskin, "Recreating the Technical Intelligentsiia: The Politics of the Recruitment and Training of Soviet Industrial Specialists, 1946-1950." (Ph.D., 1993, University of Michigan), pp. 112-121. Duskin refers to this trend as "skill inflation." V. P. Ostrovskii's figures for heavy industry generally indicate that even by 1950, most shop bosses were still praktiki. This was despite the rapidly-eroding position of praktiki within the ITR as a whole. **See** V. P. Ostrovskii, O sostave inzhenerno-tekhnicheskikh rabotnikov v sisteme tiazhelogo mashinostroeniia. (Leningrad: Isr. nauk, 1972), pp. 18-26.

17. **See** TsGASP(b) F. 9510 op. 1 d. 137 Lenobkoma ... Otchet ..., 1947-1948, pp. 60-64; and **also** V. M. Iurasov, Admiralteitsy (Leningrad: Lenizdat, 1976), p. 163; Mosykhin, p. 2.

18. "Budu inzhenerom," Martiets, 7 July 1950, p. 1.

19. TsGAMO F. 7721 op 1 d. 7 Pod. zav. tsvet. met. Kollektivnyi... 1947, pp. 10-11.

20. Ryzhkov went on to become the deputy shop boss of the shipyard's woodworking shop in 1956. **See** Ryzhkov, pp. 1-4.

21. **See** TsGAMO F. 4855 op. 1 d. 23 Moskovskoi ... Dokladnye ..., 1946, pp. 7-12, and **also** F. 7721 op. 1 d. 11 Pod. zav. tsvet. met. Planovyi ..., 1950, pp. 14-15.

22. "Pravo na otdykh," Martiets, 2 Dec. 1950, p. 1.

23. N. A. Ilyna, "Opyt agitatsionnoi raboty sredi stroitelei," Bloknot agitatora, no. 16, 1950, p. 20.

24. A. I. Entel', Novatory Admiralteitsy. (Leningrad: Sudopromgiz, 1963), pp. 71-72.

25. TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly... 1950, Prik. no. 21, p. 40.

26. TsGAMO F. 7721 op. 1 d. 90 Pod. zav. tsvet. met. Prikazy... 1948, Prik. no. 64, 23 June 1948, pp. 144-145.

27. Ibid.

28. RGAE F. 9022 op. 40 d. 39 Narodnyi... Kopii..., 1946, Prik. no. 18, 12 Jan. 1946, p. 4; TsGAMO F. 7721 op. 1 d. 31 Pod. zav. tsvet. met. Osnovnye... 1950, p. 3; RGAE F. 9022 op. 40 d. 39 Narodnyi... Kopii..., 1946, Prik. no. 3, 5 Jan. 1946, pp. 1-3.

29. **See**, for example, RGAE F. 8194 op. 1 d. 31 Min. sud. prom. 4-go glav... Prikazy... 1948, Prik. no. 262, 16 Dec. 1948, p. 1.

30. RGAE F. 9022 op. 48 d. 45 Min. sud. prom. Prikazy... 1947, Prik. no. 301, 12 April 1947, p. 1.

31. Glozman eventually became head of Admiralty Shipyard's Technical Processes Bureau after originally being assigned to work there in 1950. Glozman had come to Admiralty as an engineer in 1949. He later, while continuing to work at Admiralty, also held an appointment as a Professor at Leningrad's Krylov Shipbuilding Academy. Glozman, pp. 1-7.

32. For details on the unusually high salaries for motor pool workers at Podolsk, **see** TsGAMO F. 7721 op. 1 d. 9 Pod. zav. tsvet. met. Prikazy... 1948, Prik. no. 67, 29 June 1948, p. 1.

33. **See**, for example, TsGAMO F. 7721 op. 1 d. 9 Pod. zav. tsvet. met. Prikazy... 1948, Prik. nos. 53 and 54, 11 June 1948, pp. 169-170.

34. "Byvshie..." Martiets, 22 Feb. 1947, p. 1; "Stakhanovtsy...," Martiets, 6 May 1950, p. 1; Yakov, p. 2; Martinov, p. 2.

35. Their tutelary role toward youth also reinforced traditional lines of generational authority in Russian culture. **See** Glozman, p. 1; Sheskatov, p. 1; and **also** FMLAV Kniga pochetu zavoda Sudomekh, 1946-1947; Kniga pochetu zavoda imeni Marti, 1947-1948, pp. 1-40 and pp. 1-40.

36. **See** Yakov, questionnaire, p. 2; "Nagrazhdenie medaliami," Martiets, 16 Feb. 1946, p. 1; TsGAMO F. 7721 op. 1 d. 11 Pod. zav. tsvet. met. Planovyi... 1950, pp. 14-15.

37. Nina Tumarkin, for instance, in focusing exclusively on the negative aspects of post-war reality ignores the favorable treatment extended to veterans in Soviet heavy industry. **See** Nina Tumarkin, The Living and the Dead: The Rise and Fall of

the Cult of World War II in Russia. (New York: Basic Books, 1994), pp. 98-100.

38. **See**, for example, "Pervenstvo v sorevnovanii," Martiets, 7 Sept. 1946, p. 1; "Sotsialisticheskie...," Martiets, 19 June 1946, p. 2; and **also** M. A. Srebnyi, Stakhanovskie traditsii v ugol'noi Dromyshlennosti. (Moscow: Nauka, 1988), pp. 45-50.

39. Srebnyi, p. 50.

40. **See** "Pervenstvo...," Martiets, 7 Sept. 1946, p. 1; RGAE F. 8899 op. 2 d. 11 Min. sud. prom. Prikazy... 1946, Prik. no. 438, 28 Oct. 1946,. p. 1; and **also** TsGAMO F. 7721 op. 1 d. 9 Pod. zav. tsvet. met. Prikazy... 1948, Prik. no. 53, 11 June 1948, p. 1. Funds were made available directly from the Ministry of Non-Ferrous Metallurgy at Podolsk in 1948 for paying workers and engineers engaged in an effort to improve the quality of the aluminum initially produced by the factory's airplane shop.

41. **See** RGAE F. 8194 op. 1 d. 33 Min. sud. prom. Prikazy 4-go... 1949, Prik. no. 257, 30 Dec. 1949, p. 1; and **also** TsGAMO F. 7721 op. 1 d. 27 Pod. zav. tsvet. met. Prikazy... 1950, Prik. no. 265, 6 Oct. 1950, p. 150.

42. **See** RGAE F. 9022 op. 40 d. 39 Narodnyi... Kopii... 1946, Min... Prik. no. 32, 30 Jan. 1946, p. 1; and **also** RGAE F. 8899 op. 2 d. 137 Min. sud. prom. Direktivnye... 1948, p. 35.

43. **See** RGAE F. 9022 op. 48 d. 49 Kopii... 1948, Min. tsvet. met. Prik. no. 269, 6 July 1948, p. 1; RGAE F. 9022 op. 48 d. 44 Min. tsvet. met. Kopii... 1948, Prik. no. 239, 3 July 1948, p. 5.

44. **See** "Za khoroshaia rabotu premiia," Martiets, 19 March 1949, p. 2.

45. V. M. Iurasov, Admiralteitsy (Leningrad: Lenizdat, 1976), pp. 203-205.

46. Ibid.

47. RGAE F. 9022 op. 48 d. 60 Min. tsvet. met. Prikazy... 1950, Prik. no. 3, 1 Jan. 1950, p. 1.

48. TsGASP(b) F. 1511 op. 158 d. 82 Adm. sud. zav. Otchety po... 1946, pp. 15-24. There are numerous similar discrepancies apparent in these records.

49. Some of the workers who were fulfilling their norms were new recruits from the construction brigades who were beginning their production duties by working at a lower training norm.

Nikol'skii, while lacking the ability to dispense premiia extensively, could substitute rewards such as two-week vacation passes for productive workers. **See** TsGAMO F. 7721 op. 1 d. 19 Pod. zav. tsvet. met. Itogi... 1949, pp. 1-10; and **also** TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly... 1950, p. 8. On the fairly rare occasions when bonuses were paid at Podolsk, they were slated to go primarily to "those servicing or working with machines and mechanisms" of production. **See** TsGAMO F. 7121 op. 1 d. 9 Pod. zav. tsvet. met. Prikazy... 1948, Prik. no. 53, 11 June 1948, p. 169.

50. **See** RGAE F. 9022 op. 48 d. 47 Min. tsvet. met. Kopii ..., 1948, Prik. no. 115, 31 March 1948, p. 1; TsGAMO F. 7721 op. 1 d. 10 Pod. zav. tsvet. met. Prikazy ..., 1948, Prik. no. 68, 27 Nov. 1948, p. 1.

51. TsGASP(b) F. 9510 op. 1 d. 135 Lenobkoma..., Svedeniia... 1948, p. 20; TsGASP(b) F. 1511 op. 158 d. 169 Adm. sud. zav. Vedomost'... 1949, pp. 2-3.

52. A national survey of top trade union bodies in 1947 discovered, for instance, that 94 percent of the norms that officially should have been updated and raised in 1947 had not been. **See** Profsoiuzy SSSR..., p. 40.

53. **See** Glozman, questionnaire, p. 3; Ryzhkov, questionnaire, p. 2; Shestakov, p. 1; Yakov, p. 3; and **also** Jasny, p. 273. **See also**, for example, "Otvety na voprosy Martiitsev," Martiets, 15 March 1947, p. 2.

54. For a brief overview of the rural-urban balance shift inherent in the state's post-war economic policies, **see** Otto Latsis, "NEP: the Civilizational Aspect" (unpublished paper), 1991, pp. 16-20. For the details of the favorable impact of these policies upon workers, **see also** R. A. Belousov, Istoricheskii opyt planogo pravleniia ekonomiki SSSR (Moskva: Mysl', 1987), p. 274.

55. **See**, for example, "Novyi poriadok v ORSe i stolovykh," Martiets, 3 Aug. 1946, p. 2; "Berezhno...," Martiets, 2 Aug. 1947, p. 2. Shestakov, Glozman, Yakov, and Martinov all referred to food shortages and expensive CFM prices that led to outright hunger, even for direct-production Admiralteitsy, in 1946. Thefts of food by Department of Workers Services employees, ogorodniki, and others declined after rationing was abolished. Resale would have been much less profitable under the changed price structure. **See** Shestakov, p. 1; Glozman, p. 2; Yakov, p. 3; Martinov, p. 3, and **also** RGAE F. 8899 op. 2 d. 137 Min. sud. prom. Direktivnye... 1948, p. 35.

