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WORKERS AT WAR: FACTORY WORKERS AND LABOR POLICY IN THE SIEGE OF LENINGRAD

Richard Bidlack

**University of Pittsburgh Center for
Russian and East European Studies**

Richard H. Bidlack is an Assistant Professor at Washington and Lee University in Lexington, Virginia. He earned his PhD in History from Indiana University in 1987. He is the guest editor of "The Soviet Union and the Second World War," *Soviet Studies in History*.

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In all of Soviet history from October 1917 to the end of 1989, two *events or crises*, namely the Civil War and the Soviet-German War of 1941-45, have represented the greatest challenges to the existence of the regime and, one might argue, have had the greatest impact on subsequent political, diplomatic, social, and economic developments. An entire generation of Western historians has revised and deepened our understanding of the Revolution and Civil War period; however, a scholarly re-examination of the conflagration of 1941-45 and its impact is still in the initial stages.¹

The contrast between Soviet and Western attention to the Soviet-German War is striking. Since the end of the war, Soviet eyewitnesses, historians, and propagandists have published roughly 20,000 monographs (that is, an average of more than one per day) on the "Great Patriotic War."² This body of literature, of course, was subject to strict censorship, particularly during the Brezhnev years. The level of permitted discussion began to increase marginally in the early 1980s, several years, in fact, before Gorbachev's appeal to historians to fill in the "blank spots" of Soviet history revolutionized the Soviet historical profession. In comparison, Western studies on the Second World War's "Eastern Front," though not suffering from censorship restrictions, number only in the hundreds. Over the past decade very few English-language doctoral dissertations have been written on any aspect of that theater of the war.

Studies devoted to Leningrad during the German and Finnish siege, which in its 872 days killed, according to most reliable estimates, somewhat more than one million Leningrad civilians (a total close to the entire number of U.S. military personnel killed in all wars from 1776 to the present), reflect a similar balance. Soviet scholars have produced scores of works on various aspects of the siege, though discussion of politically sensitive topics, such as the war-time actions of city leaders who later perished in the notorious "Leningrad Affair," has yet to appear in detailed monographic form.³ In the West, only two significant studies, those of

Leon Goure and Harrison Salisbury, have been published on the Leningrad siege.⁴

This paper examines an important aspect of life within the siege ring upon which Western studies have shed little light: the actions of factory workers and the development of a city labor policy.⁵ The paper provides a chronological overview of the siege, and within that context is most concerned with three sets of questions.

First, how did the process of “building socialism” in the 1930s affect how workers responded to siege conditions? Did rapid industrialization, collectivization, the “Great Terror,” Baltic wars of annexation, and other events serve in any way to prepare Leningraders for a major international war? As students of Soviet history more thoroughly investigate the war years, the question of the impact of events of the 1930s on performance in the war will likely become more important.

The second group of questions concerns the mobilization of workers for emergency war tasks. How important were factory workers to the defense of Leningrad in the summer of 1941 and throughout the siege? What role did workers play in liberating the city? How effectively did Leningrad Party and government organs, the Military Soviet of the Leningrad Front (*Voennyi sovet Leningradskogo fronta*, or *VSLF*), and the State Defense Committee (*Gosudarstvennyi Komitet Oborony*, or *GKO*) in Moscow mobilize Leningrad’s workers? Did conflicts exist between Leningrad’s leaders and the Kremlin regarding the fate of Leningrad and, if so, how did their differing views affect Leningrad’s work force?

Finally, what sort of survival strategies did Leningraders generally, and workers in particular, devise in the attempt to survive the siege, and what role did the work place play in their plans? Did Leningraders think that status as a worker (*rabochii*) would enhance their chances of surviving? Did it?

The 1930s As “Preparation” for the Siege?

Was national defense capability strengthened by the Stalinist policies of 1928-40?

One might object that this question is not the appropriate one, because from the vantage point of the 1920s, war between Germany and the USSR was not inevitable. Using this reasoning, one ought rather to ask to what degree Stalin's policies contributed to Hitler's rise to power and eventual decision to attack the Soviet Union. That is to say, could Stalin have prevented Hitler's ascent in 1933 by supporting the German Social Democrats against the Nazis, and would Hitler have ordered Operation Barbarossa had Stalin not purged the armed forces or had the Red Army not performed so poorly against Finland in the Winter War? It is interesting to note that Soviet historians are beginning to blame Stalin's policies for influencing Hitler's decision to invade.⁶

Yet even if we acknowledge that had Stalin pursued a different program in the late 1920s and 1930s Germany might not have invaded the USSR, we can still ask how Stalin's pre-war policies affected the nation's ability to fight a major war. To answer this question, historians have to draw up a grand balance sheet of those factors that strengthened national security and those that weakened it. On the “strengthened” side, one would include the rapid construction of railroads and defense plants and the stockpiling, especially during the abbreviated Third Five-Year Plan, of war materiel.⁷ One would also include the war materiel and technical expertise the Soviet Union received from Germany as part of the Molotov-Ribbentrop Pact and, at least in theory, the “buffer zone” that the Red Army grabbed at the expense of the Soviet Union's western neighbors.

The other side of the balance, however, would appear to have a longer list. Policies that weakened national security would include: forced collectivization of agriculture and the accompanying “terror-famine”; the incredible amount of human and material waste that resulted from the diz-

zying pace of industrialization; the staggering loss of industrial and, more importantly, military talent in the purges; the tremendous losses taken in the Winter War and the inciting of *revanchist* sentiment among the Finns and Baltic peoples following annexations of their lands; the failure to move defense lines quickly forward into the buffer zone before June 1941; and the shipment of large quantities of raw materials to the German war machine.

Deciding which side of the balance has the weightier arguments is not within the scope of this paper, though this author is more convinced by arguments emphasizing weakened national security. What is relevant is one particular aspect of this broad question. Historians generally have not examined the *impact* on the working population of those policies that weakened national defense and the *effect* that adapting to the extreme hardships of the 1930s had on workers. Although no one could have realized it at the time, how workers responded to the ordeals of the 1930s in some ways helped prepare them for deprivations that the war would bring. This is especially true of Leningrad. The effects of the Five-Year Plans, collectivization, purges, and Baltic wars bore some similarities to situations that would emerge during the siege, and the responses that the Party, government, factory management, and labor devised in the 1930s were often the basis of emergency programs adopted during the siege.

The experience that Leningrad's leaders and factory workers gained in the 1930s from coping with crowded and filthy housing and in fighting hunger proved valuable during the war when these problems returned in more acute forms. The failures of collectivization, for example, prompted party leaders to impose food rationing in Leningrad between 1930 and 1935; a similar rationing program would return in July 1941. In addition, during the 1930s workers helped make up for food shortages by planting their own private gardens and collectively tilling large factory "auxiliary farms" (*podsobnye khoziaistva*) on the outskirts of the city. In 1942, gardening and farming became the single most important occupation for many workers.⁸

The "Great Purges" of the 1930s, particularly from the Kirov assassination through the so-called *Ezhovshchina*, had a devastating effect on Leningrad's industrial personnel.⁹ However, for those not sacked from their jobs or otherwise "repressed," the purges provided tremendous opportunities for career advancement. And, those who advanced up the job ladder the fastest had the best reasons to be the most loyal to the Stalinist system. The careers of Aleksei Kosygin and Dmitrii Ustinov are but extreme examples of this phenomenon at work in Leningrad.¹⁰ In general, the beneficiaries of the terror were younger than its victims and, by June 1941, Leningrad's factories had many young and often ambitious managers who had recently been promoted to their positions. Accompanying their sense (or at least public expression) of loyalty was no doubt a healthy fear of the NKVD and an awareness of how tentative their positions were. The combination of these sentiments may help explain why order prevailed at factories during the most terrible periods of the siege.

The Winter War of 1939-1940 forced Leningrad's workers to assume many new responsibilities. Since Leningrad served as the main arsenal for the Red Army in that war, workers had to expand the range of war materiel they produced and learn to coordinate prompt deliveries to the Army. Workers also had to form special teams to go to the front to make emergency repairs.¹¹ They would perform these functions again in 1941-44.

The Winter War overloaded the already strained transport system and prevented coal from reaching Leningrad, causing widespread power outages. In February 1940, many factories had to halt production temporarily just as they had occasionally been forced to do during the 1930s. This prompted a wider search for local fuels, primarily peat and shale, to replace coal. Locating sources of nearby fuels and organizing their procurement prepared workers for 1941-44 when greater shortages occurred. At least one major factory, *Bol'shevik* (which produced steel and armaments), on the eve of the German invasion expanded its power plant to compensate for city power shortages.¹² Factories such as *Bol'shevik*

that could generate their own electricity in the winter of 1941-42 when city power plants shut down, were better able to transform workshops into self-supporting enclaves and maintain production of materiel for the front.

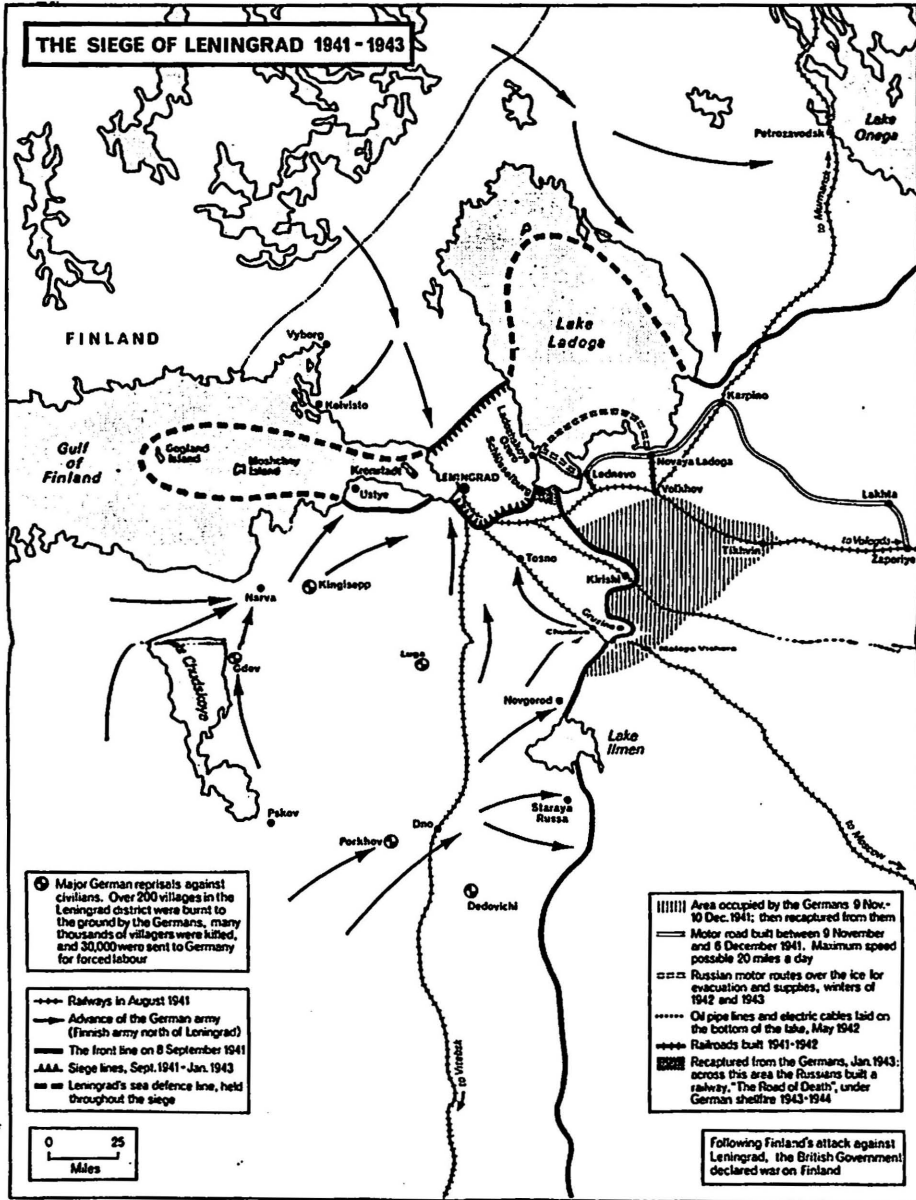
In summary, many of the hardships workers had to confront in the 1930s reappeared in even more threatening forms in 1941-44. In some specific ways what Leningrad's workers experienced before the war constituted valuable "training" for the ultimate struggle during 1941-45.

