A Metro on the Mount

The Underground as a Church of Soviet Civilization

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In 1938 the chief artist for Moscow's Mayakovski metro station urged Muscovites, "Raise your head, citizens, and you will see the sky." Forty meters below the surface, Soviets would find images "preparing them for labor and defense." Nearly three dozen cupolas crowned the top of a 155-meter-long platform dressed in stainless steel, Stalin's favorite material. Each tile mosaic (fig. 1) showed idealized scenes from a day in Soviet life: blast furnaces belched flames and carbon gases into the night sky, Red Army planes rumbled in formation, lithe athletes leaped into action, a parachutist tumbled down toward the viewer. To see the mosaics a passenger had to stand directly underneath them and gaze skyward. Heads permanently cocked back and eyes fixed on a heaven of Soviet power: this was the preferred pose for a citizen in Stalinist society, a pose inscribed in the design of the Moscow metro.[1]

This article examines the Moscow underground of the 1930s as an instrument of civil and social engineering. The metro integrated operational, aesthetic, and ideological work to provide "a majestic school in the formation of the new man."[2] Aesthetics were particularly important as

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1. E. Reznichenko and Iu. Grachevskii, eds., *Dni i gody metrostroia* (Moscow, 1981), 381; A. Deineka, "Khudozhniki v metro," *Iskusstvo*, no. 6 (1938), reprinted in *Aleksandr Deineka: Zhizn', iskusstvo, vremia*, ed. V. Sysoev (Moscow, 1989), 141. The station was named after V. V. Mayakovski (1893–1930), a poet and playwright. Mayakovski belonged to a group called the cubo-futurists, which noisily rejected all earlier art in their search for an antibourgeois aesthetic, and he vigorously condemned all signs of bourgeois inclinations among Soviet officials and artists. Stalin called him "the best and most talented poet of our Soviet era." Mayakovski committed suicide in 1930. Wolfgang Kasack, *Dictionary of Russian Literature Since 1917* (New York, 1988), 247–48.

2. V. Kazin, ed., *Stikhi o metro: sbornik litkruzhkovtsev metrostroia* (Moscow, 1935), 11. Unless otherwise indicated, translations from Russian are my own. On the seamless inte-

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FIG. 1 Ceiling mosaic from the Mayakovski metro station. (Photograph by Jack Kollmann.)

tools for teaching Soviet power and for converting peasants into docile urbanites. The stories told by metro propagandists were no less important, supplying mythological repositories of the "socialist" values that supposedly emerged from the metro's successful creation. One of those values—a reckless, risk-taking technological style—helped transform the metro into a socially constructed banner of Stalinist culture.

An exemplar of Soviet technological display, the metro presents a revealing case study in the simultaneous production of technology and cul-

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gration of aesthetic and technical aspects of the metro, see E. O. Liubimov-Lanskoi, "Torzhestvo sotsialisticheskoi tekhniki," *Sovetskoe iskusstvo*, 11 May 1935, 2. A recent study of the first line of the Moscow metro provides an exhaustive social history of the daily construction and political battles waged to bring the project to completion. Beyond noting the use of ornate architecture to prove the superiority and future glory of socialism, it neither explores the specific relationship of aesthetics and representation to broader issues of technological style and social engineering nor addresses in detail the political functions embedded in the architectural design. William Wolf, "Russia's Revolutionary Underground: The Construction of the Moscow Subway, 1931–1935" (Ph.D. diss., Ohio State University, 1994).

ture. Its chief builder, Lazar Kaganovich, said in 1935 that the metro "went far beyond . . . the typical understanding of a technological construction. Our metropolitan is a symbol of the new socialist society being built." Soviet memoirs, official histories, metro architecture, and newspaper accounts wove the events and personalities of the metro's construction into a mythical microcosm. Citizens absorbed the values and ethos of Stalinist civilization as they rode the metro and as they consumed its mythology. The metro thus helped shape Soviet society and its style of technological development.[3]

The Quicksand Society

Soviet leaders used the metro's physical and symbolic fabrication to help stabilize a fractured social structure. At tremendous cost, the first five-year plan (1928–32) had built a rudimentary foundation of heavy industry. Forced collectivization, show trials of political enemies, and militant attacks on all traditions complemented a frenetic program of "socialist construction," which Stalin said must overcome a century of backwardness in ten years. A largely peasant society underwent a massive demographic shift, descended into conditions approaching civil war, and, by 1933, suffered deadly famine. In 1931 alone 4.1 million peasant refugees poured into Soviet cities, profoundly straining social services and a woefully inadequate municipal infrastructure. The plan had turned the Soviet Union into a "quicksand society," in Moshe Lewin's phrase, its social fabric torn by more than a decade of war, famine, and forced modernization. "[I]n great masses, peasants were all moving around and changing jobs . . ., creating streams and floods in which families were destroyed, children lost, and morality dissolved."[4] It was under these conditions that Soviet leaders decided, in June 1931, to build a subway.

Government officials in previous years had discussed various projects for building a metro in Moscow, but none had moved beyond draft stage.[5]

3. Paul Josephson, "'Projects of the Century' in Soviet History: Large-Scale Technologies from Lenin to Gorbachev," *Technology and Culture* 36 (1995), 531; A. Kosarev, ed., *Istoriia metro imeni L. M. Kaganovicha: Kak my stroili metro* (Moscow, 1935), xxv. For Soviet conceptions of the metro as a mythical microcosm of Soviet society, see Kosarev, 114–33; B. Petrov, "Entsiklopediia sotsialisticheskoi stroiki," *Front nauki i tekhniki*, no. 9 (1935): 119; B. Petrov, "Tekhnika i politika," *Front nauki i tekhniki*, no. 4 (1935): 153; A. Pis'mennyi, "Ves' soiuz stroit metro," *Nashi dostizheniia*, nos. 7–8 (1934): 84.

4. Moshe Lewin, *The Making of the Soviet System: Essays in the Social History of Interwar Russia* (New York, 1994), 221.

5. For an examination of the impact of prerevolutionary Moscow metro proposals on the final design, see Dietmar Neusatz, "Von der Stadtduma ins Politburo? Entscheidungsprozesse bei der Projektierung der Moskauer Untergrundbahn 1897–1935," *Jahrbücher für Geschichte Osteuropas* 44 (1996): 322–43. On the economic challenges

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It didn't help that political authorities had arrested the most experienced engineers on trumped-up charges of counterrevolution in 1928 and 1930. By 1931 the Soviet Union had also exhausted foreign currency reserves, leaving few resources to pay for equipment and foreign expertise. Nikita Khrushchev, who forged his own career as a point man for the construction of the metro, recalled that metro managers had only the "vaguest idea of what the job would entail." They thought of the metro as something almost "supernatural. I think it's probably easier to contemplate space flights today than it was for us to contemplate the construction of the Moscow Metro in the nineteen-thirties."[6]

If economic and intellectual shortages loomed large, Mother Nature supplied the Soviets with an even greater adversary in the treacherous geology of Moscow's subsoil. Builders bored tunnels through fissured limestone "palpably soft with water, like a sponge. Just above the limestone lay a bed of Jurassic clay, and above that a crust of glacial drift."[7] Excavations unleashed underground rivers and pockets of quicksand; resulting floods sliced through shafts and threatened the collapse of streets and buildings. To conquer nature (no less an enemy of the people than capitalism and peasant backwardness), the Soviets would eventually have to deploy a variety of improvised Western techniques, including freezing and chemically grouting unstable ground and using pressurized caissons for digging shafts in the quicksand laced soils. These techniques would help the metro builders pass through layers of archaeological and geological history to the deepest stations, thirty to forty meters below, adding the conquest of geological time to the revolution's growing list of vanquished enemies.[8]

Lazar Kaganovich assumed managerial responsibility for the metro. A ruthless Bolshevik leader of working-class origin, Kaganovich (fig. 2) had a

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faced, see A. Sukhanov, *Podzemnye gorizonty: dokumental'naia povest'* (Moscow, 1990), 220–21.