56. The Ministry of Non-Ferrous Metallurgy sponsored competitions, replete with lucrative Stalin prizes, for ideas relating to the filtering of various types of ore dust out of the air in the Ministry's enterprises. Yet, the problem persisted. **See** TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly... 1950, Prik. no. 389, 5 Nov. 1947, p. 1; **see also** David Holloway, Stalin and the Bomb. (New Haven: Yale University Press, 1994), p. 194.

57. For an outline of the prevailing procedures in enterprises of the Ministry of Shipbuilding, **see** Sistema planogo predupreditel'nogo remonta zavodeskogo oborudovaniia (Moskva: Min. sud. prom. SSSR, 1947), pp. 4-53.

58. TsGAMO F. 4855 op. 1 d. 17 Moskovskoi ... Protokoly ..., 1946, pp. 50-53; TsGASP(b) F. 9510 op. 1 d. 147 Lenobkoma ... Obiasnitel'naia zapiska ..., 1948, p. 7; RGAE F. 9022 op. 48 d. 46 Min. tsvet. met. Kopii ..., 1947, Prik. no. 408, 15 Nov. 1947, pp. 1-2; RGAE F. 9022 op. 48 d. 47 Min. tsvet. met. Kopii ..., 1948, Prik. no. 31, 31 Jan. 1948, p. 1. Injured workers were generally either declared invalids or given paid vacations until they could return to at least light duties.

59. Entel' Novatory, p. 13.

60. This data is contained in "Spravka ob itogakh kollektivnykh dogovorakh," Profsoiuzy SSSR..., p. 570.

61. **See** "Stroitel'stve bez kontrolia." Martiets, 3 Oct. 1947, p. 2; Ezhov, p. 50; "Nizhnye kvartiry," Martiets, 4 Dec. 1948, p. 2; TsGASP(b) F. 9510 op. 1 d. Lenobkoma..., 256 Dokladnye zapiski zhilishno-bytovykh komissii... 1948, pp. 2-4.

62. "Nashi obshchezhitiia," Martiets, 22 March 1946, p. 2; Martinov, pp. 2-3.

63. This program does not seem to have functioned at enterprises located in cities. The cost of building such a small "Finnish" home ranged from 5,750 to 10,000 rubles. Additionally, the home legally belonged to the state's enterprise rather than to the worker who had built it. RGAE F. 8899 op. 2 d. 124 Min. sud. prom. Direktivnye... 1946, p. 1.

64. "Nizhnye Kvartiry," Martiets, 11 Dec. 1948, p. 2.

65. Yakov, p. 3.

66. **See** Ezhov, p. 112, and **also** B. E. Poletaev, Sravnitel'nye kharakteristiki chislennosti i sostava rabochikh Leningrada i Moskvy v poslevoennykh period. (Leningrad: Lenizdat, 1962), p. 152.

67. Poletaev, p. 122.

68. **See** Soobshchenie gosplana ..., pp. 15-17, and **also** Narodnoe khoziaistvo SSSR 1922-1982, pp. 48-55.

69. N. Sizov, Molodezh' v borbe za ugol'. (Moskva: Gos-izd., 1948), p. 33.

70. Duskin, pp. 30 and 44.

71. Duskin, pp. 18-26; Kenneth Straus, "The Hammer and Sickle Steel Plant: Factory Work and Community Life in Moscow, 1928-1933." (unpublished manuscript, 1995), p. 111.

72. TsGAMO F. 4855 op. 1 d. 17 Moskovskoi ... Protokoly ..., 1946, no. 21, pp. 281-286.

73. Ibid.

74. Iurasov, p. 167; TsGASP(b) F. 1511 op. 158 d. 81 Adm. sud. zav. Planovyi... 1946, pp. 20-22.

75. "100 tysiach rublei demobilizirovannym," Martiets, 25 May 1946, p. 2.

76. "Priznat' k poriadku grubiianok," Martiets, 15 June 1946, p. 2.

77. E. N. Kharlatov, Komsomol pomoshchnik partii v gosudarstvennom i khoziaistvennom stroitel'stve. (Moskva: Gos-izd., 1949), p. 16.

78. TsGAMO F. 7721 op. 1 d. 9 Pod. zav. tsvet. met. Prikazy... 1948, Prik. no. 53, 1 June 1948, pp. 1-2.

79. **See**, for example, "Berezhno okhraniat' ogorody," Martiets, 2 Aug. 1947, p. 2.

80. Gail Lapidus, "The Female Industrial Labor Force, Dilemmas, Reassessments, and Options," in Blair Ruble and Arcadius Kahan, eds., Industrial Labor in the USSR. (New York: Pergamon, 1979), pp. 236-237.

81. David Granick, The Red Executive. (New York: Anchor, 1961), p. 90.

82. Lapidus, pp. 236-238. Lapidus notes that Soviet wage structures were not designed with a single bread-winner in mind. This put many unmarried, post-war women workers in particularly difficult positions. The application of the phrase, "feminization of poverty," reflects my own judgment.

83. The leading, highly-bonused Stakhanovites were, almost without exception, male direct-production workers. Men, while constituting less than 60 percent of the workforce, made up over 75 percent of those included in the Factory Book of Honor. **See** TsGASP(b) F. 9510 op. 1 d. 320 Lenobkoma... Stakhanovtsy..., 1950, pp. 32-72, and **also** FMLAV Kniga... 1946-1947, pp. 1-54.

84. **See** "8 Marta mezhdunarodnyi zhenskii den'," Martiets, 8 March 1946, p. 1.

85. "Patriotiki Rodiny," Martiets, 3 March 1950, p. 1, and **also** Steven Kotkin, Magnetic Mountain: Stalinism as a Civilization. (Berkeley: University of California Press, 1995), p. 221.

86. "Trudovye uspekhi byvshikh frontovikov," Martiets, 21 Feb. 1948, p. 1.

87. TsGAMO F. 7721 op. 1 d. 9 Pod. zav. tsvet. met. Prikazy ..., 1948, Prik. no. 53, 1 June 1948, pp. 1-2.

88. TsGAMO F. 4855 op. 1 d. 17 Moskovskoi ... Protokoly ..., 1946, no. 18, 13 May 1946, pp. 159-160.

89. RGAE F. 8899 op. 2 d. 107 Min. sud. prom. Prikazy ..., 1946, Prik. no. 56, 6 Feb. 1946, pp. 1-4.

90. **See**, for example, TsGAMO F. 7721 op. 1 d. 22 Pod. zav. tsvet. met. Obiasnitel'naia zapiska... 1949, p. 37.

91. **See** "Kollektivnyi dogovor," Martiets, 12 March 1949, p. 1.

92. "V preiemnoi direktora," Sudomekhovets, 5 July 1947, p. 1.

93. The "Stalinist Victorian" Nikol'skii displayed zero tolerance for such behavior, but I have not been able to determine whether his attitude was typical of enterprise managers. **See**, for example, TsGAMO F. 7721 op. 1 d. 27 Pod. zav. tsvet. met. Prikazy... 1950, Prik. no. 257, 19 Sept. 1950, pp. 1-2.

94. TsGASP(b) F. 1511 op. 162 d. 2 Adm. sud. zav. Otchet ogorodonoi-zhivotnovodcheskoi kommissii zavkoma, 1948, pp. 1-10. In 1948, 1444 out of the 1700 ogorodniki at Admiralty were female. The one worker who received premiia for this sort of work was a male driver and automobile mechanic from the transport shop.

95. **See**, for example, Martinov, Glozman, Shestakov, questionnaires, p. 1, 1 and 1.

96. "Kak ia ogorodnikam," Martiets, 19 April 1946, p. 2.

97. "Individualnyi ogorod," Martiets, 27 March 1948, p. 2.

98. **See** TsGASP(b) F. 1511 op. 158 d. 1 Adm. sud. zav. Otchet Ogorodno-zhivotnovodcheskoi komissii zavkoma 1947, pp. 1-3.

99. "Stakhanovtsy veterany otechestvennoi voiny," Martiets, 6 May 1950, p. 1.

100. Marina Azarenkova, Internatsional'nye sviazi leningradskikh rabochikh s trudiashimsiia sotsilisticheskikh i kapitalisticheskikh stran, 1949-1960 [aftoreferat] (Leningrad: Gos-izd., 1986), p. 9.

101. FMLAV Detskii... 1949-1950, pp. 1-20.

102. Glozman noted the inferior labor status of women at Admiralty Shipyards and was, in his reminiscences, highly critical of other aspects of post-war reality. He, however, along with other Admiralteitsy such as Shestakov, strongly emphasized the shared nature of the period's optimism. Men and women, regardless of occupation, "believed that tomorrow would be better." Despite the at-times grim living conditions, Admiralty's workforce was for Glozman truly a "collective" in terms of shared feelings of accomplishment and hope.

Gail Lapidus, in her longer-term work on female labor force participation in the USSR, found that economic need continued to be the driving force behind the continuing trend of high female employment in the USSR. Official support for the social role of the traditional family was, however, also solidified in the post-war years. Women in families with higher incomes were somewhat more likely to withdraw into domesticity. In the 1970s, women's participation in the labor force increased to 51 percent of the national working population. Despite the continued gap in income, skill and status between male and female workers in the USSR, women continued to value employment for its intrinsic value, "contribution to economic independence, social status, and personal satisfaction." **See** Glozman, pp. 1-3, Shestokov, p. 2; Lapidus, in Ruble and Kahan, pp. 235-239.

103. "Vsesoiuznyi...," Bloknot agitatora no. 20, 1946, p. 1.

104. **See**, for example, TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly... 1950, no. 5, pp. 14-20.

105. TsGASP(b) F. 9510 op. 1 d. 342 Min. sud. prom. Po klubam ..., 1950, pp. 21-38.

106. TsGASP(b) F. 9510 op. 1 d. 342 Lenobkoma... Po klubam... 1950, pp. 32-36.

107. **See** Thomas Lahusen "On Roots and Rhizomes." (unpublished paper, 1996).

108. TsGASP(b) F. 9510 op. 1 d. 342 Lenobkoma... Po klubam ..., 1950, pp. 32-40. Of the seven official amateur arts groups at Admiralty, six were involved with musical, dance or dramatic performances, while the seventh organized excursions to museums, the ballet and concerts in Leningrad. Five of the seven groups were headed by women. In every case, the female directors had led their respective groups since their establishment at Admiralty Shipyards in 1944 or 1945.

109. TsGAMO F. 7721 op. 1 d. 7 Pod. zav. tsvet. met. Kollektivnyi... 1947, pp. 1-2.

110. **See**, for example, "Organizovat' massy," Martiets, 19 April 1946, p. 1; and **also** "Russkaia pesnia," Martiets, 12 April 1946, p. 2; "Temy, plany, literatura dlia provedeniia besed na predpriatiiakh na mai 1948," Bloknot agitatora, no. 10, 1948, p. 45. "Partorganizatsiia v bor'be za kachestvo produktsii," Martiets, 5 Aug. 1949, p. 2.