War Mobilization During the Summer of 1941

The time between the beginning of the German invasion and the start of the siege of Leningrad can be divided into four periods: the offensive of German Army Group North to the Luga River defense line between June 22 and July 9; German regrouping and resupply at the Luga between July 9 and August 10; the resumption of the advance on Leningrad between August 10 and August 20; and the enemy's approach to the outskirts of the city beginning on August 21 and leading to the severance of the city's last overland link to the rest of the country on September 8.

Most factory workers, especially in defense plants, were exempt from the decree mobilizing military reserves issued during the first day of the war.¹³ This, however, did not stop a significant percentage of the city's workers from volunteering for military duty. On June 22, some 100,000 Leningraders volunteered, including many thousands of factory workers. It would appear that most of these civilians volunteered freely, since party agitators generally did not begin to pressure people to volunteer for several days. By the end of the first week of the war, 212,000 of the city's civilians had volunteered for military service.¹⁴

On June 27, the city committee (*gorkom*) of the Party decided that from among the growing multitude of volunteers, it would form several divisions not unlike civilian divisions created in Petrograd during the Civil



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War and in the spirit of the popular militias of 1812. Leningrad became the first city to form a mass army of civilians separate from, but subordinate to, the Red Army. The Central Committee of the Communist Party subsequently made Leningrad's effort the model for other cities to follow.¹⁵ Forming the volunteer army was perhaps the quickest and boldest initiative taken by the *gorkom* at the beginning of the war. So quickly did the city's leaders act that for several days the army lacked an official name. Only after Stalin addressed the nation on July 3 for the first time since the invasion and ordered the formation of "people's militias" (*narodnye opolcheniia*) in all cities threatened by enemy attack did Leningrad's civilian divisions receive a permanent designation.¹⁶

Approximately 60 percent of those selected for *opolchenie* service in the summer of 1941 (or roughly 67,000 people) were factory workers, mainly from defense-plant giants, such as the *Kirovskii* plant (the nation's largest factory, which produced tanks and artillery guns, among other things), *Stalin* (metallurgy and metalworking), *Bol'shevik*, *Elektrosila* (electric-power generators), and *Skorokhod* (footwear).¹⁷ Party selection committees filled *opolchenie* ranks largely with skilled defense-plant workers precisely because these workers had been exempt from the mobilization of military reserves and thus were practically the only sizable core of hale and hearty young men left in the city. *Leningradskaia pravda* boasted that factories sent "the best of the best" workers to the *opolchenie*.¹⁸

The first three *opolchenie* divisions consisted almost entirely of factory workers, and the first division was formed mainly at the *Kirovskii* plant. These early divisions were sent to front lines along the Luga River. They received less than a week of training and were very poorly armed. Many had no rifles and carried only grenades, knives, pikes, and bottles filled with gasoline (Soviet literature does not use the term "Molotov cocktail," which was coined by the Finns during the Winter War). It is not surprising that most never returned from the front. Later *opolchenie* divisions fared

only slightly better in fighting in the region between the Luga River and Leningrad.¹⁹

It is clear in retrospect, and should have been perceived at the time, that far better use could have been made of the skilled workers who joined the *opolchenie*. To the volunteers themselves (many of whom thought they had volunteered for reserve training), especially those from major defense plants, their plight must have seemed absurd: Tank-assembly workers, carrying old, bolt-action rifles were ordered to stop German tank corps, while their fellow workers manufactured some of the war's most powerful tanks, the KV series. To managers, the mass exodus of workers was a nightmare; even with fully manned workshops, most factories would have been hard pressed to meet emergency war assignments.²⁰ By dispatching metal cutters, smelters, fitters, welders, and assemblers to the front, Leningrad, and much of the rest of the nation were deprived of some of the most important human cogs of the nation's defense machine. The practice of not taking into account likely casualties was, unfortunately, common among high Soviet officials throughout the war.²¹

Moreover, it cannot be shown that sending untrained *opolchenie* units to fight at front lines near Leningrad produced positive military results. On the one hand, it is true that the German delay at the Luga was crucial to Leningrad's defense. On the other hand, it is not at all clear that the soldiers in street clothes slowed the German advance to any great extent before it reached the outskirts of Leningrad. Leningrad benefitted more from sending hundreds of thousands of civilians to bury mines, dig trenches, and build pillboxes, tank traps, and barricades than it did from dispatching *opolchenie* soldiers to battle Panzer units.

The military reservists and *opolchenie* volunteers who left Leningrad for the front included a very large part of the city's Communist Party, a reflection in part of the Party's concern over maintaining front-line discipline. Seventy percent of the city's pre-war party members and 90 percent of the Komsomol ended up fighting at the front.²² Primary Party Organizations (PPOs), especially in factories, were sharply reduced in size

as 95.8 percent of all PPO secretaries left the city at the start of the war. When the siege was finally lifted, there were only half as many PPOs as in June 1941, and total party membership had dropped to about one-third of its pre-war level.²³ Many factory party committees were reduced to two or three members.²⁴ Accelerated recruitment during the war replaced only a small fraction of the members who went to the front; the Leningrad Party did not recover its full pre-war size until several years after the war's end.

The sharp drop in the size of the Leningrad Party occurred at the same time that it greatly increased control over industrial decision-making, especially after links to national commissariats in Moscow were severed at the start of the siege. Thus, during the siege, the Leningrad Party had to make more decisions and carry them out with a reduced rank-and-file membership. How it was able to accomplish this task has yet to be fully explained.

Although the *opolchenie* divisions were filled mainly with factory workers, far more workers were mobilized in the summer of 1941 to build defense fortifications between the Luga River Line and Leningrad. On June 27, the *gorkom* implemented a Kremlin decree creating a sweeping labor draft, which among other things empowered Party and government organs to draft men and women ages eighteen to forty-five and eighteen to forty, respectively, to build defenses outside the city.

Relatively few Leningraders took part in fortification construction in the first couple of weeks of the war, but once the Germans took Pskov on July 8, several hundred thousand Leningraders were quickly drafted and sent to the Luga area. As the German offensive approached the outskirts of Leningrad, the proportion of workers among fortification builders increased. By the end of the year, slightly less than one-half million industrial and non-industrial workers, or over half of all workers in the city, spent time building defenses.²⁵ Factory managers naturally were reluctant to part with many of their workers at a time when raising output was crucial. Apparently some managers even resorted to firing workers who

were drafted for fortification work and left their workshops, a decree on August 9 specifically banned such firings.²⁶

In the first half of September, when the front came to within a couple of miles of the city, workers from *Kirovskii*, *Elektrosila*, *Bol'shevik*, *Lenin* (machine construction), and other defense plants in the heavily industrialized southern districts made up the vast majority of those engaged in fortification work. They erected pillboxes (nicknamed "Voroshilov hotels" for Commander Kliment Voroshilov²⁷) and barricades, turned their workshops into machine-gun nests, and camouflaged factory buildings.

Throughout the second half of 1941, many, if not most, of those who built fortifications in and around Leningrad were women under thirty years of age.²⁸ Industries such as textiles, clothing, and food that employed mainly women sent a very high percentage of their workers to construction sites. The *Skorokhod* plant provides a prime example. Consisting predominantly of women, in 1941 it sent 12,000 to build defenses in comparison to 1,000 to the Red Army and only 400 to the *opolchenie*.²⁹

If Soviet totals for fortification construction are even remotely accurate, they explain in large part why the German offensive in the northwest slowed considerably in July, when construction began in earnest along the Luga River. For 1941 as a whole, Leningrad civilians reportedly established the following defenses between (and including) the Luga Line and Leningrad:³⁰ 626 kilometers of tank traps and barriers, 406 kilometers of escarpments and ditches, 306 kilometers of wooden obstructions, 635 kilometers of barbed wire, 935 kilometers of communication lines, 49,000 large staves, 15,000 pillboxes, 2,300 observation points, 22,000 firing positions (all in Leningrad), and 35 kilometers of barricades (all in Leningrad).

While defenses in the Luga area slowed down the Germans' advance, they did not stop it completely. On August 8, the enemy offensive to breach the Luga Line commenced. By August 20, the offensive was in high gear, and Commander Voroshilov and Leningrad Party Chief Andrei

Zhdanov feared that it might soon reach Leningrad itself. They let the population know the gravity of the situation (Leningraders had been kept largely in the dark up to that time concerning the German advance on their city) and, among other actions, ordered the immediate formation of 150 armed detachments of 600 factory workers each and the merging of detachments into worker battalions. The NKVD supervised the formation of these battalions and, by the end of August, coordinated the organization of all city defenses.³¹ The battalions came to form the basis of two new *opolchenie* divisions. An attempt had been made in mid-July to form military detachments at factories (separate from the early *opolchenie* units discussed above), but that effort had made little headway. In August Leningrad authorities again did not reach their goal, but did manage by the end of the month to muster a recorded 36,658 workers in some seventy battalions.³² These workers made up an important part of the city's defense along its southern perimeter³³ as armament plants in that area assembled several very large battalions.³⁴ The battalions consisted of women, teenagers, pensioners, workers in poor health, and others who had not taken part in earlier military mobilizations and fortification work.

By mid-September the front was only two and one-half miles (or eight tram stops) from the *Kirovskii* plant and about three and one-half miles from *Elektrosila*. Workers were the mainstay of the defense in this area, particularly in the villages of Avtovo and Alekseeva just south of *Kirovskii*. They awaited an enemy attack that never materialized. In fact, Hitler had decided not to attempt to occupy Leningrad in 1941 but instead to starve the city into submission and take it in 1942. However, it is conceivable that the German High Command might have reversed its decision and ordered an invasion of at least the southern districts of the city where large defense plants were located had widespread panic broken out among workers defending those plants. Thus, the maintenance of order in worker battalions contributed significantly to Leningrad's defense in this crucial period.

At the same time that workers were assigned to emergency defense units, those who remained in their workshops had to increase production dramatically. From the first day of the war, the *gorkom* ordered all factory workers to extend their work day up to three hours per shift.³⁵ The Party relied heavily on speed-up techniques developed in the 1930s. The number of “shock workers,” “Stakhanovites,” “200 Percenters,” and “operationists” proliferated. In early July, the *gorkom* ordered all Komsomol members to fulfill their daily work norms by at least 200 percent.³⁶ By mid-July, most large factories were in operation twenty-four hours a day, and some workers were reportedly fulfilling their work quotas as much as eight times over.³⁷ For a large part of the work force the work shift had no prescribed length: workers simply had to work until they completed an emergency order. Through their “storming” efforts, Leningrad’s factory workers in July and August mastered production of eighty-four new kinds of equipment, arms, and ammunition.³⁸ These accomplishments further bolstered the city’s and the nation’s defenses.

Transforming much of the non-defense sector of the economy to war production required an enormous redistribution of workers and machines. Precisely who directed this formidable task and how they did it are topics that historians will need to research in greater depth as access to archival materials increases. What is presently known is that starting on June 30, the GKO, in conjunction with industrial commissariats, Leningrad’s Party and government leaders, military commanders, and various factory directors undertook a massive transformation of industry. In a matter of weeks they decided which factories would modify their output to become subcontractors to larger defense plants and which would cease their operations to take on simple, self-contained defense tasks, such as assembling mines, grenades, and Molotov cocktails. Appendix I provides a partial listing of factory conversions that took place, or began to take place, during the summer of 1941.

Although this Appendix does not provide an exhaustive or definitive picture of Leningrad’s industry, it does suggest that the Party and factory

administrations, both of which suffered large losses of personnel, acted quickly and decisively from the very start of the war to harness industry as completely as possible to the needs of national defense. It also suggests that the reduced core of experienced factory workers, supplemented during the second half of 1941 by new labor recruits, were quick to adapt their skills to changes in the production processes.