6. Strobe Talbott, ed., *Khrushchev Remembers* (Boston, 1970), 64, quoted in Wolf, 55. For the show trials of engineers, see Kendall Bailes, *Technology and Society under Lenin and Stalin: Origins of the Soviet Technical Intelligentsia, 1917–1941* (Princeton, 1976), 69–141, and Loren Graham, *The Ghost of the Executed Engineer: Technology and the Fall of the Soviet Union* (Cambridge, Mass., 1993).

7. Benson Bobrick, *Labyrinths of Iron: A History of the World's Subways* (New York, 1982), 272.

8. For a discussion of the geological barriers and the techniques used to surmount them, see E. M. Gendel', "Tekhnicheskii opyt sovetskogo metrostroeniia", parts 1–3, *Sotsialisticheskaia rekonstruktsiia i nauka*, no. 5 (1936): 77–95; no. 6 (1936): 84–96; no. 7 (1936): 72–85, esp. 80–81. For a dramatic popular account intended for broader consumption, see P. Lopatin, *Moskva: ocherki po istorii velikogo goroda* (Moscow, 1959), 515–29. For an account of archaeological and historical investigations that accompanied tunnel excavations, see E. K. Nekrasova, ed., *Po trasse pervoi ocheredi Moskovskogo metropolitena imeni L. M. Kaganovicha* (Leningrad, 1936).

FIG. 2 Lazar Kaganovich (far right, with moustache) talks to metro workers. (Soviet slide picture show on the reconstruction of Moscow, unnumbered envelope, John L. Iliff Collection, Hoover Institution Archives, Stanford, Calif.)

reputation for getting things done regardless of the cost.[9] His nicknames—the "Iron Commissar" and the "Chief Boss"—were well deserved, but so too was his reputation as a man of the people, a charismatic and handsome leader who mixed with workers and delivered thunderous speeches full of venomous hatred for class enemies. Khrushchev described his erstwhile patron and later political enemy as an unswerving devotee of the party, one who spared no pity for its enemies and "never flagged in strength or energy." Like Khrushchev, Kaganovich was no intellectual, but a fanatically confident man of action. Unencumbered by complex thoughts, he was determined to fashion a new society out of the social quicksand Stalin's leadership had helped create.[10]

9. L. M. Kaganovich (1893–1991) began working at the age of fourteen in a tannery and joined the Bolshevik party at eighteen. An active participant in the October Revolution, he headed the Ukrainian branch of the communist party in 1925–28, became a full member of the Politburo in 1930, was first secretary of the Moscow Party Committee in 1930–35, and also headed the agricultural section of the party during collectivization. Of Jewish origin, Kaganovich became an object of Stalin's growing paranoia following World War II and was retired to the position of manager for a cement factory in Sverdlovsk after a failed bid to oust Khrushchev (his former protégé) in 1957.

10. Talbott, 65; Wolf (n. 2 above), 243–44; "L. M. Kaganovich sredi passazhirov metro," *Pravda*, 16 May 1935, 3. Kaganovich's Manichaean, party-line view of the world is revealed in his memoirs, which he worked on until his death in 1991. A section of the memoir written just before he died described the fledgling democratic movement in the

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The Soviet version of Marx's historical materialism fueled the Iron Commissar's gung ho approach. After the ideological compromises reluctantly undertaken in the 1920s to give the Bolsheviks breathing space, the first five-year plan was said to mark a continuation of the revolution by the building of socialism in one country. The metro introduced the next stage in the scientifically determined process of constructing socialism: from heavy industry in the first five-year plan to communal services in the second, especially in crowded Moscow, whose population ballooned from 2.16 million in 1928 to 3.6 million in 1933.[11] In the process, the Bolsheviks would transform Moscow from a city of medieval churches to a fitting symbol of world socialism, the penultimate stage before the development of communist heaven.[12]

In outlining his vision, Kaganovich also rejected the position of the so-called antiurbanites, a loose conglomeration of intellectuals. During the late 1920s the antiurbanites advocated the depopulation of urban centers and their replacement with parks and pastoral landscapes. They saw subways as artifacts of capitalism, herding exploited workers, cattle-like, into dank, depressing, underground railroads. Kaganovich countered that proponents of a new kind of city for socialism "forgot one small detail—that the cities of the USSR are already socialist. Our city became socialist from the moment of the October Revolution." As befitted a Bolshevik man of action, the Iron Commissar adopted an insanely ambitious timetable for completing the metro: 7 November 1934, the seventeenth anniversary of the October Revolution (celebrated by the Bolsheviks in November after the calendar reform). If capitalism was mired in depression, the completion of the metro in record time would demonstrate the new social order's superiority—costs be damned.[13]

The party mobilized public opinion to gather necessary resources and labor. In 1933 the communist youth organization Komsomol launched a national recruitment campaign. Days of voluntary labor (a concept invented by Leon Trotsky in the first years of Soviet power) became festive

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Soviet Union as "masked enemies" and "poisonous mushrooms, death caps that multiplied after the storm of pluralism." L. M. Kaganovich, *Lazar Kaganovich: Pamiatnye zapiski* (Moscow, 1996), 569.

11. Pis'mennyi (n. 3 above), 84.

12. On the Soviet vision of a socialist city in the 1930s, see L. M. Kaganovich, "O Moskovskom gorodskom khoziaistve i o rabote gorodskogo khoziaistva SSSR," *Pravda*, 4 July 1931, 3–4, cited in Timothy Colton, *Moscow: Governing the Socialist Metropolis* (Cambridge, Mass., 1995), 253; D. Zaslavskii, "Postroim sotni novykh sotsialisticheskikh gorodov!," *Pravda*, 11 June 1932, 3. See also the entire issue of *Sovetskoe iskusstvo*, 17 July 1935, devoted to the reconstruction of Moscow. On the Soviet distinction between socialism and communism, see n. 33 below.