111. **See** Kotkin, p. 230.

112. **See** Argyrios Pisiotis, "Images of Hate in the Art of War" and **also** Harold Segel, "The Drama of Struggle: The Wartime Stage Repertoire," in Richard Stites, ed., Culture and Entertainment in Wartime Russia. (Bloomington: Indiana University Press, 1995), pp. 108-125 and 141-156. Pisiotis concludes that the Soviet political elite turned toward Russian nationalism as a unifying and motivational theme because they viewed it as necessary to achieve victory. The fact that many non-Russian peoples had fallen under Wehrmacht occupation in the early stages of the war also made the shift less divisive in wartime practice.

113. Robert Rothstein, "Homeland, Home Town, Battlefield: The Popular Song," in Stites, Cultures..., p. 90.

114. Solomon Schwarz, Evrei v Sovetskom Soiuze. (New York: Praeger, 1966), pp. 205-206.

115. The term "heroic achievement" has been used by Sheila Fitzpatrick in her description of workers' reactions to Stalin's industrialization drive of the 1930s. **See** Sheila Fitzpatrick, Education and Social Mobility in the USSR, 1921-1934. (Cambridge: Cambridge University Press, 1974); and **also** Shestakov, pp. 1-2.

116. Mosykhin, pp. 1-3; Yakov, pp. 1-3; Ryzhkov, pp. 1-2; Klenov, pp. 2-3.

117. Shestakov, pp. 1-2; Klenov, p. 2.

118. Iurasov, p. 146.

119. In Klenov's view, the period's heavy-industry "accent" was correct. He demonstrated his devotion to his country through his own successful efforts to "master German technology." Shestakov and Glozman explicitly noted the link in the mindset of the shipyard's workers between their recognition of progress in their own enterprise and their positive view of national developments and direction. Mikhail Glozman also mentioned the widespread belief that the Fourth Five-year Plan represented the "right direction" toward a better life. Nikolai Klenov was also proud of the efforts, roles and cooperation of Admiralty and Sudomekh (he and Shestakov worked at both facilities between 1945 and 1950) in contributing toward building a strong country. **See** Glozman, p. 1; Klenov, pp. 2-4; Shestakov, p. 2.

120. While these funds were, in most cases, formally provided by the stricken worker's trade union, at Podolsk Director Nikol'skii's approval of the disbursement was evidently necessary. Demobilized veterans and their families received preferential treatment in regards to such payments. **See**, for example, TsGAMO F. 4855 op. 1 d. 17 Moskovskoi ... Protokoly preziduma obkoma soiuza matalloizdelii, 1946, pp. 9-13; and **also** TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly... 1950, no. 1, pp. 1-3.

121. Kotkin, p. 366.

122. Ryzhkov, pp. 1-2; and **also** Kotkin, p. 271.

123. Ryzhkov, pp. 1-2.

124. **See** Iurasov, p. 167; TsGASP(b) F. 9510 op. 1 d. 342 Lenobkoma... Po klubam, p. 33; and **also** V. P. Ostrovskii, Istochniki popolneniia proizvodstvenno tekhnicheskii intelligentsii SSSR v gody 4-i piatiletkii [aftoreferat] (Leningrad: Istorizheskii hauk, 1973), p. 9.

125. TsGAMO F. 7721 op. 1 d. 32 Pod. zav. tsvet. met. Spravka... 1950, p. 1.

126. Straus, p. 235.

127. Some of the numerous examples of this phenomenon can be found in the following: FMLAV Dom... 1947-1948; FMLAV Detskii... 1949-1950; "Itogi smotra krasnykh ugolkov,"

Martiets, 3 Dec. 1949, p. 1; TsGAMO F. 7721 op. 1 d. 39 Pod. zav. tsvet. met. Protokoly... 1950, pp. 58-70.

128. Even during the disastrous year of 1950, when the Podolsk Factory was essentially defunded and industrial accidents were occurring in pandemic proportions, technical work on getting the Tottenguss method operating at the factory was completed. Nikol'skii also praised many of Podolsk's brigades for continuing their excellent work even in the "conditions of a general absence of production power." TsGAMO F. 7721 op. 1 d. 11 Pod. zav. tsvet. met. Planovyi... 1950, p. 2.

129. Lewis Siegelbaum and Daniel Walkowitz, Workers of the Donbass Speak: Survival and Identity in the New Ukraine, 1989-1992. (New York: SUNY University Press, 1995), pp. 11-12.

130. Siegelbaum, Workers..., pp. 12-27.

131. Siegelbaum, Workers..., pp. 28-38.

132. Padraic Kenney, Building People's Poland: Resistance and Transformation in Working-Class Communities and the Coming of Stalinism to Poland, 1945-1949. (unpublished dissertation, University of Michigan, 1992), pp. 325-332.

133. Kenney, p. 340.

134. Kenney, p. 326.

CONCLUSION

HEAVY-INDUSTRIAL RECONSTRUCTION

IN HISTORICAL PERSPECTIVE

Mark Harrison has concluded that the Stalinist system proved itself "highly adaptable to war" between 1941 and 1945.[1] Evidence I have gathered from the records of heavy-industrial enterprises such as Admiralty Shipyard and the Podolsk Factory of Non-Ferrous Metals, from their respective controlling Ministries (Shipbuilding and Non-Ferrous Metallurgy), and from the 1946-1950 national economic data for Soviet heavy industry lead me to conclude that the Stalinist system also proved to be surprisingly flexible and successful in heavy-industrial reconstruction and reindustrialization efforts undertaken between 1946 and 1950.

The extent of the USSR's ability to absorb German trophy technology at the shop-floor level was demonstrated at both Admiralty and Podolsk. Admiralty Shipyards embodied the reconstruction era's heavy-industrial production rebound. Podolsk was also a productive and (notably) a profitable facility, in spite of its many problems, until a deliberate decision to defund it in 1949.[2] While the results of that decision were wasteful in terms of the investment already made in transferring the factory from Germany and disastrous for Podolsk itself, the decision was also indicative of the post-war heavy-industrial system's intense efforts to remain on the cutting edge of technological advances. Such technological dynamism is a truly unexpected find in the years of the Zhdanovshchina and its spirit of xenophobic pokazukha. The

trophy technology effort seems to have been the basis of the USSR's post-war super-power status and the foundation of a Soviet technological heyday--the momentum of which stretched into the late-1950s.

Technology was by no means the only sphere in which the late Stalinist system approached problems relating to the heavy-industrial reconstruction effort with a good deal of pragmatism and realism in planning and execution. The center proved flexible enough to allow power to flow downward through the industrial hierarchy, often down to the enterprise level. A fairly free play of economic forces was also permitted. Yet, the Soviet political hierarchy was able to continue to demand and receive performance and production from the nation's heavy-industrial enterprises.

The post-war years saw a renewed stress by the political elite on the notion of enterprise profitability. Stalin himself stated this bluntly in his tract Economic Problems of Socialism. The goal of profitability indeed was achieved for the aggregate of "A" sector heavy-industrial enterprises in the Fourth Five-Year Plan period.[3]

Limited market mechanisms were allowed to function and this, in conjunction with the period's labor shortage, produced an environment in which post-war heavy-industrial workers could exercise choice in a number of areas. Despite the clearly negative impacts of such flexible policies on regional planning goals, industrial sector "A"-"B" balance and

labor turnover, the era's political leaders and influential branch ministry bureaucrats consciously continued to allow a basically free labor market. They evidently astutely judged that it would allow the "best return" on the "scarce resources" they had at their command.[4]

The "return" they sought was clearly still a heavy-industrial one. While the trophy technology effort demonstrated that post-war Soviet industrial policy was not simply a return to a fixation on steel, as some scholars have incorrectly stated, the post-war era witnessed a continuation and intensification of the pre-war policy of emphasizing heavy, and specifically, military-related industry.[5] These pre-war trends were bolstered both by the lessons of World War II and by the demands of the looming Cold War. Adherence to the policy of giving priority to heavy industry in the post-war years was publicly restated on numerous occasions--to the point of becoming a mantra. Thus, in sum, the complex realities of the post-war reconstruction effort in heavy industry can be understood, in one sense, as the outcome of the state's rigid devotion to an emphasis on heavy industry and the often unplanned results of the converse conviction that flexibility, "formalization of the informal," and not rigidity was needed to achieve the USSR's top-priority heavy-industrial goals.[6]

I must note, however, that despite this work's exclusive focus on heavy industry and its judgment of post-war heavy-

industrial outcomes as "successes," it is necessary to acknowledge that the post-war era's unrelieved stress on heavy industry directly and indirectly caused crippling problems for Soviet light-consumer industries and agriculture. The dramatic economic recovery produced in the 1946-1950 period was thus severely unbalanced. Nor can one fail to mention other problems, existing inside and outside of the heavy-industrial sphere, that have made the Stalinist post-war era justly infamous. These include, but are not limited to, the continuing hyper-militarization of Soviet society, uneven modernization of industrial labor processes, limited diffusion of new technology, an appalling record of industrial work safety, flagrant disregard of environmental issues, the swelling of the already vast gulag system through the influx of millions of repatriated Soviet citizens and foreign and Soviet POWs, intensified political and cultural repression, state-sponsored anti-Semitism, and ethnic wars and deportations.

In defining success in the heavy industrial, productivist terms that the Soviet regime of the reconstruction period saw as primary, it becomes clear, however, that the recovery effectuated between 1946 and 1950 was truly remarkable. It was also indicative of a system that, despite its record of inhuman brutality and allegedly fundamental structural inefficiency, was still dynamic and very capable of overcoming daunting problems and achieving the ambitious goals it set for

itself. A balanced and nuanced view of the post-war years must necessarily include the amazing successes and triumphs achieved in the heavy-industrial reconstruction and technological modernization drives along with the era's horrors. The 1946-1950 period can be seen in retrospect as one characterized by starkly contrasting dualities.

One such duality was the contrast between the period immediately following the end of the war and the subsequent turnaround that began in 1947-1948. This recovery was characterized by such events as a gigantic productive surge in heavy industry and the elimination of rationing. The economic losses of the war had been so great that historians have often resorted to quantifying them in the form of how many years the 1940 labor force would have had to work in order to make them up. Estimates (excluding human costs) have generally ranged from seven to ten years.[7] While wartime economic efforts, highlighted by the eastward relocation of many key heavy-industrial enterprises, were remarkable, total industrial production still stood below the pre-war level in 1945. A further severe blow was dealt the Soviet economy in that year and in 1946 when a series of disruptions occurred, ranging from the abrupt cutoff of Lend Lease to the discontinuity caused by peacetime industrial reconversion and the return of displaced persons to their pre-war homes.