Furthermore, the Appendix indicates that industries made logical changeovers. Most machine-construction plants in non-defense fields switched to producing gun parts and artillery shells. Metalworking plants increased production of armored plating and artillery shells. Clothing and shoe factories appropriately went over to making uniforms, great coats, and army boots. Construction firms made materials for fortifications. Workers in beverage and perfume plants merely changed the liquid they put in bottles and produced Molotov cocktails. Finally, factories that would appear to have had no military applicability whatsoever, producing such things as toys, candy, and musical instruments, joined the mass of civilians who began to assemble simple mines and hand grenades and make Molotov cocktails. In July Leningraders made more than 700,000 mines; by the end of August, they had turned out a million Molotov cocktails.³⁹

Up to the start of the siege, the amount of war materiel produced in Leningrad increased steadily as more plants completed retooling operations. On average, retooling factories for emergency war production took about two months—just the time needed by the Germans to reach Leningrad and blockade it. Industrial planners, therefore, were faced with a dilemma. As Leningrad factories began to increase capacity for output of war materiel in late August, necessary supplies, such as food and fuel, began to diminish. Should Leningrad cut back production? The GKO decided that, having invested heavily in Leningrad's factory conversion process, it wanted to reap maximum materiel from the city for as long as possible, despite hardships imposed by the blockade. Much of the war materiel produced in the city was directed, however, not to the Leningrad

Front but to Moscow. Starting in August and continuing through the autumn when the Germans launched "Operation Typhoon," the offensive for Moscow, the GKO sent by land and air significant amounts of military hardware to its strategic reserves near the capital city.⁴⁰ As will be discussed below, the Kremlin turned a deaf ear to protestations by Leningrad's leaders that a greater share of the munitions manufactured in Leningrad be allocated for Leningrad's defense.

In order to increase production of war materiel, factories had to recruit, and subsequently train, thousands of replacement workers. From the start of the war women became the prime recruiting target. One of the most prominent official slogans in June and July was "The Motherland is in danger. Men to the front. Women to factories!" Party agitators canvassed apartment buildings, especially those belonging to factories, and drafted women for factory work. Women who had been working in non-defense industries or who were not employed because they were rearing young children took up jobs in the city's most important war plants. A number of wives of defense-plant workers went to work in the factories that their husbands had left upon going to the front.

During the summer of 1941 there was an additional way workers were mobilized for war service: They made up an estimated one-third of the recorded 636,203 people who were evacuated eastward, primarily to the industrial regions of the Urals and Siberia, before the Germans cut the last rail line out of the city.⁴¹ In the first weeks of the war, the GKO had rejected the idea of large-scale industrial evacuation from Leningrad because that would have cut production of armaments for several months. However, by July 11, after spectacular German advances along the Baltic, the GKO became convinced that an evacuation was necessary and ordered the relocation of eighty factories and most of their workers to the East.⁴² But the organizers of the evacuation had only forty-nine days before the last train left Leningrad on August 29, shortly after the Germans severed the rail lines. By that date the evacuation of factory workers and machinery had only begun. Industrial planners added further confusion to

the crisis situation by continuing to assign urgent production orders to several factories slated for evacuation.⁴³

Mass Production in the Blockaded City

The three months between the start of the siege and the onset of the terribly cold winter of 1941-42 was the most critical period of the entire war for Leningrad and its factory workers. Between August 20 and October 2, when Hitler commenced "Operation Typhoon," most of Leningrad's factory workers were preoccupied with the city's defense. (Finnish forces meanwhile halted at the 1939 boundary north of Leningrad.) When it became clear that the Germans were digging in south of Leningrad and withdrawing forces for "Typhoon," the GKO ordered Leningrad's war plants to *increase* output of materiel, much of it to be delivered by air to Moscow. As a result, during October and November, and in some cases into December, factory workers continued their "storming" work habits, logging eleven- to fourteen-hour shifts while subsisting on steadily shrinking food rations. Even between November 8 and December 9, when the enemy held the important rail junction at Tikhvin and thereby forced Soviet food convoys to lengthen their circuitous supply route to Leningrad over Lake Ladoga by about eighty miles, the GKO would not scale down its demands on Leningrad's defense plants. Factories continued to operate at or near full capacity until late November or December when city power plants could no longer supply them with electricity.

Toward the end of September, when the immediate threat of a German ground assault on Leningrad subsided, but as aerial bombardment increased,⁴⁴ Stalin sent General Nikolai Voronov, a native of St. Petersburg and a veteran of the siege of Madrid in the Spanish Civil War, to Leningrad with orders to increase the city's production of artillery guns, mortars, and ammunition and to make sure that a significant part of the

materiel was flown to Moscow. Voronov immediately ran into opposition from Zhdanov, who was demanding something quite different—that the GKO send Leningrad materiel to help it break out of encirclement.⁴⁵ In this showdown, Voronov's orders prevailed. Between October and December, Leningrad factories sent to Moscow 452 field guns (55 percent of all manufactured in Leningrad in this period), 560 mortars, 30,000 shell casings, and similarly large quantities of mines, communication equipment, and other supplies.⁴⁶

Moscow did not curtail its extreme demands when Leningrad's food supplies dropped sharply in November. Indeed, on November 13, as *VSLF* commanders were complaining of shortages of guns and ammunition, Stalin ordered Leningrad to increase further its shipments of war materiel to Moscow.⁴⁷ Toward the end of November, over half of all factory workers under the age of thirty were still achieving at least double their work norms.⁴⁸ In return, these workers received between eight and twelve ounces of bread per day (which often contained inedible additives) and on rare occasions a few ounces of groats, meat, sugar, and fat.⁴⁹

Many large industries operated at full capacity until they were cut off from the city power grid. The more important the defense plant, the longer into the autumn it received electricity. For instance, factories making army boots had to go over to manual operation in November. Most producers of guns and ammunition lost power in the first two weeks of December. The *Kirovskii* factory seems to have received electricity the longest; it maintained large-scale operations until December 20.⁵⁰

Continued high levels of production in the autumn months forced the city to consume supplies of coal, oil, and peat that it might have kept in reserve for the winter. Before the siege, Leningrad had received two-thirds of its electric power from outside the city. In order to keep industrial output high after the Germans cut the transmissions lines from the "Mainland" (as Leningraders called the rest of the nation), city power plants had to generate more electricity. Thus, when the siege began, city power plants immediately boosted their generation of current by 62 per-

cent. As late as November, more energy was still being generated inside the city than in August.⁵¹ Had the generation of electricity between September and November been closer to August's level, much of the city could have continued to receive electric power, and therefore running water, and more fuel for heat through the worst of the winter.

Maintaining high levels of output of war materiel, much of it destined for Moscow, also resulted in a sharp decline in output for Leningrad's local economy. On the eve of the war, production of goods and services for the city had occupied about one-third of the work force. This sector of the economy would have to be strengthened the most if Leningraders were to survive a long siege. The more small stoves (so-called *burzhuiki*), firewood, warm clothes, and insulation there were, the less people would suffer. Yet enterprises serving the civilian population were the first to be shut down or converted to production of war materiel. By the end of 1941, the percentage of the local economy geared toward defense production had grown from a reported 6.2 percent to 77 percent.⁵²

The emphasis on heavy, defense-related production at the expense of local civilian needs is reflected in the kinds of local fuels the executive committee (*ispolnitel'nyi komitet* or *ispolkom*) of the city soviet drafted people to gather. Peat went mainly to factories and firewood to heat dwellings. The following table shows how much of each was gathered and, by implication, clearly demonstrates the preference accorded heavy industry.

In attempting to show that Leningrad's plight going into the winter of 1941-42 was exacerbated by the GKO's heavy demands on the city's defense plants, I am not suggesting that Stalin and the rest of the GKO should have placed a higher priority on Leningrad's Security than Moscow's. Clearly, the defense of Moscow was more important, and the German threat to Moscow was very real. German forces advanced steadily on the capital in October and November; by December 2, some units had reached suburbs only twenty miles away. Although the Party had begun to evacuate its top officials to Kuibyshev and direct the war effort

TABLE I: Transport of Peat and Wood, Autumn 1941

Month	PEAT Railway Cars per Day	WOOD Railways Cars per Day
September 1941	211	1
October	227	0
November	184	15
December	133	20

SOURCE: Iu.S. Tokarev *et al.*, eds., *Deviat'sot geroichaskikh dnei* (Moscow: Nauka, 1967), 292

from there, it is possible (though unlikely, I would argue) that had Moscow fallen, the Soviet Union would have sued for peace.

Voronov's mission to Leningrad to squeeze more arms and ammunition from the blockaded and hungry city demonstrates the degree to which the Second World War in the Soviet Union was a "total" war that presented only the most difficult and complicated of choices. His visit is an example of how the GKO ruthlessly, yet on the whole rather effectively, mobilized wartime resources from distant reaches of the vast nation to meet the current crisis. Stalin and his closest subordinates considered no sacrifice too great if it served to defend national sovereignty and keep them in power. However, during the fall of 1941, the GKO might have considered one of two alternative policies regarding Leningrad. The GKO might have directed more of the materiel produced in Leningrad to the armies trying to smash the blockade. German forces kept the blockade in place by controlling a strip of land only ten miles wide along the southern shore of Lake Ladoga. The Leningrad materiel did not tip the balance in the battle for Moscow (though, of course, Stalin could not be certain of this in late 1941). Had the approximately one thousand field

guns and mortars gone instead to the Leningrad Front, the siege might have been weakened or even lifted before the end of 1941. Then, Leningrad's war plants could have contributed more to the nation's defense. The other alternative was to allow Leningrad's factories in November and December to limit production and channel the conserved fuels and raw materials to a campaign to prepare the city for the forthcoming winter. Carrying out either of these alternative policies likely would have benefitted the nation more than the policy that was followed, though further research needs to be focused on this question.

The "Hungry Winter"

When virtually every factory ceased large-scale operations by the third week in December, workers at last were able to turn their attention to their own and their city's immediate problems. But by this time it was already too late for many. Maintaining a Stakhanovite performance during three months of blockade and declining food rations had irrevocably impaired the health of a large portion of the work force. Those who maintained a modicum of strength during the winter converted workshops into nearly autonomous communities for survival. Employment as a factory worker provided many advantages, the main one being larger food rations. When rations were at their lowest level, between November 20 and December 25, factory workers received twice as much bread as did other employees, with metallurgy workers and others in "hot" workshops receiving three times as much. (See summary of bread rations in Appendix II).

Another food-related benefit of factory employment was that the largest defense plants, which the GKO wanted to keep open even if workers were performing only manual tasks and machine maintenance, received access to special food reserves. On December 21, the *VSLF*

decided to transfer to Leningrad some 300 tons of emergency food reserves from Kronstadt.⁵³ Much of it went to defense plants. Furthermore, as soon as the ice on Lake Ladoga was solid enough to support truck traffic, the *VSLF* permitted several major defense plants to send their own trucks across it to pick up food parcels.⁵⁴ In bypassing the city food distribution system, which was inevitably inefficient and corrupt to a certain extent, these plants could better ensure receiving their due allotments and might even barter for extra amounts outside the blockaded city. Workers at defense plants also obtained extra food through trips to the front either as members of repair brigades or in "goodwill" delegations. Soldiers, who received considerably higher rations than did workers (and many also ate their horses), exchanged food parcels for gifts the workers made. Some 100 worker delegations went to the front in November and December.⁵⁵ Georgii Kulagin, a manager at the *Stalin* plant, noted that he sought to visit the front as often as possible: "There I could eat until full and occasionally pick up a loaf of soldier's bread ... Without this, I would not have survived."⁵⁶

In addition to providing workers with greater access to food, factory workshops became large mutual-support centers where workers pooled their strengths to carry out essential chores. Workers formed "welfare brigades" (*bytovye brigady*), which included cleaning crews and shoe repair and sewing groups; they fixed up laundries, baths and showers; and established warming stations. These brigades, which for the most part were started by and composed of young women in the Komsomol, also took food to workers too weak to go to the factory, cleaned their apartments, attempted to place orphaned children in homes (or established their own children's homes as the *Kirovskii* factory brigade did), and arranged for burial of corpses.⁵⁷ Komsomol records indicate that about 10,000 young people participated in welfare brigades. The selfless dedication exhibited by these brigades, incidentally, has recently served as a model for the revival of voluntary charity organizations in Leningrad and other Soviet cities.⁵⁸

The factory enclave was a source of considerable human companionship during the dark, cold winter. Several factories had working public-address systems and small libraries. PPOs that continued to function maintained “red corners” (*krasnye ugly*), where workers could warm up next to a small stove, talk with friends, read the daily *Leningradskaiia pravda*, and listen to propaganda lectures. Lectures focused on patriotic rather than political topics. Rarely was the Communist Party itself the subject of an official talk. Heroes from Russian history were frequent subjects, and the most frequent included the exploits of Nevsky, Donskoi, Minin, Pozharsky, Suvorov, and Kutuzov. Talks on Russian literature were also prevalent with the writings of Tolstoy, Gorky, and Mayakovsky among the favorite subjects.⁵⁹

Yet another component of the factory enclave during the “Hungry Winter” was its system for caring for sick and starving workers. Starting in late December, many factory directors set up make-shift clinics (*statsionary*). The *Stalin* plant established the city’s first wartime factory clinic; by spring 1942, a total of 109 clinics were assisting 63,740 Leningraders, primarily workers.⁶⁰ A typical clinic consisted of several rows of beds and a few small stoves and provided hot soup or kasha and perhaps some hot wine, glucose injections, or even a few antibiotics.⁶¹

Some factory workers preferred to recover from hunger and illness at home and were able to avoid going to work for several days at a time, though they still received worker food rations. During the winter of 1941-42, most Leningraders, of course, were seriously ill and thousands perished daily. Hence, many doctors quit issuing certificates of illness, and factory administrators ceased requiring ill workers to present them upon returning to work. A number of factories simply put all those who did not report for work on sick lists until the end of the particular month.⁶² In any case, without public transport, which came to a halt in mid-December, management was not able to check up on many absent workers to determine the condition of their health.