13. Kaganovich, "O Moskovskom gorodskom khoziaistve," 4. The original deadline for finishing the first line was January 1934, but that was soon extended to November 1934.

occasions as bands played and able-bodied Muscovites roamed the shafts looking for work. Prominent officials picked up shovels and joined Moscow's masses. Visiting delegates from an All-Union Peasant Congress contributed (at the height of collectivization-induced famine), as did secret police troops. Metrostroi, the umbrella organization set up to manage the construction, spilled much ink in the cause. Fifteen thousand copies of the daily newspaper *Udarnik metrostroia* (Metrostroi shock worker) were put up on walls outside metro shafts and factories. The paper's editorial board reported directly to Kaganovich, who provided "most detailed instructions" for more than seven hundred other metro wall newspapers, newsletters, and technical journals, some in the Tartar language. Efim Reznichenko, a 1932 graduate of the All-Union Communist Institute of Journalism, became its first editor. His scribes traveled to the hinterlands to recruit laborers, including more than four thousand collective farmers from Bashkiria, who joined other recruits in barracks on the outskirts of Moscow. There they learned the complex habits of a socialist urban milieu from metro publications: an appreciation of classical Russian poetry, authentic Soviet songs for leisure and work, lessons on the imminent demise of capitalism, and how to "struggle for a clean bed sheet in the name of communism." Metro editors also printed a wall newspaper called *Metro proletarskoi stolitse* (A metro for the proletarian capitol) at the largest supplier factories around the Soviet Union. Correspondents from among metro workers became "social inspectors," dispatching stories of incompetence to Reznichenko, who in turn passed them on to Kaganovich.[14]

As construction gained momentum through 1933, so too did the social engineering project. "How many people recreated themselves in the process of building the metro!" asked one *Pravda* article from late 1933. In 1934 newspapers announced "The Entire Country Builds the Metro," and citizens from all around the Soviet Union joined a new community of labor: collective farmers, architects, managers, students, journalists, artists, and engineers. Wood came from Archangel, Chuvash, and the Urals; marble from Karelia, the Caucasus, and Ukraine; cement from the Volga; steel from Krivoi Rug; electrical equipment from Leningrad and Kharkov; rails from the Kuzbass region; and the trains from lower Moscow.[15]

Meanwhile, other projects in Moscow that might have stolen the metro's symbolic thunder were stumbling. Soviet engineers failed in their

14. A shock worker was the term for a manual worker who exceeded his or her work quota. Kosarev, ed., *Istoriia metro imeni L. M. Kaganovicha: Rasskazy stroitelei metro* (Moscow, 1935), 28, 487–90, 493; Lopatin (n. 8 above), 519–20, and Wolf, 117–238 on the Komsomol recruits; *Metrostroi*, nos. 1–2 (1932): 2; Reznichenko (n. 1 above), 61–63.

15. N. Kren, "Podzemnaia Moskva," *Pravda*, 19 December 1933, 4, cited in Colton, 257; V. Poletaev, "Iz istorii stroitel'stva pervoi ocheredi Moskovskogo metropolitena," *Istoricheskie zapiski* 42 (1953): 40–41, cited in Neusatz (n. 5 above), 322, n. 1; Kaganovich, *Pamiatnye zapiski*, 436; Reznichenko, 16–17.

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efforts to erect the Palace of Soviets, which was to have been the triumphal meeting place for the various Soviets in the USSR (and eventually beyond). Mother Nature won that round, as the Bolsheviks were unable to provide a stable foundation for the mammoth structure. (The palace ultimately descended from the heights of Soviet architectural fantasy—it had been designed to be taller than the Empire State Building and topped by a gigantic statue of Lenin—to the depths: in 1961 the world's largest outdoor swimming pool opened on the site.) Another priority project that started in the same year as the metro, the Moscow-Volga canal, would reach completion too late (1937) to serve as a concrete, steel, and marble monument to the arrival of socialism.[16]

That role fell to the metro. Upon its completion in May 1935—six months over deadline—propagandists hailed the Moscow subway as the "world's best metro," a sign of socialism's superior ability to conquer nature. Engineers triumphantly tallied the numbers: 11.6 kilometers of lines, 16.5 kilometers of tunneling (including escalators, walkways, and shafts), 13 stations, 17 vestibules, 2.3 million cubic meters of unearthed ground, 857,000 cubic meters of concrete, 4 electric-traction substations, 15 escalators, 88,000 tons of metal, 581,000 cubic meters of lumber, 960,000 cubic tons of rubble and gravel, and 21 million man hours.[17]

Even boastful metro builders qualified their claims to technological accomplishment, graciously recognizing the help of foreign consultants. In addition to using drafts of a failed 1908 Moscow subway plan (whose backers had been unable to secure financing), Soviet engineers had visited and scrutinized the Berlin subway. Their escalators probably exploited designs developed by the Otis Elevator Company and bore a remarkable resemblance to escalators in the London metro. The method of artificially freezing and stabilizing earth before pouring concrete hailed from Germany. Londoners invented the shield method of tunneling that the Soviets used. And despite Kaganovich's obsession with doing things in a hurry, the first trains lumbered along at an average speed of 16 or 17 miles per hour, with a top speed of 32 miles per hour. If one considers factors affecting average subway speeds—length between stops, rates of acceleration and braking, and the efficiency of station staff in moving passengers—Moscow's first line was merely average compared to other subways of the time. The

16. To make room for the Palace of Soviets the Bolsheviks blew up the Cathedral of Christ the Savior, built in the nineteenth century in honor of the victory over Napoleon. Now a new Christ the Savior has been raised on the same spot. The Moscow-Volga canal suffered a happier fate, becoming a major symbol of the new Moscow when it was completed in 1937. For a discussion of the Palace of Soviets fiasco, see E. Kirichenko, *Khram khrista spasitelia v Moskve: Istoriia proektirovaniia i sozdaniia sobora* (Moscow, 1992), 230–70.

17. L. Kovalev, *Moskovskii Metropoliten* (Moscow, 1935), 34; Kosarev, *Kak my stroili* (n. 3 above), 4.

express trains of the New York subway, for instance, averaged about 25 miles per hour in the 1930s, and even New York's first subway trains, put into service in 1904, could accelerate to 45 miles per hour between stops.[18] As captured in the design and construction of the Moscow metro, the essence of Soviet technological style lies less in the realm of civil engineering than in revolutionary traditions of social engineering and aesthetics. These traditions helped transform the metro, once it went into operation, into a precision instrument for fashioning the Stalinist soul.

Aesthetic Origins

The aesthetics of the Moscow metro owed a great debt to the nihilist Nicholas Chernyshevsky, Lenin's favorite Russian rebel of the nineteenth century. Chernyshevsky rejected the romanticists of the 1830s and 1840s, arguing that art was of no use unless it served a higher politics. Far from simply representing the world or following his or her muse, the true artist aimed to transform man and the natural world from their present imperfect state to one more rational and just. Armed with an encyclopedic knowledge of radical intellectual fashions, Chernyshevsky blended the positivism of Comte, English utilitarianism, and the technocratic utopianism of Saint-Simon in an Enlightenment vision that obliterated the distinction between artist, engineer, scientist, and revolutionary politician.[19]

Lenin drank deeply from the well of Chernyshevsky's views, condemning (and arresting) those artists who claimed that art's proper concern was aesthetics, not Bolshevik politics. He mixed Chernyshevsky with a techno-

18. V. Makovskii, "Prokladka tonnelei Moskovskogo metropolitena," *Front nauki i tekhniki*, no. 11 (1936): 78; "Parade in Moscow for New Subway," *New York Times*, 17 May 1935, 1; Antony Sutton, *Western Technology and Soviet Economic Development*, vol. 2 (Stanford, 1971), 204–5; Wolf (n. 2 above), 316–19; "Moscow's Subway a Social Criterion," *New York Times*, 28 April 1935, IV, 5, cited in Wolf, 324; Brian J. Cudahy, *Under the Sidewalks of New York: The Story of the Greatest Subway System in the World*, 2d ed. (New York, 1995), 28, 190; O. S. Nock, *Underground Railways of the World* (London, 1973), 183; H. C. P. Havers, *Underground Railways of the World: Their History and Development* (London, 1966), 13, 127; Michael Brooks, *Subway City: Riding the Trains, Reading New York* (New Brunswick, N.J., 1997), 70; Katherine Wollard, "The New York City Subway: Rumbling into the Future," *IEEE Spectrum*, April 1988, 36. The New York subway in 1935 carried 1.8 million passengers daily (and 350,000 a day when it opened in 1904), compared to just 177,000 daily in Moscow in 1935. However, by the mid-1980s the Moscow metro had become the busiest in the world, carrying more than 6 million passengers daily, and with fewer stations and route miles than New York (208 versus 369 stations).