Total industrial production fell 12 percent in 1945 and another dizzying 16 percent in 1946.[8] At the enterprise level,

the economic crisis of 1946 was characterized by a good deal of chaos, shortages of materials, and a wide range of responses by enterprise managers. Conditions prevailed that were eerily similar to the problems currently plaguing industry in Russia and the other post-Soviet successor states. Within the Ministry of Non-Ferrous Metallurgy's enterprises, oil and electrical energy were in short supply. Wage deficit backlogs appeared. The industrial norm system was thrown into near chaos. Widespread illegal trading and withholding of workers' wages by managers, embezzlement of trophy equipment, and general disorganization were rampant. The Ministry at first responded with a blanket crackdown. Later, however, it relaxed regulations on trade and other forms of barter between enterprises inside and outside its purview. It must also be noted that, despite the shortages and difficult conditions, many of the Ministry's enterprise managers somehow managed to scrape together resources to send skilled production workers idled by material shortages on paid vacations in order to retain them. Conditions at the Ministry's rest homes were such, however, that some of these workers fled back to their idle factories.[9]

Confusion and chaos also reigned within the Ministry of Shipbuilding's hierarchy. Production slumped due to shortages. Training programs within the Ministry's enterprises and technical schools operated at less than three-quarters of the planned capacity due to lack of resources, general chaos, and

a lack of classroom space. Evidently not knowing what else to do with them, or not having the resources to provide for them, desperate enterprises sent idled workers to the Ministry itself. In cities such as Leningrad, shipbuilding workers lived in half-ruined, bombed-out hostels that lacked hot water.[10]

Nearly identical policies of decentralization in some areas and increased monitoring and crackdowns against corruption in others eventually helped restore order in both ministerial hierarchies. Loosened restrictions over areas such as labor recruitment and inter-enterprise trade went hand-in-hand with invigorated controls over trophy technology in heavy-industrial enterprises, as well as close checking of production claims. Misuse of valuable trophy equipment or falsely inflated reporting of production figures could bring rapid, stiff penalties.[11] Such general duality of method was broadly characteristic of Soviet post-war heavy-industrial policy. Choices made consciously and embodying seemingly contradictory elements of centralization and decentralization, formality and informality were, on the whole, effective in stabilizing the situation in heavy industry in 1946 and in promoting technological progress, improved living standards for industrial workers, increased labor productivity, and overall production gains in the years that followed.

Increasing stability within the Soviet industrial structure after the war produced a generally cooperative

production environment that was characterized by shared interests among managers and workers at enterprises such as Admiralty and Podolsk. A technology- and productivity-focused approach to work elevated technical progress and the principle of professional one-man management over the claims of Zhdanovite ideology, the Party structures in individual heavy-industrial enterprises, and themes of class conflict. Production workers, technical specialists, and managers worked in an atmosphere far different from the one of deadly vituperation that had often characterized the industrialization drive of the 1930s. Despite the relaxation of its political grip and the accompanying lack of a renewed series of purges within heavy industry, the central political authorities retained their powers to break inter-enterprise or inter-ministry bureaucratic logjams when they occurred.

The overall situation within heavy industry could not have contrasted more sharply with the situation in agriculture. In a practical policy sense, this contrast mirrored the intellectual one between the sciences of genetics and physics. Drought and flight from the land caused 1946 to be a disastrous year for Soviet agriculture as well as for Soviet industry. In the agricultural sphere, however, kolkhozniki subsequently found themselves consistently on the losing end of economic policies that benefitted urban workers during the 1947-1950 period. The decentralization and flexibility that characterized policy in heavy industry was

altogether missing from post-war Soviet agricultural policy. Instead, the emphasis was on a repressive, restrictive campaign to "liquidate breaches" that had manifested themselves in the structure of the collective farm system during the war.

While intensive focus and investment incentives, unrestricted intellectual and technological exploration, and market forces characterized the heavy-industrial sphere, the agricultural sphere was dominated in an intellectual-scientific sense by the regime of Lysenkoism. The kolkhozy themselves were assigned a low economic priority and were officially banned from participation in the national electrical network. They also endured a campaign to roll back the "encroachment" of private plots onto collective lands. Urban in-migration by economically disadvantaged kolkhozniki was permitted and even encouraged by the regime in order to alleviate urban industrial labor shortages. As a result, the USSR emerged from the early post-war period as a more highly-urbanized society.[12]

Such conscious duality by the Stalin regime in the treatment of different intellectual and economic spheres also was apparent in the contrast between the free and open climate enjoyed by metallurgists, physicists, ship designers, etc. in pursuing their work in the enterprises, chief administrations, and ministries of heavy industry, and the highly repressive

climate that prevailed within Soviet society outside of the military and heavy-industrial realms.

While the cultural and artistic intelligentsia of Leningrad, for example, saw their "vague dreams of a thaw" brutally shattered by the Zhdanovshchina and its anti-cosmopolitan campaign, Admiralty's workers, technicians and engineers could internally contrast their exciting freedom to explore new trophy technology and advance themselves through the acquisition of new technical knowledge with the "repressive atmosphere in the arts" that they could see around them.[13]

Indeed, this specific connection between their own fortunes, the victorious state's continuing emphasis on heavy-industrial and military power, and the system's validation in the war itself was at the center of the high labor morale that heavy-industrial workers and technical specialists demonstrated in the 1946-1950 period. Faith and progress were in the air. Looking back on these "golden years," one Admiralty worker remarked, "Everyone believed in the future."[14] Stalin and the system he headed not only gave workers and the ITR the intellectual "thaw," in terms of technical knowledge and exploration of the possibilities opened up by the influx of trophy technology that it denied to the cultural intelligentsia, but it also paid them comparatively higher wages. Heavy-industry workers enjoyed

better access to consumer goods and economic conditions were generally slanted in their favor.

Cheap and readily-available foodstuffs bolstered workers' spirits and lifted urban living standards, after the elimination of rationing, far above those endured during the war's dire conditions. In looking back at those times, one must not lose the perspective that despite continuing shortages of consumer goods and housing space, workers of the period most assuredly judged their living standards and, indirectly, the direction of their society, against the yardstick of their own past experiences. The privations of the war had brought rations of 200 grams of bread per day to workers in besieged Leningrad. By 1948, the very appearance of the city's residents presented a sharp contrast to the war years in the eyes of contemporary observers: "the gaunt strained faces of the war had fleshed out. The contrast with 1945 was astonishing."[15]

Part of the explanation behind this change was the targeting of foodstuffs production and supply as an area of concentration by the regime. The altered post-war urban-rural economic balance also played a role. While a full explanation of how the regime kept the cities fed between 1946 and 1950 will come only with further research into post-war Soviet agriculture and the food industry, one apparent explanation is that there were simply fewer mouths to feed.

The nation's population rebound from the catastrophic losses of the war began only in 1949. Even by 1950, the Soviet population was over 20 million people smaller than the 1941 population had been.[16] In a piece of truly tragic and Malthusian irony, the extent of human losses during the war seemingly allowed stagnant post-war agricultural production to satisfy the demands of urban labor more effectively than before the war.

The post-war years saw Herculean labor efforts; at Admiralty there are accounts of men and women working 90-hour shifts with only brief rests. A highly productive labor force like that of Admiralty was also not a unique case. Overall industrial labor productivity for the Fourth Five-Year Plan period rose a reported 37 percent. This figure is remarkable, indeed, in that it includes less productive light industries and was achieved despite the wartime destruction, physical plant reconstruction, sporadic and/or chronic supply problems, and technological retooling that defined the post-war labor environment in Soviet industry.[17]

If their efforts are any indication, heavy-industrial workers were willing participants in the reconstruction effort overseen by the Stalinist political elite and the branch ministries. Indeed, given the emphasis placed upon heavy industry by the Soviet state, and the various measures that directly and indirectly contributed to making the heavy industrial ITR and direct-production workers privileged

members of post-war society, it is unsurprising that many workers saw the "unity of [their] own interests with those of the Soviet state" during the 1946-1950 period.[18]

Sharp overall workforce and social stratification existed, however, during this post-war period. There were not only yawning rural-urban divergences and heavy-industry versus light-industry inequalities, but there were also intra-enterprise gaps that separated skilled and unskilled workers and men and women. While there is evidence of resentment on the part of some women workers, it must also be remembered that they were not operating in a social vacuum. As noted in Chapter Four, direct-production and technical opportunities for women, while falling off from the high of the war years, exceeded those that had been available in the pre-war years.

For peasants recruited into support staff or construction jobs, the direction was clearly up. Women and men involved in non-direct production labor received fewer benefits but also lived in the same triumphant society that had passed the hard test of war and emerged as a world power. Progress was undoubtedly being made around them as well. While total industrial production at the end of 1945 stood at only 92 percent of the 1940 level (and fell by another 16 percent in 1946), from 1947 through 1950 the Soviet economy as a whole grew at over 20 percent a year. Workers' increased productivity was a strong component of these successes in the heavy-industrial sphere. In the Ministry of Non-Ferrous

Metallurgy, for instance, labor productivity growth in 1947-1948 exceeded 124 percent of an already-ambitious target.[19]

Despite a lagging and probably stagnant agricultural sector and a light-industrial sector that did not meet its planned production targets, the Soviet economy gained astonishingly in the early post-war years, as compared to the U.S. economy. By 1950, the Soviet economy was 25 to 33 percent larger than it had been in 1945, relative to that of the United States. Though it can be argued that the intense concentration on heavy industry distorted the reconstruction effort in the USSR, it is still notable that despite the enormous human and material losses suffered, Soviet growth rates also outstripped those of Western Europe during the 1946-1950 period. Total GNP stood at 1.6 times the 1940 level. By 1950, Soviet industrial production stood at 73 percent above the pre-war level. The Fourth Five-Year Plan for industry had been fulfilled in four years and three months.[20] The economy's reconstruction and expansion had been spearheaded by the effort in heavy industry. "A" sector heavy-industrial output stood at 189 percent of the 1945 level in 1950. The Fourth Five-Year Plan's ambitious targets for heavy industry were overfulfilled by 128 percent.[21]

Such heavy industry-led success in the USSR's post-war reconstruction drive most certainly reinforced the pragmatic direction of allowing freer play of economic forces within this favored sphere. With its basic priorities being

reflected, the political elite chose to not intervene to try to solve a series of unplanned "distortions." These included high (although declining) labor turnover rates, failures to achieve the desired regional production balance, and a six-percent tilt in favor of "A" sector industries at the expense of light industry.[22]