Starting in the late fall of 1941, the factory workshop became the focal point of survival strategy for many Leningraders. Thousands sought employment as workers in order to take advantage of the factory enclave. On the eve of the war there had been about 750,000 industrial and non-industrial workers in Leningrad.⁶³ By October 6, 1941, after successive waves of Red Army and *opolchenie* mobilizations and the industrial evacuation had removed at least 200,000 workers from the city, the number of Leningraders officially receiving worker food rations was 831,400.⁶⁴ Hence, at least 281,400 new workers began to receive worker rations by autumn. (While not all of those designated as “workers” for rationing purposes were actually employed as such,⁶⁵ most probably were.) There were several reasons why people went to work in factories between June and October, including having been drafted in a factory recruitment drive or wanting to contribute one’s share to defending the nation and the city. However, the higher food rations available at factories likely played as large, if not larger, a role. The words of Mikhail Pelevin, a fifteen-year-old machine operator, reflect this popular strategy:

It is no secret that ... boys tried every means possible to get into the factory, because at the factory canteen you could get three bowls of hot yeast soup and a bottle of soya milk in exchange for a ration coupon for 12 1/2 grams of groats.⁶⁶

The number of Leningraders receiving worker rations did not decline significantly during the winter, despite the fact that workers were supposed to drop down to the “dependent” category once their factories were shut down. In December, approximately 837,000 people received worker rations; in January, that figure dropped to 800,000.⁶⁷ It is inconceivable during the winter, when the *gorkom* closed 270 factories and only eighteen of sixty-eight leading industries maintained any semblance of activity,⁶⁸ that anywhere near a majority of factory workers were actually working. Many were probably in a situation similar to that in which Elena Skrjabina found herself on January 15:

Friends found me a position in a sewing shop. This puts me in the first category as far as rationing goes. True, the workshop does very little; there is no light or fuel,

but they give out the rations just the same. In this way I get a little more bread, and now every crumb is vital.⁶⁹

In general, workers continued to report to idle factories and receive worker rations until at least spring 1942. Only then could the *gorkom* contemplate a large redistribution of the work force.

How effective was the factory enclave in preserving life during the “Hungry Winter”? To answer this and related questions, one must first establish an approximate mortality figure for the entire civilian population. Two Soviet researchers in 1965 re-examined siege records and calculated that not less than 800,000 died during the blockade, primarily from starvation.⁷⁰ The group of Soviet historians who in 1967 wrote the authoritative five-volume *Ocherki istorii Leningrada* stated that in Leningrad and its suburbs about one million died.⁷¹ According to Salisbury in *The 900 Days*: “A total for Leningrad and vicinity of something over 1,000,000 deaths attributable to hunger, and an over-all total of deaths, civilian and military, on the order of 1,300,000 to 1,500,000, seems reasonable.”⁷²

From these figures we can estimate that between 34 percent and about 42 percent of the populace starved (to death) from late autumn 1941 to summer 1942.⁷³ However, no available records reveal what percentage of factory workers starved. To estimate that figure, we have to rely on data from individual factories.

Survival rates at factories varied considerably. Nevertheless, most factories fall into one of three categories. At one extreme were those that produced food or used materials that were edible. These became excellent havens. For example, it is not surprising that starvation rates at bakeries were low,⁷⁴ despite the fact that wartime laws provided for severe punishments, including execution, for those caught stealing even small amounts of food. At a linseed oil factory which produced a natural varnish from linseed, sunflower seeds, and coconuts, not one worker starved; they

simply lived off the factory's pre-war inventories.⁷⁵ In a second category were factories that did not have extraordinary access to food but did not demand much work from their workers who, nevertheless, continued to receive worker rations. The city power plants fit into this category. Only one plant generated electricity throughout the siege period; yet, the industry as a whole in December 1941 employed more workers than it did in 1940. The starvation rate among workers at power plants was a relatively low 20-25 percent.⁷⁶

Although no evidence has been discovered of factories that had starvation rates higher than the city average, it would appear that at some large defense plants rates approached the average range. For example, Kulagin estimates that at the *Stalin* plant approximately 35 percent starved, and documents from *Kirovskii* show a 25-34 percent starvation rate.⁷⁷ This evidence poses a seeming contradiction, for, as stated above, large defense plants had the best food supply and the most developed mutual-support groups. However, two factors raised the starvation rates at defense plants. First, throughout the city on a per capita basis more men than women starved, and of all types of industry, major defense plants had the highest proportion of male workers. The other factor was that, beginning in early March 1942, the GKO ordered *Kirovskii*, *Stalin*, and other factories to resume limited operations, mainly producing ammunition and small arms. The effort required to carry out the March orders finished off many emaciated workers. At *Kirovskii*, for example, over half of all cases of death by starvation occurred in March and April.⁷⁸

In attempting to determine survival rates at large defense plants, it would appear, therefore, that the benefits associated with employment there were counterbalanced by their relatively large number of male workers and by the fact that defense plant workers had to work harder. Had workers at large defense plants not had special privileges, we can surmise that their mortality rates would have far surpassed the city average.

One segment of the population that had a starvation rate significantly lower than the city average was the Communist Party. According to city Party records, in the first six months of 1942, slightly over 15 percent of Party members (or about half the rate for the entire city) starved.⁷⁹ Party personnel on the whole must have had access to better food and services. Abundant food supply at party headquarters at Smolny provides an extreme example of this phenomenon.⁸⁰ No data have been published on the percentage of Party personnel at factories who starved. However, since most Party members were workers, it seems reasonable at first glance to assume that workers who belonged to the Party generally fared better than their non-party counterparts. Yet the situation may have been more complicated. Access within the Party to special food privileges may well have been a function of one's position in the Party hierarchy. If so, ordinary factory workers who belonged to the Party may not have had significantly better food access than their non-party counterparts. Materials locked in Leningrad's Party archives probably could shed light on this question.

Industrial Revival and Adaptation to Siege Conditions

Between mid-April 1942 and February 6, 1943, when the first train arrived from the "Mainland," Leningrad's industrial leaders devoted increasing attention to local civilian needs and less to the needs of the front. By spring 1942, workers who had survived the winter were suffering from various illnesses and malnutrition. Most were attached to temporarily closed factories that had run out of fuel and were receiving no electricity. When it became clear that the GKO could not force Leningrad's workers to fulfill orders anywhere near as large as those of the previous year, the city's leaders, in a distinct about-face, decided to reassign many defense-plant workers to various sectors of the local economy. Zhdanov's goal was

to transform Leningrad into a trim “military city” that would continue to build more defenses and supply the Leningrad Front with some war materiel, but at the same time would protect itself against hunger and brace itself for a possible second siege winter.

This shift toward placing more emphasis on improving the local economy necessitated a continuation of massive evacuations, because there were simply too many Leningraders to feed. Between January and April 1942, over one-half million people, mainly non-working dependents who should have been evacuated before the start of the siege, had left the city over Ladoga’s “Ice Road.” But this was not enough.⁸¹ Hence, during the spring when enough of Ladoga’s ice had melted to permit barge traffic, the GKO continued to send out non-working people and also resumed large-scale evacuations of factory workers and industrial machinery, having decided that many industries could be of more military use on the “Mainland.” A substantial part of the city’s factory labor force and over fifty factories were sent eastward over Ladoga. By the end of 1942, three-fourths of the city’s pre-war industrial machinery had been sent out. The number of factory workers remaining in Leningrad had dropped to just a little over 100,000 out of an entire civilian population of 637,000.⁸² The city had indeed become easier to feed, and almost all those remaining worked either in defense plants or in bolstering the essential local economy of the “military city.”

The new emphasis on satisfying basic needs of those who remained in the city is best seen in the actions of the city soviet’s labor redistribution commission. In May 1942, it sent some 15,000 Leningraders to work in defense plants, but sent twice that number to chop wood, repair water mains, and perform other tasks for the local economy. Party and soviet leaders made the gathering of firewood for home heating for the coming winter a top priority. In sharp contrast to August and September 1941, when only about one railroad car per day of wood was chopped, in July 1942, workers chopped over 100 carloads per day for a much smaller population.⁸³

In 1942, most Leningraders spent a considerable amount of time growing vegetables. An estimated 276,000 people planted over seven square miles of private vegetable gardens.⁸⁴ In addition, the city soviet set up 633 so-called "auxiliary farms" (*podsobnye khoziaistva*) mainly on the sites of former state and collective farms on the outskirts of the city.⁸⁵ Factory workers managed most of these farms, the average size of which was ninety-six acres. The farms' produce went mainly toward supplementing the menus of factory cafeterias.

It would appear that of the two methods of growing vegetables, workers preferred planting their own gardens because they could eat everything they grew there. All previous taxes on and rent payments for gardens were abolished.⁸⁶ Those working on the factory farms, on the other hand, had to part with a portion of their harvest and had to be away from home for several weeks at a time. When the results of the city's harvest for 1942 were tallied, the individual gardens proved twice as productive (in terms of weight) per acre, although the farms yielded twice as large a total crop. By November, the city had amassed a four-month food reserve.⁸⁷

While Leningrad's Party and government leaders paid more attention to the population's immediate needs, they did not ignore the needs of the front. In fact, they managed to partially revive defense production. Between April and June 1942, seventy-three arms and munitions plants reopened. Although the city's war industries could produce only a small fraction of the total materiel needed by the Leningrad Front, they remained an important source of ammunition and small arms.⁸⁸ Moreover, despite severe shortages at the Leningrad Front, in 1942, the GKO continued to send military supplies made in Leningrad to other fronts.

It was mainly the women of the city who were responsible for the industrial revival, since the percentage of workers who were female rose steadily during 1942. By December 15, women accounted for 79.9 percent of all factory workers.⁸⁹ By early 1943, approximately 60 percent of the

city's workers were women who had entered factory employment since the start of the war.⁹⁰

Thus, it was a make-shift labor force, composed mainly of women, that raised industrial output. However, an examination of labor productivity in 1942 presents a paradox. On the one hand, productivity (output per worker) figures did rise dramatically, as a steadily shrinking work force was able to increase aggregate output significantly. Norm-fulfillment data bear this out. In July and August, workers at several large defense plants were routinely exceeding the plan by 500 percent. There were even recorded instances of workers meeting quotas at 3,200 percent.⁹¹ On the other hand, these figures are misleading. Even if they were recorded accurately, their meaning becomes distorted when contrasted to output figures from the first or second quarter of 1942, when only a handful of factories were working on a very limited number of orders. When starvation rates dropped by mid-summer enabling workers to regain a modicum of strength, and factories received more electricity, which made possible conversion to or re-establishment of serial production, workers could boost output without too much difficulty. It is particularly important to note that between the winter of 1941-42 and summer 1943, factory directors were not ordered to review work norms.⁹² Thus, cases of fantastic norm fulfillment really show that many norms were low. In many, if not most, cases where workers were just meeting the norm, they were not working full-time.