19. Nicholas Chernyshevsky, *Selected Philosophical Essays* (Moscow, 1953), 257. Chernyshevsky (1828–89) is best known for the utopian novel *What Is to Be Done?* written in prison in 1863. It became a cult hit among student radicals and inspired Lenin in 1902 to use the same title in a venomous political tract aimed at his socialist adversaries.

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logically determinist interpretation of the "science" of Marxism. Technologies such as electric power and Taylorism were, for Lenin, forces of production that the inefficient and exploitative capitalist order would be unable to master. Once placed into a socialist system, however, these same technologies would accelerate the glorious planned march toward communism and guarantee the victory of the revolution.[20]

In the years following Lenin's death, the Bolsheviks eroded even further the boundaries between technology, science, and art. All joined the arsenal of revolutionary tools for transforming nature and excising defective humanity from the face of the earth. Stalin led the aesthetic assault. In the newspaper parlance of the 1930s he became the "architect of socialism" and the "great engineer of history." Stalin "involved himself in all details of construction—how to build sidewalks, how to build bridges, how to rebuild river banks, where to put gardens and develop parks, how to build schools, how to build the canals." And, of course, how to build a subway.[21]

The writer Maksim Gorky completed the aesthetic vision behind the Moscow metro. He was a key participant in an early Bolshevik movement known as *bogostroitel'stvo* ("god building"), which existed as a faction within the party before 1917, and believed that the masses "needed a unified set of rituals and symbols to bind their feelings to the goals of the regime." These symbols and rituals, patterned after religious rites, would replace religion as a new motivating force, unifying the toiling multitudes and directing them to conquer nature and destroy capitalism.[22]

Gorky returned permanently to the Soviet Union in the 1930s, inspired by the Stalinist claim that writers were "engineers of the human soul." He sang the praises of Stalin's brave new world for smashing "the shameful abominations of . . . the crass and greedy merchantry." A tireless networker

20. On Lenin's determinist view of technology as a force for constructing communism, see Jonathan Coopersmith, *The Electrification of Russia, 1880–1926* (Ithaca, N.Y., 1992), 151–91. On Soviet Taylorism, see Richard Stites, *Revolutionary Dreams: Utopian Vision and Experimental Life in the Russian Revolution* (New York, 1989), 145–64.

21. Kosarev, *Rasskazy* (n. 14 above), 16, and *Kak my stroili*, xxvii. For examples of the Soviet tendency to blur the lines between engineering, politics, and art in the 1930s, see V. Gusev, "Sodruzhestvo nauki i iskusstva," *Sovetskoe iskusstvo*, 5 January 1936, 3; N. Burdenko, "Nauka i krasota," *Sovetskoe iskusstvo*, 5 November 1935, 3; M. Chervonnyi, "Zavody i liudi," *Sovetskoe iskusstvo*, 11 June 1935, 3; G. Shchegal', "Krasota chelovechnosti," *Sovetskoe iskusstvo*, 5 September 1935, 2; "Strana iskusstva," *Sovetskoe iskusstvo*, 5 October 1935, 1; Ia. Boiarskii, "Velikaia proverka," *Sovetskoe iskusstvo*, 17 October 1935, 1.

22. Stites, 120. See pp. 101–19 for a discussion of the Bolshevik "Godless Religion." Maksim Gorky (1868–1936) was the son of a cabinetmaker. Self-taught, he plied various trades: messenger, apprentice in an icon shop, kitchen boy. He joined revolutionary circles in the 1890s and published short stories under the pseudonym "Gor'kii" (the bitter one). Upon his permanent return to the Soviet Union, he was lionized as the founding genius of Soviet literature and maintained personal contact with Stalin. Kasack (n. 1 above), 129–30.

and patronage-giver, Gorky launched a journal called *Nashi dostizheniia* (Our successes) that commissioned firsthand accounts of the great Soviet construction projects, to be portrayed as heroic epics. The metro joined the story of building the White Sea Canal—using gulag labor—as one of Stalinism's central myths. Like pressurized caissons, words and images in these tales held back social quicksand and shaped it into a more durable form. As construction of the metro proceeded, teams of fiction writers and journalists (vigorously micromanaged by Kaganovich) descended into the shafts to capture the "poetics" of Soviet society in genesis. The stories they brought back constituted a primer on how to think and act "Soviet," which by the mid-1930s had become a synonym for "beautiful."[23]

In Gorky's view—and others'—distinctions between revolution and art, and ultimately between utility and aesthetics in Stalinist civilization, disappeared in the Moscow metro. Since revolutionary politics was the highest art form, and the party had politicized all aspects of life, politically useful instruments—such as a subway—should and would be beautiful. Soviet newspapers began describing metro laborers as published poets, "who approach their work, not as artisans, but as artists." Reznichenko, editor of *Udarnik metrostroia*, sponsored workshops in writing poetry for "the first poet builders [who] reflected the love of majestic socialist constructions, the gigantic devotion to them." The more successful results appeared in the metro's publications. A special collection of metro worker poetry, with titles such as "A Song about the Chief Boss" and "The Tunnel is Ready," was published in 1935.[24]

It is difficult to imagine metro workers writing poetry or viewing their work as poetic. Living on rations of a few hundred grams of meat, bread, cooking oil, and milk to feed their muses, reeking of cabbage, kerosene, and sweat, each day they pulled themselves out of lice-infested bunks in hastily constructed barracks on the outskirts of Moscow to board crowded, rickety trams or walk for miles through slush and snow to reach the shafts. There, hounded by frantic supervisors, they labored into the night, usually with

23. M. Gorky, "O rabote po istorii fabrik i zavodov," *Pravda*, 1 April 1932, 1; M. Gorky, "Ob iskusstve," *Nashi dostizheniia*, nos. 5–6 (1935): 4; M. Gorky and D. Mirskii, *Byli gory vysokoi: Rasskazy rabochykh vysokogorskogo zheleznogo rudnika. O staroi i novoi zhizni* (Moscow, 1935), 14; "Fil'm o metro," *Sovetskoe iskusstvo*, 5 May 1935, 4; S. V. Zhuravlev, *Fenomen 'Istorii fabrik i zavodov'* (Moscow, 1997), 43, 102–3. The two 1935 volumes on the metro edited by A. Kosarev (nn. 3 and 14 above) were sponsored by Gorky and provided a mythical microcosm of the new socialist society, an idea reinforced many years later in the voluminous collection edited by Reznichenko (n. 1 above).