A series of factors that included, but were not limited to, the existence of a free labor market, the decisive power of the technically-defined branch ministries, availability of incentives, the use of "super-enterprises" to produce B sector goods as secondary production, and the functioning of the industrial system itself on the basis of the fulcra of resource allocation and performance analysis served to magnify the weight of established industrial regions and heavy industry within the industrial system. One has only to examine the progress made between 1946 and 1950 and the way central-political and ministerial leaders responded to an issue such as turnover to determine, however, that such problems were less the result of chaos than of conscious choices by planners who intelligently exhibited flexibility and sacrificed notions of scientific, taut and precise command and control to the goal of rapid industrial reconstruction--a thorough-going "formalization of the informal." Other choices, such as the lack of concern about safety and environmental issues, also were chillingly conscious. Problems such as exclusive focus on short-term planning, unsafe work environments, uneven

technological emphasis, over-militarization and environmental indifference were, and are, however, hardly unique to the post-war USSR.[23]

This dissertation thus stands as a challenge to the broadly-prevailing notion, born in the collapse of the USSR in 1991, that the Soviet Union was a failed society throughout its history. In successfully rebuilding and rapidly upgrading a devastated heavy-industrial structure, Soviet workers, engineers, ministerial bureaucrats and political elites in the 1946-1950 period laid the foundations for their nation's emergence as a post-war superpower. The supposedly fundamentally flawed, incapable, and inflexible Soviet heavy-industry system, here characterized as a hierarchy of dual-dependence as opposed to an "administrative-command" system, generally faced the daunting productive, labor, technological and administrative challenges of the heavy-industrial reconstruction effort with relentless and ruthless determination. More surprisingly, the Stalinist system and those who composed it also consistently displayed flexibility, adaptability, innovation and pragmatism.

In her ground-breaking work In Stalin's Time, Vera Dunham spotlighted the trends in Soviet literature during the late-1940s and early-1950s that de-emphasized the role of the "heroic worker." In a later article, she documented the continuation of this trend into the 1960s and 1970s. Indeed, she noted that by the 1970s, "remaining a worker [was] not

altogether a happy idea" in the USSR.[24] By showing evidence of high labor morale and of the relatively favorable status accorded workers on early post-war heavy-industrial shop floors, I hope to contribute to a modification of Dunham's "Big Deal" approach in regards to the question of post-war industrial labor in the USSR.

Far from casting them aside as part of a "Big Deal" with the technical intelligentsia, the Stalinist state appears to have achieved broad popular legitimacy with heavy-industrial workers in the post-war years. With a large core group of privileged returning veterans providing discipline and esprit de corps, enthusiasm among workers, engineers and managers was certainly a crucial component in the post-war heavy-industrial successes. Technical education and heavy-industrial privilege worked to unite, rather than divide, workers and engineers. The flexibility shown toward workers in such matters as the ability to change jobs indicates that labor was **included** in a post-war "deal" with the regime that provided numerous benefits in return for higher labor productivity and the attainment of heightened levels of technical skill. As Hiroaki Kuromiya has noted concerning the years of the First Five-Year Plan, "So uncritically have Western historians assumed that Stalin intimidated and terrorized the whole society that the question of popular support has largely escaped them."[25] If anything, such assumptions and oversights regarding the Stalinist post-war years have been even more acute.

While further research into the industrial scene of the 1970s would be necessary to investigate whether Soviet literary depictions of industrial workers more closely reflected a negative shop-floor reality for workers in that decade, one could also approach the question through a broader comparison of national morale and direction between the two periods. Dunham's own comments about the situation in the mid-1970s indirectly indicate the possible fruitfulness of such an approach. The 1970s malaise and lack of literary "hero status" for workers prevailed, in spite of the fact that wages were quite high if judged against the standards of earlier and harsher times. Dunham cautioned, however, that "man does not live by bread alone."[26]

In order to place the post-war industrial reconstruction effort in such a longer-term context, however, it is also necessary to note certain of the period's more obvious shortcomings and dysfunctionalities. It is clear that even within its successes there lay seeds that would later poisonously blossom into crippling systemic problems.

In this latter context, I believe that further research into the later Khrushchev and (in particular) Brezhnev periods is necessary to test and further flesh out the tentative arguments broached in some detail below. Such work can produce a greater understanding of why positive reconstruction-era trends such as adaptability and signs of growing native innovation in relation to technology failed to continue in

later years while other deleterious trends more fully manifested themselves.

The post-war reconstruction effort left many existing inefficiencies and dichotomies inherent in the Soviet system either still in place or further reinforced. While in view of the tense international situation, the post-war decision to concentrate upon rebuilding heavy industry and national military power was not an illogical one, the gap between the might of the heavy-industrial sphere and the backwardness of the rest of the Soviet economy widened.

Soviet society's very "modernity" was thus even more uneven than it had been before the war. While many broad generalizations about Soviet economic inefficiency contain questionable built-in assumptions about the essential efficiency of Western capitalist economies, it is also clear that, even in the favored heavy-industrial sphere, the Soviet economy suffered from such fundamental problems as uneven technological progress and overconsumption of raw materials and labor that helped produce shortages of both. While such problems did not prevent state planners and heavy-industrial enterprise managers from achieving their reconstructive, productive, and technologically transformative goals in the post-war era, the experiences of Admiralty and Podolsk also appear to demonstrate that no real systemic progress was made in addressing these shortcomings.

Other changes occurred, or were cemented, in the post-war years, however, that altered the predominant social discourse. How the USSR viewed itself, in terms of the ways both political elites and ordinary people understood, evaluated, delimited and defined their society, changed. Evaluations of purpose and success were altered. Egalitarian goals and beliefs, even Marxist-Leninist ideology itself, were devalued in practice. Their hollow shells remained, as at Admiralty and Podolsk, formally in place but dimly understood and vaguely resented as time-wasting irritants.

The war and the post-war years saw Soviet society both officially and unofficially become more fully inter-discursive. Emphases on Russian nationalism, Stalin's charismatic leadership and the "Cult of Personality," technological advancement, and military and state power had certainly all been present before and during the war. It was during the early post-war years, however, that these new discursive components became more fully socially entrenched and both officially and popularly "normalized"--validated by success in both destructive war and reconstructive peace. The new official symbols and popular cults often had little to do with Marxist-Leninist ideology as such from the time of the post-war era onward.

Post-war Soviet society's chief idols and icons were increasingly those produced by its reconstructured and reindustrialized heavy-industrial power. Rockets, tanks and

missiles, not social achievements or Marxist slogans or banners, were the highlights of May Day parades. The "Great Patriotic War" itself also became a secular state religion with its own cast of dead martyrs and living, privileged heroes.

Specific examples of the former transformation can be seen in the 1946-1950 period itself. For Muscovites in the late-1940s, demonstrations and airshows at the Tushino Airport and other Moscow Military District airfields that tested the limits of the new jet aircraft technology were, in many ways, the defining social events of the era. Stalin, sensing the strengthened faith that the shows would produce and their social resonance, cast aside the usual veil of secrecy and displayed the new aircraft for the public. Hundreds of thousands flocked to see these demonstrations of their nation's new military-technological might. Stalin himself displayed keen interest in the specifics of the new technology and often attended the airshows. His son Vasilii piloted some of the new jets.[27]

At heavy-industrial enterprises like Admiralty, managerial rhetoric about the need to become "the most advanced nation in the world in shipbuilding" resonated with workers and engineers who had little understanding of, or time for, the specifics of Marxist-Leninist doctrine. Communist Party member and Admiralty worker Nikolai Vasilievich Klenov stated that, in the post-war era, he had been proudest of his

efforts in promoting the introduction of new technology and thus helping to "build a strong country" in the reconstruction era. Other Admiralteitsy echoed his sentiments.[28] Later, these same sentiments found substantiation in national veneration for the Soviet space program and hero status for its pioneering cosmonauts such as Iuri Gagarin.

Military and heavy-industrial power were, in large part, manifestations of a more open emphasis on state power. During the war, state and national survival had often been linked as much to Russian nationalism as to Marxism-Leninism. For the Russian people, World War II had been, in the words of one experienced foreign observer, a truly "patriotic war," in which battles had been fought "not for communism, but in defense of people's homes, their land, their culture and traditions--yes, even their Orthodox Church--to which the war had brought a new lease on life."[29] As has been shown in a multiplicity of ways in this dissertation, Russian nationalism was further entrenched within heavy industry and society in the reconstruction era. This consolidation consisted of developments that ranged from the use of Russian folktales and traditional heroes as examples in mobilizational propaganda at Admiralty and Podolsk to broader, and at times uglier, manifestations in the wider post-war culture that ranged from the spirit of pokazukha to the anti-cosmopolitan campaign.

Russian nationalism was a unifying, rallying force at heavy-industrial enterprises such as Admiralty and Podolsk. It

also was one of the post-war period's lasting influences, along with the renewed stress on military and heavy-industrial technology, on the group of Soviet leaders who succeeded Stalin. As we have seen, the following generation of Soviet leaders were members of a Communist Party that, while remaining crucial for personal career advancement, had become imbued with various emphases that sharply diverged from Marxism-Leninism. While the Party's role was generally an ancillary one to that of the state structure during the period of 1946-1950, demographically the KPSS rebounded from pre-war purges and wartime losses. By 1950, new members had increased the Party rolls to a total of 6,304,000 (including candidates)--up from a pre-war total of 3,400,000, with much of the increase coming in the 1946-1950 period.[30]

The politically formative experiences of the new group of members largely occurred in the post-war period. Another closely-related point was the fact that post-war heavy industry with its strong valuing of Russian nationalism, technological power, and productivity over political activity or theoretical training formed the spawning ground for this next generation of Soviet leadership. In 1966, fully 65 percent of the Central Committee were men who had backgrounds of higher technical education. The members of the Politburo in the 1970s had been even more strongly linked with technology and industry; 80 percent had engineering or other higher technical education degrees.[31]

Thus, while the Party's prestige, power and checking role vis-a-vis state authority was reinvigorated following Stalin's death, the KPSS emerged from war and reconstruction "economized," "nationalized," "technologized." Marxist-Leninist theory in the USSR survived the early post-war years as an increasingly distant abstraction. Official Soviet state post-war ideology and political discourse with its heavy dose of traditionalism, technologism, Russian nationalism and statism had evolved in new directions. These proved workable in the 1946-1950 period, but would, in the longer-term, lead to problems.