Therefore, it would appear that labor discipline in most factories, with the exception of some workshops in large defense plants, remained lax through approximately the end of September 1942. Attendance also remained low. In light industry only about 15 percent reported for work during the summer; in heavy industry perhaps 50 percent.⁹³ Factory bosses often condoned the practice of allowing workers to recover at home from the prolonged hunger and to tend to their own affairs provided they returned toward the end of the month to help the factory meet its obligations.

During the fall of 1942, Party and military leaders made their first concerted effort in almost a year to improve labor discipline throughout the city. Because of German advances in the Ukraine and Caucasus in the summer and the possibility that Army Group North would try again to take Leningrad, the *VSLF* planned to increase war production into the winter and throughout 1943.⁹⁴ Such increases required greater labor discipline. The press warned workers and managers to quit abusing sick leave, fishing, hunting for mushrooms, and hanging around the markets when they should be working and to stop “loafing” when they did go to work.⁹⁵ In September 1942, authorities began to punish some of the most blatant violators of the labor code. That month the director of one unidentified large factory was arrested for issuing leaves of absence unnecessarily to 600 of his workers; in early November, several factory directors and their assistants were sentenced to one to five years in jail for “conniving in the desertions and absenteeism” of workers.⁹⁶ At the same time that it punished those whom it considered “shirkers,” the Party began to reintroduce in Leningrad and other parts of the country a wide range of material rewards and public honors for workers who overfulfilled their work norms. Socialist competitions, Stakhanovite schools, “shock” brigades, and “honor boards” were among the Stalinist inventions of the 1930s that began to reappear in the city toward the end of 1942 after having disappeared during the previous winter. Rewards for increased work output were determined by a complex scheme of monetary bonuses and special allotments of food and consumer goods.⁹⁷

The appearance of a larger number of professional agitators at city factories in the second half of 1942 was yet another part of the attempt to raise worker productivity. As in late 1941 and the winter of 1941-42, their propaganda talks were highly nationalistic and patriotic in tone. Political ideology continued to be virtually absent as the propaganda machine sought to adapt further its message to sentiments that it calculated would best motivate the populace. As in so many other spheres, the Party was showing that in time of crisis, its rhetoric could be quite flexible.⁹⁸

Rejoining the “Mainland”

A tenuous rail link along the southern shore of Lake Ladoga through the siege ring to the “Mainland” became operational on February 6, 1943. Between then and January 27, 1944, when divisions of the Leningrad Front finally ended the siege, city factory workers were assigned three tasks: to continue to provide for the population’s immediate needs, to manufacture arms and ammunition needed for the break-out offensive, and to begin to produce large and complex machinery for other parts of the nation that were in the process of being liberated from enemy occupation. As the year wore on, the latter two objectives became more important.

In the first half of 1943, factory workers continued to devote much attention to helping the civilian population survive the siege. Workers again planted gardens, repaired bomb and artillery-fire damage, and gathered firewood. Statistics on the distribution of the city’s work force demonstrate the relative importance leaders ascribed to local matters versus defense production. Between July 1942 and July 1943, a period in which the ongoing evacuation cut the city’s civilian population by almost half (from 1,100,000 to 600,000), the number of persons working for the local economy dipped by only 5 percent to 219,000. The number of workers in defense plants, however, declined by 26 percent to 86,000.⁹⁹

Attention to the local economy resulted in a marked improvement in public health. For example, a gardening campaign larger than that of 1942, combined with the arrival of more food from the “Mainland” (including some from lend-lease) enabled per capita food consumption in Leningrad by the end of the year to rise to the approximate level of the roughly calculated national average.¹⁰⁰ In the second half of 1943, the city’s rate of illness dropped to between one-third and one-fourth of what it had been the year before, and the birth rate began to exceed the death rate for the first time during the siege. Some 20,000 Leningraders died in

1943, which is close to the number who died on single days in January 1942.¹⁰¹

The first step toward resuming large-scale production in the city was taken in March 1943, when the GKO ordered extensive repairs to fifteen machine-construction and armament factories.¹⁰² The GKO determined that in the second half of the year Leningrad's factories would produce the bulk of the ammunition needed for the city's liberation and that they would start manufacturing large turbines, generators, and other machines needed for rebuilding other industrial centers, primarily the Donbass, which the Red Army was in the process of liberating. Fulfilling this latter objective put Leningrad in the difficult role it had played in the fall of 1941. Once again, Moscow determined that a significant portion of Leningrad's industrial work force, while under siege and very heavy bombardment,¹⁰³ would put the needs of some other part of the country before its own. National needs, as defined by the GKO, thus assumed a much larger role in the lives of Leningrad's workers in the latter half of 1943. By the time the siege ended, the city's industry had already been re-integrated into the national economic planning process.

For its share, Leningrad in 1943 continued to receive food and increasing amounts of fuel and raw materials from the "Mainland."¹⁰⁴ Although, on balance, it would appear that Moscow could have directed more military and civilian aid to Leningrad than it did and that Moscow's demands on Leningrad were excessive in light of the close proximity of enemy artillery to city industries. It took the Red Army almost 900 days to end the siege; when it finally did so, most German-occupied territory within the Russian Republic had already been liberated.

In order to fulfill the new GKO orders, more factories had to reopen and the labor redistribution commission had to transfer workers from the local economy, where many had been directed in 1942, back to heavy industry. In 1943, eighty-five plants resumed operations, largely as a result of more electric current, fuel, and raw materials reaching the city, bringing the number of functioning factories to 186 (compared to 368 on the eve of

the war).¹⁰⁵ Some 12,875 employees from fifteen local concerns and civil defense groups were transferred to heavy industry in late July and August,¹⁰⁶ and additional transfers probably took place during the rest of the year. Despite these efforts, the redistribution commission failed to satisfy fully the new demand for labor in heavy industries.¹⁰⁷

Another problem to be surmounted was the inexperience of the make-shift work force. Most skilled workers had either been sent to the front or evacuated to industrial complexes in the East. By the end of 1943, 70-90 percent of the workers at leading defense plants were new to their jobs since the beginning of the war, and less than half of all workers in the city were classified as skilled. The unskilled replacement workers in 1943, as in 1942, tended to be very young. In June 1943, 80 percent of all factory workers were under twenty-four years of age, including a sizable group under sixteen.¹⁰⁸ Several programs were implemented to train these inexperienced, young workers, but the programs could not keep pace with industry's need for skilled labor.¹⁰⁹

Despite all these difficulties, Leningrad workers appear to have completed most of their GKO and VSLF assignments for 1943. That year production of war materiel increased by half, and output per worker rose by 60 percent. An important measure of the industrial resurgence was that city workers manufactured the majority of artillery shells Soviet soldiers and sailors fired in the January 1944 offensive.¹¹⁰

Productivity increases in 1943 took place concomitantly with, and in part as a result of, the return of traditional Party organization and functions. On January 14, 1943, the Central Committee of the Communist Party ordered PPOs around the nation to hold elections and resume pre-war functions. In May, the Leningrad Party began to organize the city's first PPO elections since 1941, when Party membership had so sharply declined as a result of mobilizations to the front. Many, if not most, of the 346 city PPOs that were elected in the second half of 1943, and which represented one-fourth of the city's Party members, were located in factories. The revival of factory PPOs meant that the Party could oversee

and facilitate industrial production more thoroughly and would not have to rely so heavily on the authority of individual *partkom* secretaries and *ad hoc* executive committees.¹¹¹ The return of the Party to its pre-war prominence also served to reinforce the entire command and communication structure from the Central Committee to Leningrad's local Party organizations. Finally, a rejuvenated Party was able to put more energy into political agitation and propaganda. Starting in the spring of 1943, the press began to feature more prominently articles on Party ideology and the activities of various Party organizations.¹¹²

During the same period, factory trade unions, many of which had been reactivated in late 1942, expanded their functions. One long-neglected concern that unions began to look into was job safety. Following harsh Party criticism of union laxity in this area, on October 5, the city's All-Union Central Council of Trade Unions held a conference on job safety for technical inspectors and representatives of union safety commissions. Although it is not known what concrete steps, if any, unions subsequently took to implement new regulations and/or enforce existing ones, the fact that a city conference took place at all suggests heightened awareness of the problem.¹¹³ In late 1943, unions became concerned with other factory problems as well, including the need to eliminate waste and fraud in factory cafeterias and re-open showers, laundry rooms, and sewing centers in large factories. Unions also sponsored a number of evening concerts, plays, and talent shows in 1943.¹¹⁴

In the second half of 1943, resurgent PPOs and trade unions placed a high priority on strengthening labor discipline in order to raise worker output. Party and trade-union activists scheduled occasional "working Sundays" (*voskresniki*) and encouraged workers to form "front brigades" (*frontovye brigady*), which had to surpass work norms by at least 50 percent.¹¹⁵ An especially important component in raising worker output was the lengthening of the work shift at most factories from approximately eight to ten and even twelve hours. Also, the practice of basing wages on piecework was expanded.¹¹⁶ There was great incentive to work according

to piecework schedules, since factory administrations increasingly rewarded above-plan output with food.

In July, Party, soviet, and trade-union leaders also undertook the first systematic city-wide revision of factory work norms since the winter of 1941-42. On July 1, the *ispolkom* criticized the generally low state of factory norms and accused some factory administrations of temporarily lowering norms without permission. Between July and September, fifty-nine factories reviewed their norms and formally requested increases of 15 to 40 percent. In many cases, the higher norms forced workers to work harder, which resulted in higher output levels.¹¹⁷

Conclusions

On the eve of the war, Leningrad was the Soviet Union's second largest industrial center and the nation's leader in many high-technology fields; it also had the highest percentage of skilled workers in the labor force. By the end of the siege, the labor force had shrunk to about one-sixth its pre-war size, and the average worker was female, between fourteen and twenty-four years of age, and semi-skilled. As a direct result of the ravages of the war, Leningrad never recovered its industrial prominence relative to the rest of the nation. In the post-war period, the city again became the home of many advanced, specialized industries, but its industrial base had lost its pre-war comprehensive character.

Three conclusions emerge from the experiences of Leningrad's factory workers during the siege. First, the fact that the siege spawned situations at Leningrad's factories that in some respects were similar to situations that policies of the 1928-40 period produced. And that the responses to those situations in the two periods were similar suggests that collectivization, rapid industrialization, purges, and the 1939-40 wars of annexation yielded certain "hidden lessons" upon which the nation drew during the

war. That is to say, the process of adapting to Stalin's fanatical dictates in the 1930s constituted a kind of unintended ordeal of preparation for the siege. This is not to suggest, however, that *on the whole* Stalinism strengthened the nation's defense capability more than it harmed it. In fact, probably just the opposite is true, though considerably more attention needs to be focused on this broad question.

The second conclusion concerns the mobilization of workers. The results of the various emergency mobilizations point to one of the Stalinist system's main strengths in the war: its effectiveness in organizing ordinary citizenry, the so-called "home front," for "total" war. No other city during World War II channeled such a large percentage of its civilian population, particularly women, into such a variety of wartime service roles. Factory workers made up a sizable and integral part of Leningrad's mobilized citizenry. They played a major role in military defense, in organizing city-wide relief services during the starvation winter, and in manufacturing guns and ammunition for the city's liberation.

At the same time, however, one can argue that the GKO proved *too* efficient in mobilizing Leningrad's work force. In fact, excessive mobilization was a hallmark of Stalinist/GKO policy-making on a variety of fronts throughout the war. This approach derived primarily from the exclusive emphasis the regime placed on the immediate military crisis or campaign, regardless of cost. The GKO made tremendous demands of Leningrad's workers, particularly during the autumn of 1941 when Moscow was threatened and then again in the latter part of 1943. Yet, did Moscow's harsh policies serve "the greater good"? A strong case can be made (admittedly with the luxury of hindsight) that Moscow's orders to Leningrad had a militarily counterproductive effect. The materiel that Leningrad's factories sent to Moscow was not crucial to the capital's defense, and had that same materiel gone instead to the Leningrad Front, it might well have enabled the Red Army to pierce the siege ring before the winter of 1941-42. Had that been the case, hundreds of thousands of Leningraders would

not have starved and the city could have provided the nation with greater amounts of materiel throughout the war.