24. Gorky, "Ob iskusstve," 4; *Komsomol'skaia pravda*, 28 May 1935, 3; Kazin (n. 2 above); Reznichenko, 63–64. This aesthetic conception of labor, interestingly, mirrored Nazi conceptions propagated by Albert Speer and his Bureau of Beauty of Labor, whose slogan was "The German Everyday Shall Be Beautiful"; see Anson Rabinbach, "The Aesthetics of Production in the Third Reich," *Journal of Contemporary History* 11, no. 4 (1976): 43–74.

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FIG. 3 This slide, part of a slide show on the reconstruction of Moscow for Soviet school children in the 1930s, shows a metro shaft in the beginning of construction. (Soviet slide picture show on the reconstruction of Moscow, box 1, John L. Iliff Collection, Hoover Institution Archives.)

picks and shovels, rarely with pneumatic drills, driving the construction forward yard by yard.[25]

By 1934 a new group of workers finally arrived to inscribe the party's vision of Soviet civilization onto the metro's columns, frescoes, chandeliers, statues, rhodonite, crystal, friezes, and 23,000 square meters of marble facing. Ornamental elements helped transform the first line's thirteen stations into a working Bolshevik church of modernity, offering Soviet communion on every ride. A slide show on Moscow's socialist makeover, put together for Soviet seventh-graders in the mid-1930s, made the point explicitly. One slide captures the tower of a metro shaft in the initial stages of construction (fig. 3). The shaft, with the word "Metro" emblazoned on its side, thrusts into the sky, eclipsing a medieval church in the background. Soviet civiliza-

25. For a description of the horrendous working conditions for Moscow's laboring masses, seventy-five thousand of whom worked on the metro at its peak in the 1930s, see David Hoffmann, *Peasant Metropolis: Social Identities in Moscow, 1929–1941* (Ithaca, N.Y., 1994), 140–41.

tion was razing Moscow's old holy sites and erecting new houses of worship directly underneath them, just as early Christians had replaced pagan temples with new hallowed spaces.[26]

The party order to design these metro stations came in March 1934 with the simple command to make them "beautiful," prompting architects "to philosophize about our own risk and terror regarding what the Soviet metro should be." One art critic saw the terse mandate as a challenge to the narrowly pragmatic character of Western civilization, its inability to consider broader political possibilities for design. By way of contrast, the Moscow metro should embed ornamentation—with appropriate political messages—in a purely functional object, thereby proving the "utility of beauty" in Soviet life.[27]

Saying utility and beauty should merge was one thing; finding the appropriate design elements with which to accomplish that goal was quite another. Metro architects searched for points of theoretical departure. One architect established a continuum by which to relate existing subway systems around the world, defined by pure economic utility on one end and pure aesthetics on the other. The New York subway was the most technologically sophisticated, but its drab stations embodied the spirit of pure economic advantage, a fault shared by the Paris metro. The architect gave the London subway high marks for aesthetics, but said impure motives tainted its achievements: competition from bus lines had forced the London managers to resort to elaborate architecture. This approach was "purely superficial and formal . . . The [profit motive] makes it difficult to see [the London tube's architecture] as a positive thing." Soviets lauded the Germans for constructing wide islands to serve passengers travelling in both directions. However, the Germans had selected the island design merely to save money, to avoid hiring personnel to monitor two platforms instead of one. Another architect remarked derisively that the internal spaces of the subways in London, Paris, and Berlin "were architecturally worthless . . . gigantic soup bowls designed by soulless efficiency experts." The walls of the London tube, he added, were "so plastered over by advertisements that only with difficulty can one make out the name of the station."[28]

26. "Vospitat' luchshego v mire arkhitektora," *Akademiia arkhitektury*, no. 3 (1935): 3–4; Vladimir Kozlov, "Zhertvy metrostroia," *Moskovskii zhurnal*, no. 3 (1992): 27; Soviet slide picture show on the reconstruction of Moscow, box 1, John L. Iliff Collection, Hoover Institution Archives, Stanford, Calif.

27. Kosarev, *Kak my stroili* (n. 3 above), 178–79; D. Aranovich, "Arkhitektura Moskovskogo metropolitena," *Novyi mir*, no. 6 (1935): 169, cited in Wolf (n. 2 above), 311; Ia. Kolli and S. Kravets, eds., *Arkhitektura Moskovskogo metro* (Moscow, 1936), 51; Reznichenko, 218; Kosarev, *Rasskazy* (n. 14 above), 17; "Velikolepnyi podarok," *Sovetskoe iskusstvo*, 5 February 1935, 1.

28. Kolli and Kravets, 38, 41–42, 39; Gannes Maier, "Siiaiushchie chertogi," *Sovetskoe iskusstvo*, 5 February 1935, 1.

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The Soviets ultimately chose the island design in most of their stations, in combination with deep tunnels. They aimed partly to facilitate the movement of passengers into and through the stations, but they also wanted to create open spaces "for more festive architectural solutions." In addition to geological and defense considerations—stations doubling as bomb shelters—deep tunnels permitted cavernous areas buttressed by massive columns. Such imposing spaces provided opportunities to convey the grandeur of Soviet civilization, unleashed from the constraints of capitalist bean counters. "If one compares our metro with the metropolitans of the West, one immediately notices the unprecedented sweep of our design and construction." Architects expressed this grandeur above all in the height of the station ceilings. Moscow metro ceilings would ascend to 5.6 meters, compared to 2.7 meters in New York. If New York's platforms stretched 3.5 meters, Moscow's would range from 4 to 22 meters. Soviet lighting would outshine London's, 50 lux to 24 lux.[29]

Metro architecture incorporated images of plenty and respectability, supposed hallmarks of Soviet civilization. Monumental slabs of granite and marble reflected the durability and strength of the new Soviet order, with Moscow as its center. Metro builders said they used more marble in the first line than was used in the entire Tsarist period. Some Soviets interpreted this display as something akin to sympathetic magic: the appearance of wealth in a sacred sphere of public life would duplicate itself elsewhere, thus realizing the promise of the total welfare state. One architect saw in the grayish marble of the Sokolniki station the color of a "chinchilla fur." In the yellow-rose marble of the Komsomol station, which contains hints of green and brown, he conjured up a "beef aspic." Khrushchev remarked that the Red Gates Station, built in various shades of red marble, "can best be described as the color of raw meat."[30]

If the Soviet order supposedly made Western technology work better, it also rendered all past and present architectural forms more beautiful. Metro architects decorated the stations of the first lines with Greek columns, elaborate cornices, statuary, friezes, pilasters, and ceiling coffers. Many of the street-level pavilions evoked images of Greek temples, even as the stations below evinced the modernist spirit. The Palace of Soviets station (later renamed after Kropotkin when the palace it was named after failed to materialize) was the simplest of the first-line stations and contained little ornamentation. The insides of the tops of its columns doubled

29. Kolli and Kravets, 44; Strobe Talbott, ed., *Khrushchev Remembers: The Last Testament* (Boston, 1974), 92; Kaganovich, *Pamiatnye zapiski* (n. 10 above), 437; T. V. Fedorova, *Naverkhu-Moskva* (Moscow, 1986), 79; Kolli and Kravets, 40, 49; S. Kravets, "Zabota o passazhire," *Komsomol'skaia pravda*, 15 May 1935, 3, cited in Wolf, 305; Kovalev (n. 17 above), 46, 48.