National tensions, already visible in the post-war years in the rebellions in the Ukraine and Lithuania, would resurface with even greater force in the late-1980s and 1990s. The more-or-less open Russianization of the Soviet system that was a rallying point for post-war workers at Admiralty and Podolsk almost certainly later helped divide Russians from non-Russians. As noted earlier, the Stalinist state put little emphasis on regional balance. The post-war industrial reconstruction drive was disproportionately centered in the traditional Russian industrial regions. The urbanization of the Russian population that occurred in the early post-war years, as the opportunities created by the reconstruction drive in heavy industry drew people to the cities, later helped produce lower birthrates. The demographic balance

within the USSR between Russians and non-Russians began to shift in favor of the latter.

While determination of how other reconstruction era trends played themselves out in later years is more speculative, it is possible to present some "informed possibilities" (pending further research into the 1951-1991 period). The officially sanctioned devolution of power and accompanying greater security of tenure that characterized the reconstruction drive in heavy industry initially worked well, in part because of popular faith in Stalin's personal leadership and because the post-war political elite as a whole still possessed the will and dynamism to intervene when necessary to break bureaucratic logjams, harshly punish the corrupt or inefficient, tightly monitor the introduction and employment of trophy technology, and so on.

The various leadership groupings that followed Stalin's rule lacked either the will or power to intervene. The post-war era's mixture of faith, stability, and lingering fear were replaced with near absolute security of tenure and eventually systemic corruption--a form of corrupt, in the words of James Millar, "acquisitive socialism" that reached full flower during the era of stagnation (zastoi) in the late-1970s and early-1980s under Leonid Brezhnev.[32]

Soft budget constraints, low growth rates, structural "clientelism," and a "cult of nonwork" dominated the industrial scene.[33] While much of the period of zastoi seems

far removed from the successes of post-war reconstruction, one can see many possible links. In a general sense, the pragmatic "formalization of the informal" inherent in late Stalinist acceptance of such things as extensive and essentially unregulated inter-enterprise trade can be seen as a precedent for the unofficially tolerated broader "gray market" of the Brezhnev era. An even more direct connection can be seen between the privileged motor pool workers at Podolsk and the later "snowdrops" (podsnezhniki) who filled positions such as that of chauffeur on heavy-industrial enterprise payrolls in the 1980s, even though they fulfilled little other function than serving the personal needs of the managers.[34]

Having abandoned all but the empty vestiges of socialist ideology during the early post-war years, post-Stalin Soviet society also lacked leaders of Stalin's (albeit often horrific) popular stature. Late Soviet observer David Shipler noted telling comparisons between popular reactions to Stalin and Brezhnev:

> 'When Stalin had something to say, the whole country hushed down,' a young linguist recalled admiringly. University classes stopped. Factory work came to a halt. Everyone hung on every word. 'What is he saying? Shh.' Now, when Brezhnev says something there is just a weary sigh, 'Oh he is at it again ...' Roy Medvedev told me once that he was struck by the difference as he was strolling in Gorky Park, where loudspeakers were broadcasting a Brezhnev speech. Stalin's voice would have had everyone in rapt attention ... But as Brezhnev droned on over the loudspeakers, the crowds went about their business as if unintrusive background music were being played. "I have never come across any portraits of Khrushchev or Brezhnev in private apartments," said Roy.

Shipler also observed a subtle but widespread "nostalgic affection" for Stalin and his era among both party members and ordinary people in the 1980s. The Admiralteitsy that I interviewed in 1994 at times expressed similar opinions and feelings. Such sentiments have often been attributed by Western authors such as Shipler and David Remnick, implicitly or explicitly, to unbalanced, anti-democratic, and destructive characteristics inherent in the Russian national character.[35] In comparing overall national and social dynamism between, for example, the 1946-1950 period and the 1976-1980 period, one is left, however, with the morally uncomfortable conclusion that such "nostalgic affection" was not completely irrational.

The inability of the USSR to maintain the military-industrial parity vis-a-vis the West that it had achieved during the post-war reconstruction drive through the advances brought by the successful integration of trophy technology may well have led both political elites and the population at large to judge their own nation and system harshly. Given the emphases on technology prowess and heavy-industrial might that had been solidified in the post-war years, technically-trained elites who had lived through the period had surely internalized these priorities. For whatever combination of reasons, neither the positive hints of native innovation or the broader technological adaptability that had characterized the 1946-1950 heavy-industrial reconstruction effort manifested themselves after the 1950s. The space race to the

moon with the U.S. was lost. By the 1970s, the technology gap between the U.S. and the USSR was "visibly and dramatically increasing." Even by the 1960s, the reconstruction-era promise that the Soviets had shown in computer technology was a distant memory. Western nations had surged far ahead and, in a larger sense, the USSR missed out on the computer revolution altogether.[36]

In part, it might have been the experience of the successful trophy technology effort during the late Stalin years that caused Soviet political elites (many of whom, as former engineers and technical specialists, had been directly or indirectly involved with the absorption of German technology after the war) to look once again toward the West rather than inward for technological solutions.

By the 1970s, the impetus of the trophy technology effort of the post-war years had exhausted itself. The "plundering" mentality of the Soviet leadership toward technology, however, remained. Once again, in the 1970s, a truly massive technology acquisition drive was mounted. Little had been imported between 1951 and 1970. By 1980, roughly 10 percent of all new industrial equipment being installed in the USSR was of Western origin. In contrast to the circumstances prevailing in the earlier trophy technology effort, however, the costs for the USSR of acquiring Western technology were quite high and rose steadily throughout the 1970s.[37]

Alec Nove cautioned convincingly that it is impossible to determine precisely the impact of technology imports on the Soviet economy in the 1970s or during any other time period. Such answers can only be provided in "general terms."[38] This restriction also applies to any comparison between the technological acquisition and modernization drives of the Stalinist late-1940s and early-1950s and of the Brezhnevite 1970s. In broad terms, however, the outcomes of the two drives seem to have been quite different.

By 1980, above-board business dealings, along with techno-espionage, had once again brought a wave of foreign technology to the USSR. Perhaps because of the greater complexity or different nature of the technologies involved, perhaps because of the lack of strong leadership from the top levels of the political structure and the ideological and moral enervation of Soviet society in the 1970s and 1980s, attempts to once again "catch up and overtake" on the basis of rapid absorption of foreign technology proved largely unsuccessful. The computer gap remained; in the 1980s, the strategic threat inherent in the proposed U.S. "Star Wars" missile defense system seemed visibly to highlight Soviet technological inferiority.

Foreign equipment installed in Soviet factories was once again subject to widespread misuse and cannibalization. Soviet industrial production itself took on an increasingly nonuniform and "untechnological" character. Even in favored

heavy industry, technological progress stagnated. By the 1980s, even heavy-industrial "super-enterprises" such as the Zlatoust Metallurgical Factory, which produced high-grade steel alloys for Soviet "airplanes, missiles, and atomic plants," was using technological processes some 20 years out of date--methods so old that these processes were "known in the West only in textbooks, no one actually does [them] anymore!"[39]

Along with such shortcomings, the new phase of "desperate interest" in "increased access to Western technology" by the USSR and other Eastern European socialist regimes took place under a different set of basic ground rules than had the earlier trophy technology drive. While Alec Nove noted the increased costs of importing Western technology in the 1970s, Katherine Verdery in her book What Was Socialism and What Comes Next?, provides the outlines of how the resulting structural and even temporal interactions between the capitalist and socialist "world systems" contributed to the fall of the USSR and the rest of the socialist world.[40]

Western technology could no longer simply be absorbed on the USSR's own terms, as had been the case with defeated Germany following World War II. The terms of this second exchange entailed a truly Faustian bargain for the USSR. Raw materials, such as oil, were exported and Western capital imported, in the form of loans, in order to "buy advanced technology."[41] The USSR was forced into an even tighter

embrace with capitalism upon terms within which it was unable to compete or ultimately to survive. While such specifics as the drying up of Western markets due to slow growth in the 1970s, and the related cutoff in further loans in 1979-1980 played a part in the USSR's collapse, the technology-driven economic interactions had started the process by trapping the USSR into an "acceptance of capitalism's definition of social reality" that would ultimately prove destructive.[42]

The answer to why certain negative trends apparent in the post-war industrial reconstruction effort became magnified in the following years, while more hopeful patterns did not, may also lie in the realm of faith and belief. By the early-1970s, veteran heavy-industrial workers in Leningrad could already be heard to complain that the younger generation entering the factories "didn't really know or understand what life had been like [in Leningrad] during the blockade." They didn't understand either the "unparalleled sacrifice" of the war or the heroic effort that had gone into rebuilding the city and its great industrial enterprises.[43]

Indeed, the sacred memories of the war that had been so crucial in underpinning shop-floor unity during the reconstruction era, and which had been integrated into a formalized, state-sponsored quasi-religion, had also faded with time, decay, and perceptual distance. As with Marxist-Leninist ideology, the USSR's "Patriotic War" and warriors became, for later generations, incomprehensible. As the social

fabric continued to unravel into the 1990s, incomprehension was tragically replaced with anger and derision.[44]

Loren Graham wrote that, despite certain structural inefficiencies, a tendency toward "giganticism" and other problems, the Soviet system seemed to work fairly well "so long as Soviet citizens had faith in their system."[45] The post-war reconstruction drive in heavy industry was, in many ways, the last Soviet revival. It represented a final great outpouring of faith that substantiated itself in remarkable achievements.

From the perspective of the humiliating and yawning ruin of today's seemingly interminable collapse, it is perhaps unsurprising that men such as the shipbuilder Viktor Nikolaevich Mosykhin look back on the "golden years" of the reconstruction and reindustrialization drive with great emotion and longing. While Mosykhin was realistic enough in 1994 to note bluntly that he couldn't talk freely in 1949 (when he had first come to work at Admiralty Shipyard), he seemed more concerned with the post-war era's freedom from the endemic corruption, weakness, chaos, demoralization and social disintegration that today characterize the "New Russia." Mosykhin relished memories of the faith and "high patriotic feeling" that had defined the reconstruction era for him. He also expressed pride in the era's productivity and rapid technical progress. For Mosykhin, the contrast between the post-war period and the later Soviet and post-Soviet years was

simple--"we worked well then, badly later, and worse now." For Mosykhin, who would "live the [1946-1950 period] again with pleasure," and other men and women of his generation, the memories of the triumphs, hardships and faith of the reconstruction years remain a seemingly unlikely and incomplete refuge.[46]

ENDNOTES

1. Mark Harrison, Soviet Planning in Peace and War (Cambridge: Cambridge University Press, 1985), p. 3.

2. TsGAMO F. 7721 op. 1 d. 11 Pod. zav. tsvet. met. Planovyi ... 1950 Osnovnye ... 1948-1950, p. 2.

3. **See** I. V. Stalin, Ekonomicheskie problemy sotsializma v SSSR. (Moscow: Politizdat, 1952), pp. 55-56 and **also** Timothy Dunmore, The Stalinist Command Economy. (London: MacMillan, 1980), pp. 112-113.