This study has also tried to show that during the period when the GKO exerted its least control over Leningrad's industry, between the first winter of the war and mid-1943, the city's Party and government leaders demonstrated considerable adaptability and ingenuity in trying to meet the most essential needs of the population. They directed significantly more resources toward solving food shortages and domestic problems than in 1941, and allowed factory managers much leeway in organizing labor. As best as can be determined, managers reacted to the extreme deprivations of this period by establishing a reasonable and mutually supportive relationship with workers. In general, managers condoned the practice of workers using the benefits of factory employment as part of their survival strategies as long as workers' actions did not jeopardize the managers' position. These flexible policies of city leaders and industrial managers were fundamental to Leningrad's survival.

This brings us to a final conclusion. A large percentage of those civilians who endured the siege centered their survival strategies on the factory. Relatively speaking, factories offered the best conditions for survival, in part because factory workers were accorded special privileges, but also because workers pooled their talents and energies to help each other. Consequently, perhaps as many as two hundred thousand Leningraders sought refuge in factories. No doubt, patriotism inspired thousands of teenagers, pensioners, and middle-aged mothers to seek work in factories. So too did simple survival.

APPENDIX I

LENINGRAD FACTORY CONVERSIONS IN 1941

Factory	Pre-war Output	Wartime Assignments
<i>Barrikada</i>	construction materials	rails for tank barriers
Beer factories	beer	Molotov cocktails
<i>Bol'shevik</i>	steel smelting, armaments, tanks	mortars, artillery shells, tanks, armored trains, Katiusha rockets
<i>Burevestnik</i>	X-ray machines for hospitals	artillery shells
Chemical Institutes	chemical research	artillery shells
<i>Egorov</i>	wagons, railroad cars	army field kitchens, shovels, picks, axes
<i>Elektrik</i>	welding machines, electric heating equipment	Katiusha rockets
<i>Elektroapparat</i>	electrical components	mines
<i>Elektroinstrument</i>	electrical instruments	mine casings
<i>Elektrosila</i>	electric machinery	electric machinery, tank parts, mines, 120 mm. shells
<i>Gornyi institut</i>	mining research	artillery shells, synthetic explosives
<i>Grim</i>	perfume	mines, Molotov cocktails

Factory	Pre-war Output	Wartime Assignments
<i>Il'ich</i>	machine tools	synthetic explosives
<i>Izhorskil</i> (in Kolpino)	steel smelting, machine construction, shipbuilding, tank assembly, armor plating	tank armor, artillery shells, Katiusha rockets
<i>Kassovala apparatura</i>	cash registers	mines
<i>Kirov Theater</i>	stage props	wooden and <i>papier-mâché</i> decoys of guns, tanks, and airplanes
<i>Kirovskil</i>	tractors, turbines, aircraft engines, tanks, guns, equipment for Moscow-Volga canal	KV tanks, artillery guns, ammunition
<i>Kirov</i>	cranes, other large lifting machines	armored cowling for machine gun nests, shell and mine casings, tank repair
<i>Kozitskil</i>	radios	radios (for partisans)
<i>Krasnala Bavariia</i>	beer, kvass, fruit juice, machines for beer production	Molotov cocktails, artillery shells
<i>Krasnala zaria</i>	telephones	field telephones
<i>Krasnoe znamia</i>	knitwear, stockings	artillery shells
<i>Krasnogvardeets</i>	surgical instruments	surgical instruments, parts for KV tanks, Finnish knives, hand grenades

Factory	Pre-war Output	Wartime Assignments
<i>Krasnyi instrumental'shchik</i>	gears, other heavy machinery	mines
<i>Krasnyi treugol'nik</i>	rubber shoes	covers for barrage balloons
<i>Krasnyi Vyborzhets</i>	light metalworking	explosives, detonators, parts for tanks and airplanes
<i>Krupskaia</i>	candy	Molotov cocktails
<i>Lenfilm</i>	motion pictures	mines
<i>Lenigrushka</i>	metal toys	hand grenades
<i>Lenin</i>	machine construction, steel pipes, boilers	aerial bombs
<i>Leningradskii metallist</i>	bicycles, saws, wash stands	artillery shells
<i>Likero-vodochnyi</i>	vodka, other liquors	Molotov cocktails
<i>Linotip</i>	typesetting machines	machine guns
<i>Lunacharskii</i>	musical instruments	grenades
<i>K. Marks</i>	textile machines	mortars, shell and mine casings
<i>Metallist-kooperator</i>	metal dishes, bicycles	mines, grenades
<i>Metalloigrushka</i>	metal toys	mines, grenades
<i>Mikoian</i>	candy	anti-tank mines

Factory	Pre-war Output	Wartime Assignments
<i>Muzykal'nye dukhovye instrumenty</i>	musical instruments	mines
<i>Nevgvozd'</i>	nails	rails for tank barriers
<i>Nevskii khimicheskii</i>	superphosphates	sinal (synthetic explosive)
<i>Nevskii mylovarennii</i>	soap	artillery shells
<i>Okhtinskii</i>	chemicals	electric motors, synthetic explosives
<i>Optiko mekhanicheskii</i>	cameras, movie projectors	artillery shells, hand grenades, detonators for anti-tank mines
<i>Ordzhonikidze</i>	shipbuilding	artillery shells, gun carriages, shipbuilding
<i>Parfiumernaia No. 4</i>	perfume	Molotov cocktails, camouflaged mine casings
<i>Piatiletka</i>	paper	mines
<i>Pnevmatika</i>	pneumatic machines	artillery shells, Katiusha rockets
<i>Primus</i>	small stoves	hand grenades, rifles
<i>Proletariat</i>	insulators	artillery shells, Katiusha rockets
<i>Proletarskaia pobeda</i>	shoes, boots	army boots

Factory	Pre-war Output	Wartime Assignments
<i>Russkii dizel'</i>	diesel engines	tank motors, automatic rifles
<i>Rybosportinventar'</i>	fishing equipment	camouflage nets
<i>Sevkabel'</i>	communication and electrical lines	field communications
<i>Skorokhod</i>	shoes, boots	army boots, belts, sacks, shell casings, Katiusha rockets
<i>Solodo-drozhzhevoi</i>	yeast	mines
<i>Stalin</i>	steel smelting, steam-driven turbines, heavy machinery	20 new types of arms and ammunition, parts for KV tanks, automatic rifles, armored trains
<i>Stroitel'nyi trest 189</i>	construction materials	rails for tank barriers
<i>Svetlana</i>	light bulbs, vacuum tubes	mines, shell casings, bayonets
<i>Tekstil'nyi kombinat</i>	textiles	camouflage nets
<i>Tel'man</i>	wool textiles	great coats
<i>Uritskii</i>	tobacco	mines
<i>Volodarskii</i>	men's outer garments	army uniforms, Katiusha rockets
<i>Voskhod</i>	footwear	military footwear

Factory	Pre-war Output	Wartime Assignments
Voskov (in Sestroretsk)	Industrial and military instruments	assembly and repair of rifles, machine guns, light artillery
Vpered	machine construction	mines
Zhdanov	shipbuilding	shipbuilding, heavy mortars

SOURCE: The chart was compiled from the following: A.R. Dzeniskevich, *Voennaiia piatletka, 44-65 and rabochikh Leningrada nakanune Velikoi Otechestvennoi, 1938-iinn' 1941* (Leningrad: Nauka, 1983), 207-208; A.P. Kriukovskikh, co-editor and compiler, *Vgody surovyykh ispytaniy: Leningvadskaia partiinaiia organizatsiia v Velikoi Otechestvennoi voine* (Leningrad: Lenizdat, 1985), 183-186; The Museum of the History of Leningrad; A.V. Karasev, *Leningradtsy v gody blokady, 1941-1943* (Moscow: Nauka, 1959), 51-54, 125; S.P. Kniازهv et al., *Na zashchite Nevskoi tverdiny* (Leningrad: Lenizdat, 1965), 30, 116, 117, 236; V.N. Bazovskii and N.D. Shumilov, *Samoe Dorogoe: Dokumental'noe povestvovanie Ob A.A. Kuznetsove* (Moscow: Izdatel'stvo politicheskoi literatury, 1982), 47, 63, 72; Ia.F. Kats, *Oktiabr'skaia raionnaia partiinaiia organizatsiia goroda Leningrada v gody Velikoi Otechestvennoi voiny Sovetskogo Soiuza* (candidate dissertation, Leningrad, 1958), 122; V.A. Markov, ed., *Plamia nad Nevoi* (Leningrad: Lenizdat, 1964), 333; E.G. Komar, *Arsenal energovooruzheniia* (Leningrad: Gospolitizdat, 1945), 57; A.V. Karasev and V.M. Koval'chuk, "Bitva za Leningrad," in *Voенно-istoricheskii zhurnal*, 1964, no. 1, 83; A.V. Burov, ed., *Blokada den' za dnem: 22 iunია 1941g. - 27 ianvaria 1944g.* (Leningrad: Lenizdat, 1979), 21; *Leningrad 1940: Adresno-spravochnaia kniga* (Leningrad: Lenizdat, 1940); and Alexander Werth, *Russia at War* (New York: Dutton, 1964), 344.

APPENDIX II

DAILY BREAD RATIONS (IN GRAMS)

Date	Workers & Engineers	Workers in "hot" workshops	Office workers	Dependents	Children under 12 years
FROM:					
18 July 1941	800	1000	600	400	400
02 Sept 1941	600	800	400	300	300
12 Sept 1941	500	700	300	250	250
01 Oct 1941	400	600	200	200	200
13 Nov 1941	300	450	150	150	150
20 Nov 1941	250	375	125	125	125
25 Dec 1941	350	500	200	200	200
24 Jan 1942	400	575	300	250	250
11 Feb 1942	500	700	400	300	300
22 Mar 1942*	600	700	500	400	400

* Starting February 22, 1943, workers and engineers in defense industries received 700 g. of bread per day.

Source: N.N. Amosov, *Rabochie Leningrada v gody Velikoi Otechestvennoi voiny*, (candidate dissertation, Leningrad, 1968), 211-213.

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Notes

1. For example, see Susan J. Linz, ed., *The Impact of World War II on the Soviet Union* (Totowa, New Jersey: Rowman & Allanheld, 1985), a collection of fourteen essays on the war and its impact; Mark Harrison, *Soviet Planning in Peace and War, 1938-1945* (Cambridge: Cambridge University Press, 1985); and William Moskoff, *The Bread of Affliction: The Food Supply in the USSR During World War II* (Cambridge University Press, 1990).
2. See Michael Parrish's annotated bibliography of 7,521 Soviet monographs on the war: *The U.S.S.R. in World War II* (New York & London: Garland Publishing, 1981).
3. Among the interesting articles that have appeared most recently on the siege of Leningrad, the following two summarize well the Soviet historiography and identify several questions that still need to be addressed: VI. Demidov, "V zerkale istorii: Bitva za Leningrad. Vse li o nei izvestno?" *Zvezda*, 1988, No. 5, 199-206, which is a round-table discussion; and G.L. Sobolev, "'Leningrad v Velikoi Otechestvennoi voine (nekotorye itogi i nereshennye voprosy)," *Vestnik Leningradskogo universiteta*, series 2, issue 1 (No. 2), 3-8.
4. Leon Goure, *The Siege of Leningrad* (Stanford: Stanford University Press, 1962), and Harrison Salisbury, *The 900 Days: The Siege of Leningrad* (New York: Avon Books, 1969). Alexander Werth wrote a short impressionistic work, *Leningrad* (New York: Knopf, 1944), based on a visit to the city in September 1943.
5. The one comprehensive Soviet study of the city's factory workers during the siege is A.R. Dzeniskevich's, *Voennaia piatiletka rabochikh Leningrada, 1941-1945* (Leningrad: Lenizdat, 1972).