30. Reznichenko (n. 1 above), 17; Kosarev, *Kak my stroili*, 510–11, 187; Talbott, *The Last Testament*, 92.

as light sources, projecting light toward the ceiling and into the station hall. This seemingly modernist building nonetheless incorporated many classical elements, and Egyptian tombs inspired the overall design. At the other extreme, the most canonically classical station, Komsomol, commemorated the Communist youth organization—the symbol of revolutionary youth in Soviet civilization.[31] Designers, however, had to go beyond merely borrowing the cultural heritage; they had to fill it with socialist content, melding classical architectural forms with Soviet political symbols, iconographic paeans to the conquest of nature, and mosaics glorifying proletarian labor.

The second round of stations, constructed during 1937 and 1938 in an ongoing campaign to make Moscow an even more respectable center of socialist culture, used gold, mosaics of semiprecious stones, and stained glass in their decorative elements. Architects completed these stations in the midst of the Great Terror (1937–39), a final act of purifying and perfecting the new society, and hence of making it more "beautiful." Soviets quarried new varieties of marble from across their empire—27,000 square meters of fourteen varieties, as compared to the 23,000 meters of seven types employed in the first line.[32]

The 1937–38 stations also elaborated a more complete array of social categories. While the 1935 Komsomol stop depicted just four socialist archetypes—soldier, sailor, worker, and collective farmer—on the station entrance, in the Revolution Square station eighty bronze statues situated throughout the station described a larger Soviet pantheon. These figures belonged to three categories: military and political heroes of the revolution and the civil war (1918–21), heroes of labor and science, and members of a Soviet nuclear family. In the first category were partisans, sailors, soldiers, a parachutist, and a border guard with a dog; this last, a well-known symbol of the secret police, attests to the growing obsession with guarding social space from political contamination. The second category, science and labor, which included inventors, scientists, students, collective farmers, and athletes, suggested a move away from the proletariat's domination of Soviet iconography in the 1920s. Sports figures came in pairs: one male and one female, manifesting a fascination with youthful, beautiful athletes who cleansed the social body of infirmity and steeled it for defense of the motherland in gender-balanced symmetry. Finally, the third category, family figures, now recognized the nuclear family as the basic social unit, thus rejecting earlier advocates of destroying family relationships. The old vision of a one-class proletarian culture had given way to a differentiated, complex society (fig. 4).

31. Kosarev, *Kak my stroili*, 193–94, 204; Vladimir Papernyi, *Kul'tura dva* (Ann Arbor, Mich., 1985), 240.

32. S. Kravets, *Arkhitektura Moskovskogo metropolitena* (Moscow, 1941), 112; "Vtoraia ochered'," *Sovetskoe iskusstvo*, 11 June 1935, 1.

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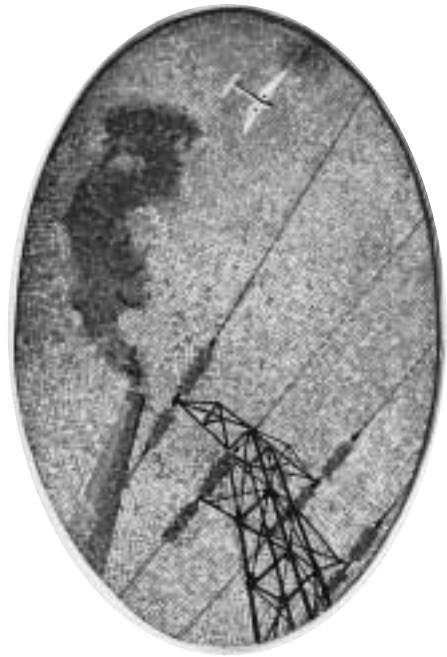

FIG. 4 A ceiling mosaic from the Mayakovski metro station. (Photograph by Jack Kollmann.)

However, it was Stalin's favorite metro stop, the 1938 Mayakovski station, that conveyed the central messages of Soviet power. The station mosaics and stainless steel arches supposedly expressed "the thinking of Soviet people in the prewar years" and the essence of "socialism," which the dictator proclaimed nearly complete with the new constitution of 1936.[33] As in many Orthodox cathedrals, passengers could receive these messages only when standing directly underneath the domes. The architectural design reflected the Stalinist emphasis on vertical rather than horizontal

33. This claim was reiterated at the end of the terror and great purges (1937–39) with the publication of the history of the Communist Party *Istoriia Vsesoiuznoi kommunisticheskoi partii (bol'shevikov): Kratkii kurs, pod redaktsiei komissii, Tsk UKP(b) Odobren Tsk VKP(b) 1938*. The "short course," as it was popularly known, a book published in millions of copies that Soviet citizens were expected to know by heart, provided the official history of the revolution's successful culmination. With the terror nearly complete, it declared that socialism—meaning an order based on the principle "from each according to his ability, to each according to his work"—had been achieved. This socialist order contained two "friendly" classes, peasants and workers, and a "layer" of intelligentsia. The transition to a classless communist society, based on the principle "from each according to his ability, to each according to his needs," would thenceforth be "gradual."

orientations. All eyes now turned toward the party—and ultimately Stalin—at the pinnacle of power, a shift in perspective reflected in every sphere of Soviet life. Nor was it a coincidence that construction of the metro—as deep as possible underground—coincided with celebrations of ever higher aviation flights. While showing a superior command of technique, such feats also symbolized the hierarchical and vertical nature of Soviet power.[34] One metro memoirist recalled the simultaneous occurrence, on 30 September 1934, of the completion of a record-breaking flight, the return of an expedition from the deserts of Central Asia, and the joining of two metro brigades to complete a tunnel: "That fall day, which was clear and bright for me and for all who remember it, existed in three measures. It was supported on the shoulders of the tunnelers who dug down deep into the Moscow earth. It was filled with the space of the drivers, who had passed in the fatherland's vehicles many thousands of kilometers and traversed the Karakum sand dunes and triumphantly returned to the capital. And it was illuminated by the flight of three pilots who had raised the ceiling of the world."[35] Moscow stood triumphantly at the center of a newly sacralized domain, bounded below by the world's deepest metros and above by the world's highest flying pilots.

Ridership as a Rite of Passage

Imagine, then, a group of passengers entering one of the first thirteen stations of the metro.[36] They enter through triumphal arches (the Palace of Soviets station) or pavilions supported by massive columns reminiscent of Greek temples (the Kirov or Sokolniki stations), marking the division between sacred and profane spaces. Well-lit platforms and halls feature chandeliers, elaborate frescoes, tiled murals, and statues in bas-relief. Long approaches facilitate movement through 150-meter-long halls, but details invite the travelers to stop, to contemplate the Soviet pantheon and meditate on the political messages captured in the art and architecture of these temples. Architects calculated that a passenger would spend roughly five minutes per station. "Within that time the architecture, emblems, and entire artistic image should actively influence him."[37]

Many Muscovites were eager participants in this celebration of socialism. On opening day, 15 May 1935, passengers did not simply take the

34. Reznichenko, 215, 256–57, 313; Papernyi, 58–80; Bailes (n. 6 above), 381–407. It was proudly noted that 70 percent of the second line's 14.9 kilometers of tunneling were of the deep variety, compared to 30 percent for the first line. *Metrostroi*, no. 8 (1938): 1.

35. Reznichenko, 89.

36. 5.3 million rode the subway in its the first month of operation. Ibid., 425.