4. Timothy Dunmore, Soviet Politics, 1945-1953. (London: MacMillan, 1980), pp. 48-57.

5. Naum Jasny, Soviet Industrialization, 1928-1952. (Chicago: Chicago University Press, 1952), p. 237.

6. The evidence presented in Chapters Two and Four in regards to central and ministerial reactions to the phenomenon of high labor turnover in heavy industrial enterprises is particularly illustrative in this regard. Evidence of the broader continuation of official emphasis on heavy industry as the linchpin of the national economy can be found, for example, in Stalin's comment that "the national economy cannot be expanded without giving primacy to the production of the means of production." **See** Stalin, Ekonomicheskie, p. 22.

7. **See** David Holloway, Stalin and the Bomb (Hew Haven: Yale University Press, 1994), p. 151 and **also** Jasny, p. 361.

8. **See**, for example, James Millar The ABCs of Soviet Socialism. (Urbana, Illinois: University of Illinois Press, 1981), p. 41; and **also** Susan J. Linz, "World War II and Soviet Economic Growth," in Susan J. Linz, ed., The Impact of World War II on the Soviet Union. (Totowa, NJ: Rowney, 1984), p. 12.

9. **See** RGAE F. 9022 op. 40 d. 39 Narkom. tsvet. met Kopii ... 1946, Prik no. 1, 3 Jan. 1946, p. 7; Prik. no. 92, 11 Mar. 1946, p. 1; Prik no. 96, 14 Mar. 1946, p. 1. And **also** RGAE F. 9022 op. 40 d. 43 Min. tsvet. met Kopii ... 1946, Prik. no. 404, 8 Oct. 1946, pp. 1-2. **See Also** TsGAMO F. 4855 op. 1 d. 23 Moskovskii ... Dokladnye zapiski 1946, pp. 15-16.

10. **See** RGAE F. 9400 op. 2 d. 5 Min. sud. prom. Glav. up. no. 2-go. Prikazy ..., 1946. Prik no. 10, 2 Feb. 1946, p. 24; Prik. no. 77, 2 Aug. 1946, p. 1; Prik no. 115, 5 Oct. 1946, p. 1 and **also** "Brak otdel pod mikroskopom," Martiets, 16 Feb. 1946, p. 2; "Pochemu ia ne vypolniaiu normy," Sudomekhovets, 24 Aug. 1946, p. 1.

11. The new restrictions on trophy technology and its use in Soviet heavy industrial enterprises are detailed in Chapter Three. Falsification of production data was also taken very seriously during the reconstruction era. Ministry of Shipbuilding and Ministry of Non-Ferrous Metallurgy officials generally moved rapidly to have such offenders arrested. For an example from the shipbuilding realm, **see** RGAE F. 8194 op. 1 d. 33, Min. sud. prom Glav. up. 4-go Prikazy, 1946, Prik. no. 241, 5 Aug. 1946, p. 1.

12. Increased output of tractors from Soviet industrial facilities was one of the few bright spots in the otherwise dismal agriculture sector. **See** Linz, "World ...," pp. 18-20; and **also** Alec Nove, "The Soviet Peasantry in World War II," in Linz, Impact ..., pp. 88-89.

13. **See** Mikhail Konstantinovich Glozman, questionnaire, p. 2; and **also** Solomon Volkov, St. Petersburg: A Cultural History. (New York: The Free Press, 1995), p. 448.

14. Iuri Ivanovich Shestakov, questionnaire, p. 3.

15. **See** Volkov, p. 436; and **also** Harrison Salisbury, Moscow Journal: The End of Stalin. (Chicago: University of Chicago Press, 1961), p. 15.

16. In the West, there was, for a time, a great deal of confusion about Soviet population data due to Soviet attempts to hide the extent of the loss of life during World War II. **See** Jasny, pp. 237-244.

17. **See** V. M. Iurasov, Admiralteitsy. (Leningrad: Lenizadat, 1976), p. 197; and **also** Profsoiuzy SSSR ..., p. 24.

18. Quotation from "Vtoroi gosudarstvennyi zaem," Bloknot agitatora, no. 13 1946, p. 18.

19. **See** Jasny, pp. 360-361 and **also** Alec Nove, An Economic History of the USSR (New York: Penguin Books, 1982), p. 293. **See also** RGAE F. 9022 op. 48 d. 47 Min. tsvet. met. Prikazy ..., 1948 Prik. no. 47, 9 Feb. 1948, p. 1.

20. Though these figures may have been slightly altered or inflated due to the use of outdated price relationships as economic indicators by Soviet planners, they still represent reasonably accurate approximations of economic performance. Later, Khrushchev-era downward revisions of agricultural production figures for the 1946-1950 period (due to the use of deceptive "biological yield"-based data and other problems) notably left industrial production figures for these same late Stalin years intact. **See** Millar, p. 50; V. A. Ezhov, Rabochii klass vedushaia sila vosstanovleniia leningrada (Leningrad:

LGU, 1982), p. 71; Jasny, p. 361; Soobshchenie Gosplana ..., p. 2; and **also** Narodnoe Khoziaistvo SSSR 1922-1982. Tsentral'noe statisticheskoe upravlenie SSSR iubileinyi statisticheskii ezhegodnik. (Moskva: Finanasy i statistika, 1982), p. 55.

21. Timothy Dunmore, The Stalinist Command Economy. (London: MacMillan, 1980), pp. 117-120.

22. Dunmore, Stalinist, pp. 100-103.

23. **See** Stephen Crowley, Hot Coal, Cold Steel. Ann Arbor: University of Michigan Press, 1997), p. 36.

24. Vera Dunham, "The Waning Theme of the Worker as Hero in Recent Soviet Literature," in Blair Ruble and Arcadius Kahan, eds. Industrial Labor in the USSR (New York: Pergamon, 1979), p. 400.

25. Hiroaki Kuromiya, Stalin's Industrial Revolution: Politics and Workers, 1928-1932 (Cambridge: Cambridge University Press, 1988), p. xvii. Obviously any attempt to determine definitively whether the Stalinist state enjoyed broad popular legitimacy during the 1946-1950 years or any other period would be a difficult and complex task. Nevertheless, it is important to remember that the fact that the USSR clearly had lost any form of legitimacy by 1991 did not mean that it did not enjoy it in 1950. Nor do the trials and tribulations suffered during the post-war period by such groups as peasants and declassed female wartime workers necessary mean that the Soviet system, as a whole, was no longer regarded as "legitimate" by these people.

26. Dunham in Ruble, Industrial ..., p. 400.

27. **See** "Dual Over Korea ..." videocassette, 50 min.

28. **See** "Nashi zadachi v novym godom," Martiets, 3 Jan. 1946, p. 2; Klenov, p. 2 and **also**, for example, Ryzhkov, p. 3.

29. Margaret Wettlin, Fifty Russian Winters. (New York: Wiley and Sons, 1994), p. 247.

30. **See** Dunmore, Soviet, pp. 30-40. And **also** Narodnoe khoziaistvo SSSR 1922-1982, p. 48.

31. **See** Kendall Bailes, Technology Under Lenin and Stalin. (Princeton: Princeton University Press, 1978), p. 6.

32. James Millar, ed., Cracks in the Monolith: Party Power in the Brezhnev Era. (Armonk: Sharpe, 1992), p. xii.

33. **See** Katherine Verdery, What Was Socialism and What Comes Next (Princeton University Press, 1995), pp. 22-23.

34. Lewis Siegelbaum, "Freedom of Pries and the Price of Freedom: The Coalminers' Dilemma in the Soviet Union and its Successor States," unpublished manuscript, 1946, p. 7.

35. **See** David Shipler, Russia: Broken Idols, Solemn Dreams. (New York: Times Books, 1983) p. 315; David Remnick, Lenin's Tomb: The Last Days of the Soviet Empire. (New York: Random House, 1993), pp. 129-140; and **also** Petr Ivanovich Ryzhkov, questionnaire pp. 2-3; Nikolai Vladimirovich Martinov, questionnaire, pp. 2-3; Aleksandr Ivanoivich Yakov, questionnaire, pp. 3-4.

36. **See** Seweryn Bialer, The Soviet Paradox: External Expansion, Internal Decline. (New York: Vintage Books, 1986), p. 18. And **also** Clark in Graham, Science ...

37. Alec Nove, "The Contribution of Imported Technology to Soviet Growth," in Nove, ed., Studies in Economics and Russia. (New York: St. Martin's, 1990), pp. 312-314.

38. Nove, "The Contribution ...," in Nove, ed., Studies ..., p. 312.

39. **See** Sergei Alasheev, "A Special Kind of Love," in Simon Clarke, Management and Industry in Russia (Cambridge: Cambridge University Press, 1995), p. 90. And **also** David Hoffman, "Russia's Industrial Black Hole," Washington Post (National Weekly Edition) Dec. 16-22, 1996, p. 14.

40. Verdery, p. 19.

41. Verdery, p. 32.

42. Verdery, p. 37.

43. Anna Osipova, Uvazhenie ... kak ego zavoevat' (Leningrad: Lenizdat', 1982), p. 10.

44. For a detailed account of the rise and fall of the USSR's World War II cult, **see** Nina Tumarkin, The Living and the Dead (New York: Basic Books, 1994). The privileges afforded World War II veterans (derisively referred to by skeptical and resentful later generations by the acronym "vovy") caused anger and intergenerational strains by the late-1980s and early-1990s.

45. Loren Graham, Ghost of the Executed Engineer (Cambridge: Harvard University Press, 1993), p. 4.

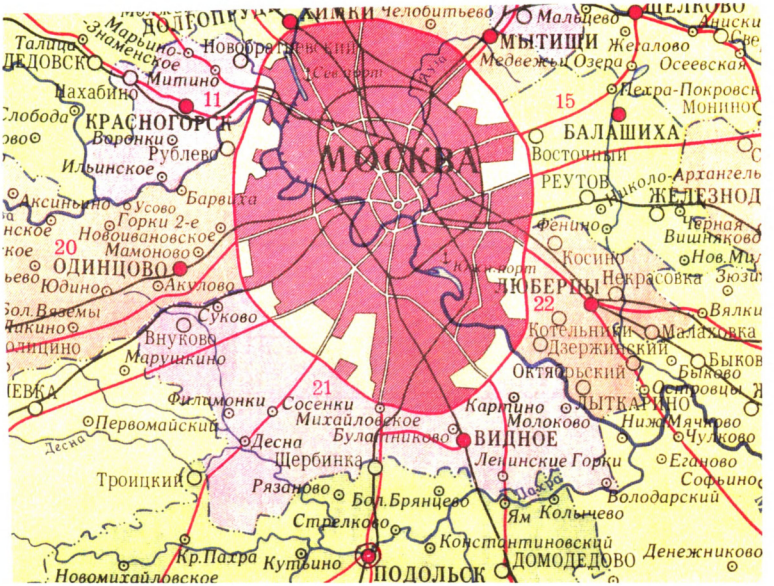
46. Viktor Nikolaevich Mosykhin, questionnaire, pp. 1-3.