6. Evgeny Ambartsumov recently wrote: “Stalin himself undermined the antifascist front then taking shape, and ignited the democratic West’s mistrust of the USSR. Important reasons for our losses in 1941 and our multimillion casualties during the war are to be found in the trials of the thirties...” (*Moscow News*, July 1988, 12).

7. According to Soviet data, Leningrad’s overall level of industrial production in 1940 was nine times greater than in 1928. Defense industries grew particularly fast in 1940 and the first half of 1941, with the greatest increases coming in the manufacture of heavy tanks, artillery, battleships, and submarines. In his recent four-volume biography of Stalin, D.A. Volkogonov states that defense production rose 27% in 1940 over 1939. D.A. Volkogonov, *Triumf i tragediia: Politicheskii portret I.V. Stalina*, book 2, part 1 (Moscow: Novosti, 1989), 70; M.D. Filonov, ed., *Leningrad za 50 let* (Leningrad, 1967), 35; L.S. Kuznetsova, *Leningradskaia partiinaia organizatsiia v predvoennye gody* (Leningrad: Lenizdat, 1974), 114.

8. A.R. Dzeniskevich, *Rabochie Leningrada nakanune Velikoi Otechestvennoi voiny, 1938-iiun’ 1941* (Leningrad: Nauka, 1983), 48-49. Concerning food policy, Leningrad’s World War II emergency programs not only bore similarities to, and consciously replicated to a certain extent, programs of the 1930s, they also copied in part policies from the Civil War years, particularly from 1919 when General Iudenich’s army threatened to take Petrograd. The policies of the 1930s were probably based largely on the emergency measures of the Civil War. Petrograd during the Civil War adopted a food rationing system, which like the rationing schemes of the 1930s and the Second World War, was class-based and gave the largest rations to workers. In 1918-19, Petrograd authorities also organized a massive gardening campaign to prevent starvation, not unlike that which was promoted in 1941-45. Two other similarities between Civil-War Petrograd and Leningrad during the siege include the building of barricades along approaches to the city and evacuations of key war industries. These similarities suggest that the thesis developed in this paper that in some ways events of the 1930s served as “preparation” for the terrible suffering of the siege years may be extended back in time to include communist policies from the Civil War as part of this “preparation”.

9. Kuznetsova, 30. Without comprehensive and reliable data, we cannot determine with any degree of precision the number of victims among factory workers or any other segment of the city’s population. According to Salisbury (128), during the *Ezhovshchina* most heads of large industrial enterprises were shot, and almost every factory director, together with his chief assistants, arrested. Factory Primary Party Organizations (PPOs) were decimated. (Salisbury’s source for this information is not clear. It is unfortunate for historians that he did not document his rich and voluminous research with notes; instead,

at the end of each chapter he merely listed all publications he consulted and persons interviewed.)

10. Kosygin and Ustinov rose from engineering positions in Leningrad factories in the mid-1930s to become deputy chairman of the *Sovnarkom* and head of the armaments commissariat, respectively, by 1941. When the war broke out, they were still in their thirties. M.M. Kozlov, ed., *Velikaia Otechestvennaia voina 1941-1945: Entsiklopediia* (Moscow: Sovetskaia entsiklopediia, 1985), 372, 750.

11. Kuznetsova, 100 and Dzeniskevich, *Rabochie Leningrada ...*, 118.

12. Kuznetsova, 87-88, 112.

13. By the end of September 1941, 298,700 Leningraders were mobilized for the regular armed forces. A.P. Kriukovskikh, co-editor and compiler, *V gody surovyykh ispytaniy: Leningradskaya partiinaya organizatsiia v Velikoi Otechestvennoi voine* (Leningrad: Lenizdat, 1985), 90.

14. V.N. Bazovskii and N.D. Shumilov, *Samoe Dorogoe: Dokumental'noe povestvovanie ob A.A. Kuznetsove* (Moscow: Izdatel'stvo politicheskoi literatury, 1982), 41-42; A.V. Burov, ed., *Blokada den' za dnem: 22 iyunia 1941 g. - 27 ianvaria 1944 g.* (Leningrad: Lenizdat, 1979), 12-13; and Kriukovskikh, 90.

15. The Moscow Party began to form a volunteer army only on July 2. Kozlov, 478-479.

16. Some of the early names included: "Army of Volunteers," "Special Army," "Army for the Destruction of Fascism," and "Democratic Volunteer Army for the Defense of Leningrad." S.P. Kniazev *et al.*, *Na zashchite Nevskoi tverdiny* (Leningrad: Lenizdat, 1965), 35; K. Kripton, *Osada Leningrada* (New York: Izdatel'stvo im. Chekhova, 1952), 80.

17. V.S. Diakin, ed., *Istoriia rabochikh Leningrada, 1703-1965*, vol. 2 (Leningrad: Nauka, 1972), 282; Salisbury, 178; Iu.S. Tokarev *et al.*, eds., *Deviat'sot geroicheskikh dnei*, (Moscow: Nauka, 1967), 206; Kozlov, 600; and G. Kulagin, *Dnevnik i pamiat': O perezhitom v gody voiny* (Leningrad: Lenizdat, 1978), 221.

18. For example, see *Leningradskaya Pravda*, (hereafter *LP*) July 13, 1941.

19. See Werth, 168. No figures have ever been published on *opolchenie* casualties.

20. Isaac Zal'tsman, director of the *Kirovskii* plant, termed "insane" the fact that 15,000 of his approximately 35,000-person work force volunteered for the *opolchenie*. S. Kos-tiuchenko *et al.*, *Istoriia Kirovskogo zavoda* (Leningrad, 1966), 595.
21. According to V.Ia. Gorov in V.Ia. Gorov and A.M. Samsonov, "1941-1945. Na podstupakh k istine," in V.S. Lel'chuk, ed., *Istoriki sporiat: Trinadtsat' besed* (Moscow: Izdatel'stvo politicheskoi literatury, 1988), 314.
22. Kozlov, 401.
23. Despite the drop in the number of Party members, the percentage of the city's population that belonged to the Party rose in the same period from 4.8% to 6.8%. See S.S. Dmitriev *et al.*, *Leningradskaia organizatsiia KPSS v tsifrakh, 1917-1973 gg.* (Leningrad: Lenizdat, 1974), 39-45 as in Edward Bubis and Blair A. Ruble, "The Impact of World War II on Leningrad," 193, in Linz, ed., *The Impact of World War II on the Soviet Union*; *Pravda*, August 10, 1944; and Kriukovskikh, 132, 140.
24. Kriukovskikh, 180-181.
25. Tokarev *et al.*, 82. The average stay at a construction site lasted between two and four weeks, though most labor draftees had no idea how long they would have to build fortifications. Since work periods were not defined, organized food supplies often ran short. This forced the laborers to rely on provisions which they either brought with them or could scare up in the immediate area. To make matters worse, they often had no shelter and were thus directly exposed to enemy fire. According to one eyewitness who later emigrated, factory workers had a little more food and better tools and sanitary facilities than other labor draftees. Kripton, 97.
26. Goure, 25.
27. Voroshilov commanded the Northwestern Sector from July 10 to August 31, at which time he became commander of the newly created Leningrad Front, a position he held until September 10, when Georgii Zhukov replaced him.
28. A.V. Karasev, *Leningradtsy v gody blokady, 1941-1943* (Moscow: Nauka, 1959), 70-71.
29. E.A. Korol'chuk, *Istoriia Leningradskogo gosudarstvennogo ordena Lenina i ordena Trudovogo Krasnogo Znameni obuvnoi fabriki "Skorokhod" im. Ia. Kalinina* (Leningrad, 1969), 420-423.

30. V.M. Koval'chuk, ed., *Ocherki istorii Leningrada*, vol. 5 (Leningrad: Nauka, 1967), 85-86.

31. Very little information has ever appeared on the NKVD's attempts in besieged Leningrad to construct defenses and ensure public order. Several works provide some glimpses into NKVD activity: A.N. Kriukov, ed., *Voprosy politicheskoi raboty v organakh vnutrennykh del v sovremennykh usloviakh* (Leningrad, 1985); V.P. Filatov, *Leningradskaia militsiia v period oborony goroda* (Moscow, 1965); and A.A. Egorovich, *Uchastie vnutrennikh voisk v geroicheskoi oborone Leningrada (1941-1944 gg)* (Leningrad: Tipografiia VPU im. 60-letii VLKSM MVD SSSR, 1985). Leningrad NKVD units were busy from the first days rounding up military deserters, "panic mongers," "parasites," spies, and other criminals, checking passports, blacking out the city, and protecting food stores, among other things. It is known that on the average the NKVD executed seven people for each day of the siege and that about 80% of those executed were charged with "counter-revolutionary activities."

32. Karasev, 105.

33. N.N. Amosov, *Rabochie Leningrada v gody Velikoi Otechestvennoi voiny*, (candidate dissertation, Leningrad, 1968), 100; Karasev, 79; and V.V. Stremilov, "Leningradskaia partiinaia organizatsiia v period blokady (1941-1943 gg.)" in *Voprosy istorii KPSS*, 1959, no. 5, 107.

34. The *Kirovskii*, *Lenin*, and *Bol'shevik* factories contributed a total of about 9,000 workers to battalions. Kriukovskikh, 107; Amosov, 100.

35. V.G. Zakharov *et al.*, *Ocherki istorii Leningradskoi organizatsii KPSS, 1918-1945* (Leningrad, 1980), 369.

36. Kostiuchenko *et al.*, 602.

37. Kulagin, 29. The attainment of very high levels of plan over-fulfillment may also suggest that in the years preceding the war productivity was low in the city's factories.

38. Kniazev *et al.*, 117, 125; Kostiuchenko *et al.*, 611; Zakharov *et al.*, 374; Kriukovskikh, 185-186; and Kozlov, 325. Included in this number were 76-mm. and 45-mm. guns, new types of tank turrets, shells for captured German mortars, and the "Katiusha" rocket and launcher.

39. Salisbury, 146 and Diakin, 305.

40. It is unclear exactly what portion of the materiel Leningrad produced in 1941 went to the city's defense and what went to Moscow. However, the distribution of KV-series tanks assembled in August at the *Kirovskii* factory provides a revealing example. Stalin did not permit one of the 180 tanks produced according to the factory's monthly plan for August to be used for Leningrad's defense. Instead, all were sent to Moscow. What Stalin did permit the Leningrad Front to have was all KV tanks produced after the 180th one. *Kirovskii* turned out its 180th on August 26. Hence, the 27 tanks assembled in the last five days of August went to Leningrad's defense. Kniazev *et al.*, 126; Salisbury, 263.

41. Tokarev *et al.*, 106.

42. Koval'chuk, ed., 105.

43. Up to August 27, the city evacuated a total of 59,280 freight cars of industrial machinery. *Ibid.*, 122.

44. German artillery fired on Leningrad for the first time on September 4, and on the night of the 6th the first bombs fell on the city. Though artillery shelling would persist for the entire siege period, the Luftwaffe conducted most of its bombing strikes on Leningrad in the fall of 1941. Factories were prime targets. For example, during the siege the premises of the *Kirovskii* factory were hit by a recorded total of seventy-eight high-explosive bombs and 4,423 artillery shells. I.P. Verkhovtsev, ed., *Gvardiia tyla* (Moscow, 1962), 178. Extensive aerial reconnaissance of Leningrad on July 24, 1938, and August 15, 1939, and possibly other times, helped the Luftwaffe pinpoint factory locations by the start of the war. By 1942, further reconnaissance enabled the Germans to locate and identify practically every building belonging to some twenty-three important defense installations. The U.S. National Archives, Record Group No. 373, DT Misc. 175 and GX2205A F524.

45. Voronov recorded Zhdanov's reaction to his (Voronov's) order that Leningrad accelerate production of artillery shells and mines in November: "A million artillery shells and mines in a month is crazy! It's a bluff. It's ignorant. You simply do not understand the organization and technology of producing ammunition!" N. Voronov, "V trudnye vremena," *Voенно-istoricheskii zhurnal*, 1961, no. 9, 71-72.