37. The Komsomol station, with its luxuriant detail, took the passenger "into a world of illusion and call[ed] forth feelings of being in a theater lobby or the hall of a first-class hotel." Kosarev, *Kak my stroili* (n. 3 above), 196. Reznichenko (n. 1 above), 221.

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metro to get from point A to point B, but to celebrate the joyful "harmony and perfection" of the beautiful new order into which the metro initiated them. *New York Times* Moscow reporter Harold Denny, whose many dispatches on the metro testified to the genuinely festive atmosphere, reported on the subway's opening: "Most amusing, perhaps, were two old men, who never in their youth could have dreamed of riding under Moscow. One was distinguished by a noble pair of handlebar mustaches so long that the ends actually were hooked over his ears. These two came riding up the escalator, with expressions somewhere between ecstasy and alarm. As they arrived at the top they negotiated the juncture of moving stairs and solid floor with a hop, skip and jump, grinned triumphantly at each other, then took the down going escalator to try it again."[38] Twenty-five thousand copies of sheet music for "Songs of the Metro Conquerors," like joyous hymns at a church service, were distributed to participants in the opening day parade. One passenger reported that collective farmers were "mesmerized" by the rhythm of the moving underground and "began to sing." To foster the festive mood, fifty-five thousand color posters celebrating the metro adorned the city for opening day. Expressions of joy also continued aboveground, where four thousand amateur artists from among the metro's seventy-five thousand workers proved their own transformation into artists by staging plays and concerts. In the evening at the Bolshoi Theater a two-thousand-person chorus of metro shock workers praised the glory of the new order. Professional musicians and actors returned the favor, performing for metro employees at various venues (fig. 5).[39]

If opening day celebrated the arrival of socialism, metro passengers were also expected to exhibit the self-discipline now required in Soviet public space. *Komsomol'skaia pravda* issued nine rules—including one footnote—on how to ride the metro: "On the escalators, the moving stairs, passengers can either stand on a step, holding on to a banister on the right-hand side, or walk as if on a normal stairway. Sitting on the steps of an escalator is forbidden." One could only exit after a full stop; one should only enter a wagon after passengers on board had exited; one should only carry items that would not get in the way of other riders. Those forbidden to ride included drunks, others who gave off foul odors, and people carrying large cutting instruments, flammable materials, guns, and large bags. "It is forbidden to dirty or spoil the floor, walls, furniture and other stock or to

38. Harold Denny, "Moscow Finds Symbols in Its Subway," *New York Times*, 16 June 1935, VII, p. 7, cited in Wolf (n. 2 above), 258.

39. "Stroiteliam luchshego v mire metro," *Sovetskoe iskusstvo*, 11 May 1935, 1; Kosarev, *Rasskazy* (n. 14 above), 10; "Demonstratsiia Bol'shevistskoi pobedy," *Pravda*, 16 May 1935, 3; Lopatin (n. 8 above), 529. Wolf (n. 2 above, p. 325) notes that on opening day the authorities debuted a full-length feature documentary on the metro and published Kosarev, *Kak my stroili* and *Rasskazy*. They also printed a collection of poetry by metro workers (Kazin, n. 2 above), and reproduced photos of metro stations on postcards.

FIG. 5 Muscovites celebrate opening day of the Moscow metro. (Soviet slide picture show on the reconstruction of Moscow, box 4, John L. Iliff Collection, Hoover Institution Archives.)

stand children on the seats of the cars, to pull the brake or any other apparatus, to smoke or make noise." Ticketless riders would be fined three to ten rubles.[40] Soviet newspapers reported fifteen violations the first day. On 16 May *Komsomol'skaia pravda* complimented passengers for "preserving excellent order and the precise movement of trains." Two hundred and eighty-five thousand passengers rode the subway on the first day, and *Pravda* reported that "not a single cigarette butt was thrown on the floor." To accentuate rider participation in this spectacle, a radio station broadcast passenger comments from a car in the metro to the whole Soviet Union.[41] It was also announced that a new publication, *Sovetskii metro* (Soviet metro), would feature passenger impressions of their ride.[42]

Not surprisingly, stories of the metro reinforced messages of public respectability and discipline. One metro builder recalled an order to demonstrate "proletarian plenty" during a holiday parade in Red Square.

40. "Pravila pol'zovaniia Moskovskim metropolitenom," *Komsomol'skaia pravda*, 15 May 1935, 4.

41. "Pervyi den' na metro," *Komsomol'skaia pravda*, 16 May 1935, 4, cited in Wolf, 323; "Moskovskii Metropoliten otkryt!" Pravda, 16 May 1935, 3.

42. "Uverenno i chetko," *Komsomol'skaia pravda*, 17 May 1935, 4.

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The order said women should wear stockings and men ties. Outraged at the use of the term "plenty," a firebrand from the youth communist league demanded the word be struck as a kulak term. "You can't confuse things like this," he said, "particularly when there are remnants of dekulakization, kulak children, who will raise their head high after such an order." Party officials dismissed the complaint.[43] In the maturing Soviet civilization, people should appear respectable and dignified in public.

Meanwhile, awards given to metro builders elaborated the "socialist" content of the new social hierarchy.[44] Starting at the bottom, the almost total absence of women awardees from among managers and specialists reinforced the exclusion of women from the most prestigious jobs as managers of the assault on nature.[45] If women did assume untraditional roles, they did so primarily as unskilled labor in some of the most physically demanding jobs.[46] Another 1935 tribute to the metro (written by a woman) excluded women completely from the tale of the metro's construction, representing them instead as gardeners and mothers who labored aboveground as men conquered nature in the shafts.[47] This pairing of women with motherhood and fertility reflected more traditional conceptions of feminine domesticity in the Soviet Union of the mid-1930s; more important, it emphasized a certain understanding of the hierarchical relationship between city and countryside. Before the brutal policy of collectivization, Bolshevik posters depicted the alliance of peasant and worker with a peasant man and proletarian man; after 1930 the proletarian man as symbol of the city remained, but the collective-farm woman now replaced the male peasant as a symbol of rural life. Soviet cultural representations thus pre-

43. Evgenii Dolmatovskii, *Sobranie sochinenii v trekh tomakh*, vol. 3 (Moscow, 1990), 38–39.

44. See "O nagrazhdenii rabotnikov po stroitel'stvu metropolitena v Moskve," *Pravda*, 14 May 1935, 3. The list of awardees included 37 who received the Order of Lenin, 13 recipients of the Order of the Red Star, 32 recipients of the Order of the Red Flag, and 168 who received a letter of commendation.

45. Only three of the thirty-seven recipients of the Order of Lenin were women. No women received the Order of the Red Star, and only three got the Order of the Red Flag. All three were shock workers. Finally, women received fewer than twenty of 168 letters of commendation. Nine of the twenty were shock workers; apart from three brigade leaders, none occupied a managerial position.

46. Kosarev, *Kak my stroili* (n. 3 above), title page. Soviet coding of unskilled labor as "female" mirrored similar developments in France and Britain following the widespread entrance of women into the ranks of factory labor during and after World War I. See Laura Downs, *Manufacturing Inequality: Gender Division in the French and British Metalworking Industries, 1914–1939* (Ithaca, N.Y., 1995).