APPENDIX

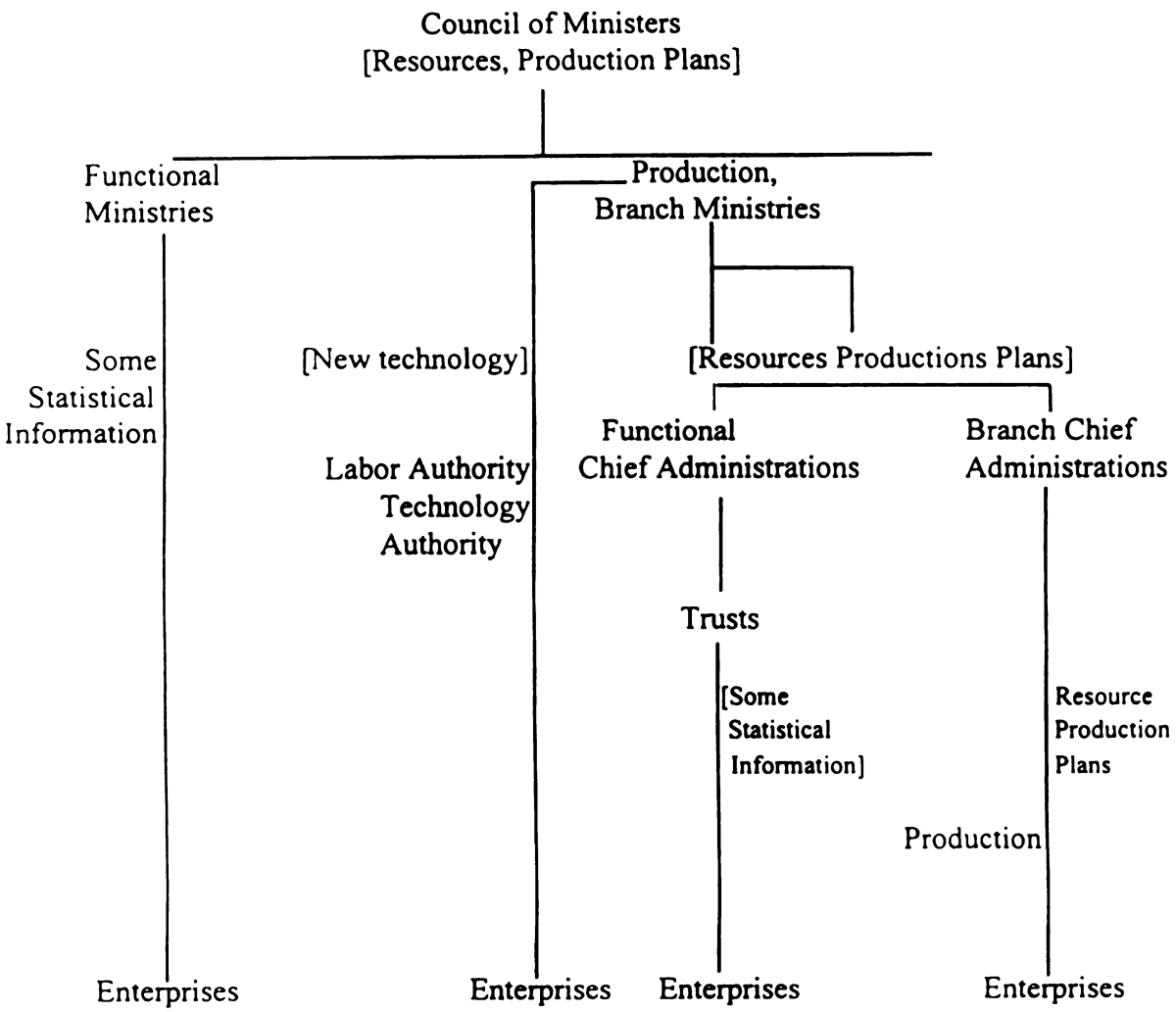
Map Section

Maps show circled areas indicating the location of Admiralty Shipyard in the 200-block along St. Petersburg's Fontanka Canal and the location of the town of Podolsk, south of Moscow (where the relocated Podolsk Factory of Non-Ferrous Metals was established and began operations in the 1946-1950 period).

BOL'SHAYA NEVA
FONTANKA
MOYKA
GRIBOYEDOVA KANAL
GALERNYY OSTROV
Prospekt
Nab.
Pereulok
Ploshchad
Most
Admiralteyskiy Kanal
Antonenko pereulok
Astoriya Hotel and Restaurant
Sinyy Most
Interflug and LOT
Inturist
Isaakiyevskaya Ploshchad
Isaakiyevskiy Most
St. Isaac's Cathedral
Admiralty
Admiralteyskaya Ploshchad
Admiralteyskiy Most
Bol'shoy Morskoy Pereulok
Podbel'skogo
Central Post Office
Telephone Service
Bul'var Proletariyata
Leonova
Konnogvardeyskiy p.
Ploshchad Truda
Truda
Gagarina
Kuybysheva
Kommunisticheskaya
Ploshchad Lenina
Lenina
Kamennaya Kanal
Nab. Kanala Kutuzova
Kutuzova
Nab. Kanala Admiralteyskogo
Nova
New Holland
Museum of the History of Leningrad
Krasnoarmeyskiy Most
Nab. Reki Moyki
Moyki
Fonarnyy
Prachechnyy p.
Pereulok Grivtsova
Grivtsova
Pereulok Gribanova
Gribanova
Gribanovskaya
Ploshchad Dekabristov
Dekabristov
Pedyashevskiy Most
Pedyashevskaya
Pod Yelagin Most
Pod Yelagin Bridge
Pod Yelagin Ploshchad
Pod Yelagin Prospekt
Srednyaya Pod Yelagin
Kanala Griboyedova
Griboyedova
Rimskogo-Korsakova
Rimskiy p.
Rimskogo-Korsakova Most
Rimskogo-Korsakova Prospekt
Dvortsovaya Naberezhnaya
Dvortsovaya Ploshchad
Dvortsovyy Most
Dvortsovyy Proezd
Dvortsovaya Ploshchad
Dvortsovaya
Dvortsovyy Most
Dvortsovaya Naberezhnaya


МОСКВА
ДОЛГОПРУДНЫЙ
ДМИТРОВ
Челобитьево
Мальцево
МЫТИЩИ
ЩЕЛКОВО
Талицы
ДЕДОВСК
Марьино-Знаменское
Новобратцевский
Медвежьи Озера
Осеевская
Митино
Нахабино
11
15
Некра-Покровское
Монино
Слобода
КРАСНОГОРСК
БАЛАШИХА
Вороньки
Рублево
Восточный
Ильинское
Барвиха
Николо-Архангельское
Аксиньино
Усово
ЖЕЛЕЗНОДОРОЖНЫЙ
Горки 2-е
Новоивановское
Фенино
Черная Грязь
Вишняково
20
Мамоново
Косино
Нов. Мир
ОДИНЦОВО
Юдино
Акулово
Некрасовка
Зюзино
ЛЮБЕРЦЫ
22
Бол. Вяземы
Суково
Вялки
Никино
Внуково
Котельники
Малаховка
Дзержинский
Марушкино
Быково
Октябрьский
Быково
21
Филимонки
Сосенки
Картино
ЛЫТКАРИНО
Островцы
Первомайский
Михайловское
Молоково
Нижние Мячково
Десна
Булатниково
ВИДНОЕ
Чулково
Ленинские Горки
Егиново
Щербинка
Троицкий
Рязаново
Бол. Брянцево
Володарский
Ям
Колычево
Стрелково
Константиновский
Кр. Пахра
Кутьино
ПОДОЛЬСК
ДОМОДЕДОВО
Денежниково
Новомихайловское

Appendix
The Organizational Structure
of Soviet Heavy Industry



Adapted from Timothy Dunmore, Soviet Politics, 1945-1953 (London: MacMillan, 1984), p.11 and also ____.) The Stalinist Command Economy (London MacMillan, 1980), pp 6-7.

GLOSSARY

Abbreviations

GRU - Chief Intelligence Directorate of the General Staff.

ITR - Engineering - technical workers.

KPSS - Communist Party of the Soviet Union.

MVD - Ministry of Internal Affairs.

ORS - Department of Workers' Services.

OTK - Department of Quality Control.

RGAE - Russian State Archives of the Economy.

FMLAV - Fund of the Museum of the Leningrad Admiralty Shipyard.

TsGAMO - Central State Archives of Moscow Oblast'

TsGASP(b) - Central State Archives of St. Petersburg.

Russian Words

vydvizhenstvo - upward mobility.

dom otdykha - rest (vacation) home.

edinonachalie - one-man management.

zastoi - stagnation.

koldogovory - formal collective agreements between managements and trade unions in Soviet industrial enterprises.

komandirovka - work assignment usually involving travel away from a worker's regular place of employment.

l'goty - releases from collective farms granted to peasants recruited by industrial enterprises.

ogorodniki - "volunteer" weekend agricultural laborers.

orgnabor - labor recruitment drive.

otdel kadrov - personnel department.

pokazukha - nativist boasting.

praktiki - non-degreed, direct-promotee workers.

premiia - bonuses.

pusk - on-line, operational

rabotniki - direct-production workers.

ratspredlozhenie - efficiency suggestions.

rekordmenstvo - record-mania.

sluzhashchie - support staff.

sodruzhestvo - partnership, harmony.

spetseedstvo - formal or informal harassment of engineering-technical personnel.

stengazety - motivational bulletins posted on the walls of industrial shops.

tekuchest' - turnover

tolkachi - expediters.

trofeinaia tekhnologiia - trophy technology.

frontoviki - former combat soldiers.

sharashki - research and design camp facilities staffed by prisoners.

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F. 1511 Admiralty Shipyard
F. 9510 Leningrad Oblast' Committee of the Trade Union of Workers of the Shipbuilding Industry

Central State Archives of Moscow Oblast' (TsGAMO)

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	1948-1949
Admiralty Shipyard	1947-1948
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