46. Karasev, 133-134 Kniazev *et al.*, 241.

47. LP, November 13, 1941.
48. L. Arapova, *Trudovaia deiatel'nost' Leningradtsev v period blokady (1941-1943 gg.)* (candidate dissertation, Moscow, 1965), 280.
49. At many factories workers could exchange their ration cards for three hot "meals" per day, though the "meals" typically consisted of nothing more than hot water, soy, and pancakes made from vegetable oil and flour mixed with sawdust. Koval'chuk, ed., 202-203.
50. Tokarev *et al.*, 163, 180, 217; Dzeniskevich, *Voennaia piatiletka ...*, 114-116; Komar, 61-62; Markov, 337; and Werth, *Leningrad*, 114.
51. Tokarev *et al.*, 293.
52. *Propaganda i agitatsiia*, 1942, no. 20, 18.
53. Burov, 106.
54. Dzeniskevich, *Voennaia piatiletka ...*, 76.
55. Amosov, 269.
56. Kulagin, 39.
57. L.A. Shvetsov, *Deiatel'nost' Smol'ninskoi raionnoi partiinoi organizatsii v period blokady goroda Leningrada*, (candidate dissertation, Leningrad, 1966), 120; Burov, 142, 145.
58. Kriukovskikh, 294. Daniil Granin, a leading Soviet writer, and now popular political figure, co-edited and co-authored *Blokadnaia kniga*, a collection of memoirs of and interviews with siege survivors. Two years ago in Leningrad he helped found the private charity group, appropriately named *Miloserdie* (Charity), which he states was inspired by the self-sacrificing heroism of the young women who brought food to starving Leningraders in 1941-42. *The Christian Science Monitor*, July 21, 1988.
59. An examination of titles of propaganda brochures, which often served as the text for lectures, shows that in December 1941, only one in fifteen featured actions of the Party. LP, February 16, 1942; *Propaganda i agitatsiia*, December 16, 1941.

60. Zakharov *et al.*, 389; Koval'chuk, ed., 202.
61. Dzeniskevich, *Voennaia piatiletka ...*, 78; I.A. Vazhentsev, *Vo glave geroicheskogo kollektiva* (Leningrad, 1959), 119-120; Amosov, 244; N.D. Shumilov, *V dni blokady*, second ed. (Moscow: Izdatel'stvo Mysl', 1985), 162.
62. *LP*, February 27 and March 26, 1941.
63. Amosov, 119.
64. Karasev, 120.
65. Some non-workers received worker rations illegally. Also, various groups of people successfully petitioned city authorities for worker status for food rations. For example, candidates for doctorate degrees started receiving worker rations on February 9, 1942.
66. Ales' Adamovich and Daniil Granin, *Blokadnaia kniga* (Moscow: Sovetskii pisatel', 1982), 83.
67. Pavlov, 114; Kniazev *et al.*, 284. At the end of 1941, there were more workers in machine construction, metallurgy, chemical, and textile industries than in 1940. Amosov, 123.
68. Koval'chuk, ed., 215-216.
69. Elena Skrjabina, *Siege and Survival*, translation (Carbondale and Edwardsville, Illinois: Southern Illinois University Press, 1971), 54.
70. V.M. Koval'chuk and G.L. Sobolev, "Leningradskii 'rekviem' (o zhertvakh naseleniia v Leningrade v gody voiny i blokady)," *Voprosy istorii*, 1965, no. 12, 191-194.
71. Koval'chuk, ed., 692.
72. Some estimates of the starvation toll reach as high as two million. Mikhail Dudin, a Leningrad poet who survived the siege, estimates that 1,100,000 Leningraders were buried during the siege at just two of the city's cemeteries. Salisbury, 515-516.
73. This estimate is based on a total city population of 2,380,000 in late November. The official figure for the city's population at the beginning of January 1942 is 2,280,000

(Goure, 285). Amosov states that mortality records show that a total of 64,928 starved in November and December 1941. Official death counts were inevitably low for late autumn and winter; the number of actual starvation victims in 1941 was probably closer to 100,000. Hence, one can estimate that there were some 2,380,000 civilians in Leningrad when massive starvation first occurred.

74. For example, see *Ogonek*, 1985, No. 40, 14, for a picture taken on December 12, 1941, of an obviously well-fed Leningrad baker checking over hundreds of cakes.

75. Adamovich and Granin, 249-252.

76. Dzeniskevich, *Voennaia piatiletka ...*, 106.

77. Kulagin, 221 and Tokarev *et al.*, 175-176.

78. Salisbury, 507. The high death rate in the spring is also partly explained by the fact that following extreme and prolonged malnutrition a person's digestive tract can atrophy, causing death.

79. Koval'chuk, ed., 202.

80. Cafeteria No. 12 at Smolny provided bread, sugar, cultets, and small pies on a regular basis. Employees were strictly forbidden to take food out of this cafeteria. Throughout the siege period Party Chief Zhdanov received sausages and fresh peaches by airplane. Adamovich and Granin, 332; *Ogonek*, 1985, No. 40, 14.

81. Approximately 66,000 workers and office employees were evacuated over the "Ice Road" during the first winter of the siege. Karasev, 200-201.

82. Stremilov, 111; Karasev, 257; Koval'chuk, ed., 299; and Dzeniskevich, 89.

83. On June 11, the *gorkom* decreed that all able-bodied adults had to cut at least four cubic meters of firewood, half of which they could keep and half to go to factories and district soviets. In addition, the Party decreed the entire month of September a "shock month" for gathering wood. Kriukovskikh, 284-285; Shvetsov, 232; and Zakharov *et al.*, 518.

84. Iu. Bibikov and S. Moskalev, *Profsoiuzy Leningrada v gody sovetskoï vlasti, 1917-1959* (Moscow: Profizdat, 1960), 122; *Propaganda i agitatsiia*, 1942, no. 9, 18; and *LP*, May 15, 1942.
85. I.G. Meyerovich and Ia.G. Okulov, *Meropriiatiia Leningradskoi partiinoi organizatsii po snabzheniiu trudiashchikhsia v period blokady, 1941-1942* (Leningrad, 1959), 16.
86. The garden campaign proved so successful throughout the nation that the Supreme Soviet on November 4, 1942, decreed that people could keep their plots on the same terms for another five to seven years. *Trudovoe zakonodatel'stvo ...*, 76.
87. *Biulleten' Leningradskogo soveta deputatov trudiashchikhsia*, 1942, nos. 5-6, 14; Kriukovskikh, 270-271; and Amosov, 227-228.
88. In 1942, Leningrad factories reportedly manufactured eight million artillery shells, bombs, and mines; over 100 million ignition capsules and detonators; about 26,000 machine guns, mortars, and automatic rifles; and a small number of artillery guns and tanks. Karasev, 229, 236, 307 and Vazhentsev, 168-169, 197.
89. Dzeniskevich, *Voennaia piatiletka ...*, 101-102. By February 1943, women made up 83.7 per cent of the industrial work force. In defense industries, 60-70 per cent of workers were women and in light industries and textiles about 95 per cent.
90. Dzeniskevich, *Voennaia piatiletka ...*, 102 and Arapova, 341.
91. Arapova, 133 and Tokarev *et al.*, 196.
92. Shvetsov, 240.
93. Tokarev *et al.* 181, 186 and Kulagin, 221.
94. *LP*, September 26, 1942.
95. For example, see *LP* for August 30, September 2, and October 4, 1942.
96. *LP*, September 25 and November 4, 1942.
97. *Sbornik ukazov, postanovlenii, reshenii, rasporiashchenii i prikazov voennogo vremeni, 1942-3*, 159; *Sbornik dokumentov i materialov po voprosam truda v period Velikoi Otechestvennoi voiny*, 281-283.

98. City party leaders prescribed a total of 328 topics for propaganda speeches, brochures, and articles between December 1941 and January 1943. These topics fall into four general categories (listed in order of frequency): exploits of the Red Army, German atrocities, life inside the blockade, and actions of the Allies. Only thirteen of the topics centered on the role of the Party or on political ideology. *Propaganda i agitatsiia*, 1941, nos. 21-22; 1942, no. 10 (31), no. 12 (29), no. 13 (47), no. 14 (24); 1943, no. 2 (39).

99. Karasev, 254; N.A. Manakov, "Ekonomika Leningrada v gody blokady," *Voprosy istorii*, 1967, no. 5, 29; Kriukovskikh, 212.

100. Amosov, 232. As in 1942, in 1943 workers again spent considerable time growing their own food. Both the factory farms and private gardens produced higher yields as routines became more familiar. The farm harvest of 1943 reportedly increased by 50% over 1942, while the yield from private gardens rose by more than 100 per cent. Kriukovskikh, 273; Dzeniskevich, *Voennaia piatiletka ...*; Amosov, 227-228. The difference in yields between farms and gardens suggests that Leningraders continued to prefer working in the latter.

101. Kriukovskikh, 274 and Manakov, 29.

102. Kniazev, 463.

103. German bombers returned to Leningrad in 1943 and conducted over 200 sorties. Also, enemy artillery fire increased sharply in the summer and reached its greatest intensity of the siege period in September. The shelling concentrated more heavily than previously on defense plants. By the time the last shell hit Leningrad on January 22, 1944, the enemy had destroyed a total of 840 factory buildings, partially damaged another 4,000, and demolished 3,700 machines. Bibikov and Moskalev, 128.

104. Leningrad had been receiving electrical current and fuel from the rest of the nation ever since a transmission cable and pipeline had been laid under Lake Ladoga in 1942. The opening of the rail link to the "Mainland" in early 1943 enabled the city to receive twice as much cargo through the blockade ring as in 1942. Tokarev *et al.*, 215-216. Although German bombers and artillery hit the Poliany-Leningrad railroad some 1,200 times in 1943, close to 5,000 trains reached the city. Zakharov, 415-417; V.M. Koval'chuk, *Doroga pobedy osazhdennogo Leningrada* (Leningrad: Nauka, 1984), 151.

105. Amosov, 114, 340; Kriukovskikh, 217. Trains brought some industrial machinery to Leningrad in 1943; however, the GKO at the same time continued to evacuate important machines from the city. Zhdanov notified GKO headquarters in October that unless it halted its industrial evacuation, Leningrad's factories could not meet their production obligations. Tokarev *et al.*, 134. Only at the end of the year, shortly before the siege was finally lifted, did Moscow heed Zhdanov's advice. Kriukovskikh, 210.

106. Arapova, 142.

107. To lessen the labor shortage, the VSLF in autumn allowed the labor redistribution commission to draft soldiers and sailors for factory work. By the end of the year most defense plants employed some military personnel. Amosov, 118. In addition, during 1943, the GKO sent several hundred skilled workers to Leningrad to work in defense and machine-construction factories. Dzeniskevich, *Voennaia piatiletka ...*, 90.

108. Diakin, 302; Amosov, 140; Arapova, 226.

109. On December 22, 1943, the *gorkom* launched a new campaign to train workers. See *Propaganda i agitatsiia*, 1944, no. 1.

110. Kniazev *et al.*, 544; Kriukovskikh, 219; and Kats, 280. The artillery barrage that commenced the final offensive was devastating. Karasev (304) claims that the Leningrad Front deployed more guns in January 1944 than the entire Russian Army had in 1915, and on the first day of the offensive fired approximately 500,000 shells at the enemy.

111. Kniazev *et al.* 492; Zakharov *et al.*, 422; Kriukovskikh, 84.

112. For example, see *Propaganda i agitatsiia*, 1943, no. 10.

113. Amosov, 248.

114. *Ibid.*, 262.

115. Vazhentsev, 211; Tokarev *et al.*, 202; Arapova, 160.

116. *Propaganda i agitatsiia*, 1944, no. 4, 31; Karasev, 292.

117. Kriukovskikh, 213; Dzeniskevich, *Voennaia piatiletka*, 155. Increases in work norms, of course, did not always result in higher output. There were several instances in which

norms were so low that even after they were raised substantially, workers could surpass them easily working no harder than before. *Propaganda i agitatsiia*, 1943, no. 18, 30 and 1944, no. 4, 30-32.

It should also be noted that not all city factory administrations reviewed work norms at this time. For example, according to the Party secretary of the Lenin District, by September 1943, only 1,780 of the district's 9,423 production norms had been reviewed.