47. Vera Inber, "Razgovor v metro," in *Moskva*, ed. L. Kovalev (Moscow, 1935), 258; Reznichenko (n. 1 above), 121–22. This understanding of the role of women in Soviet civilization mirrored contemporary developments: 1935 was the eve of new family legislation that outlawed abortion and endorsed a more traditional role for women as keepers of the hearth and creators of babies for Soviet civilization.

sented the technologically superior urban life as male and then coupled it with the backward "feminized" countryside—a countryside that was "raped" by the city during collectivization and otherwise brutalized on the altar of a Soviet modernity.[48] It is notable that images of collective farm life in the metro stations showed women rather than men.

The list of awardees also reveals the absolute domination of party administrators and specialists over workers and foremen, of mental laborers over manual laborers, and thus a revolution for workers and not by them. Not one of 250 award recipients was a regular blue-collar laborer. Other manual workers (brigade leaders and shock workers) received just 55 of the 168 letters of commendation, and their names always appeared after those of party organizers, engineers, and administrators (including Reznichenko, who as editor of *Udarnik metrostroia* received the prestigious Order of Lenin).[49] The recognition accorded engineers and mental laborers signaled a maturation of the revolution. Those who mastered technology—and who also had impeccable party credentials—now achieved the highest social status and became central agents of social and physical reconstruction.[50] This shift marks a stunning transformation of official values from the exaltation of manual labor in the 1920s to the glorification of politically correct white-collar labor in the 1930s. Even foreign specialists, carriers of bourgeoisie civilization's technological legacy, gained top billing over the Soviet manual laborers: two English engineers and one American engineer claimed the third highest Soviet honor of the time, the Order of the Red Banner.[51]

48. Victoria Bonnell, "The Iconography of the Worker in Soviet Political Art," in *Making Workers Soviet: Power, Class, and Identity*, ed. L. Siegelbaum and R. Suny (Ithaca, N.Y., 1994), 341–89, and "The Peasant Woman in Stalinist Political Art of the 1930s," *American Historical Review* 98 (1993): 55–82.

49. "O nagrazhdenii rabotnikov po stroitel'stvu metropolitena v Moskve," *Pravda*, 14 May 1935, 3. A certain Shashirin was recipient number ten of the Order of Lenin. He headed the metro Komsomol and appeared as a hero in the official histories of 1935. He was arrested in 1937 and shot in 1938. He was rehabilitated in 1989 and reentered the metro myth as an even greater hero in a 1991 book dedicated to his life and contributions to building the metro. See B. Bukharina, *Ushel v bessmertie* (Moscow, 1991).

50. For an examination of the technical intelligentsia's growing importance in Soviet society in the 1930s, see Bailes (n. 6 above) and Nicholas Lampert, *The Technical Intelligentsia and the Soviet State: A Study of Soviet Managers and Technicians, 1928–1935* (London, 1979).

51. The preference for the political and intellectual professions was also reflected in the names of stations. Of stations named after individuals, those built in 1935 honored Lenin (a political leader), Dzerzhinskii (a secret-police chief of Polish extraction), Kirov (a political martyr), and Kropotkin (a prince and scientist turned anarchist). Three others had stations named after them later in the 1930s: Gorky, whose name was appended to the 1935 Park of Culture station after his death in 1936; Yakov Sverdlov, Lenin's close collaborator; and Mayakovski, the futurist poet. Stalin, in 1944, became the only living person in Soviet history to have a station named after him. N. A. Pekareva, *Moskovskii Metropoliten imeni V. I. Lenina* (Moscow, 1958), appendix.

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No architect received any award higher than a letter of commendation. The contrast between the exaltation of architectural design and the comparative lack of recognition given to the metro's architects is striking. Indeed, the role of artist was relegated to the party—and in the case of the metro to Kaganovich, whose name graced the entire system until his fall during the Khrushchev period. In the words of one Russian art critic: "It is of course irrelevant to object here that Voroshilov or Kaganovich or Stalin himself were not experts on literature or art, for they were in reality creating the only permitted work of art—socialism—and they were moreover the only critics of their work."[52]

A Banner of Soviet Technological Style

What insights regarding Soviet technological style emerge from the early history of the construction of the Moscow metro? As in the capitalist West, mental labor was privileged over manual labor, and the communist party created a rigid hierarchy to govern both.[53] However, the Soviet Union lacked one of the most significant features of technological development in capitalist societies: the shaping influence of market concerns and profit-seekers. Standing in the place of capitalist overseers, party bosses assiduously combined operational and aesthetic functions to organize social space and discipline new city residents. Under their management the metro celebrated Soviet socialism, provided a pulpit for preaching its values, and offered a way to get to work in the morning. Admittedly, this complex fusion of the beautiful and the functional, the ornate and the useful, created a delicate balance and occasional discomfort for the master builder himself. Kaganovich once accused the metro architects of "unjustified ornamentation." Religious elements in the architecture occasionally offended his atheistic sensibilities. "These aren't cathedrals, after all, but stations for an underground railroad," he remarked. But not even Kaganovich could turn back the rejection of Western-style utilitarianism. Through the end of the Stalin era, stations became more ornate and monumental as the metro grew. Like a mirror held up to Soviet political self-perceptions, monumentalism and an elaborate political iconography reflected a sense of approaching perfection in the social and political body. Soviet propagandists end-

52. Boris Groys, *The Total Art of Stalinism: Avant-Garde, Aesthetic Dictatorship, and Beyond*, trans. Charles Rougle (Princeton, 1992), 35–36. Kaganovich claimed to have protested to Stalin that the metro should not carry his name: Kaganovich, *Pamiatnye zapiski* (n. 10 above), 440.

53. On similar conceptions of hierarchy in the American factory of the early twentieth century, see Samuel Haber, *Efficiency and Uplift: Scientific Management in the Progressive Era, 1890–1920* (Chicago, 1964), and Stephen Meyer, *The Five Dollar Day: Labor, Management, and Social Control in the Ford Motor Company, 1908–1921* (Albany, N.Y., 1981).

lessly claimed that the revolution had nearly vanquished its enemies, that a socialist order had emerged, and that the final transition to communism would be "gradual." After the bloody purges of 1937–39, imperfect humanity and unfinished nature were supposedly nearing total redemption, paving the way for a harmonious, joyous, and beautiful society.[54]

If Soviet leaders designed the metro for engineering such social beauty and harmony, the epic of its construction also elaborated an ideal conception of socialist engineering culture. In Gorky's heroic stories, successful technological construction did more than fulfill the plan: it proved the inevitable success of the revolution and the party's vision of itself as an instrument of a scientifically determined historical destiny.

To justify that vision, the Soviets had to build the first subway lines in four years rather than the six it took in Berlin, the seven in New York, the twelve in Rome. Engineers made designs concurrently with construction—and praised the technique as the essence of sound management. "We didn't have time for doubts," recalled one.[55] With surprising candor and even pride, propaganda for the first metro line detailed the incessant organizational improvisation and the near disasters that accompanied these tests of faith. Official histories praised methods of on-the-fly fabrication that were fundamentally irrational and voluntaristic, that ignored all possible material, technical, and social obstacles. Choreographed rituals of public support, such as the voluntary labor days, generated labor reserves and mythologies of new communities of workers. Plaster cracked and crumbled from improper mixing; party leaders hastily trained inspectors from among workers to correct the problem, threatened arrests, complained of sabotage. Soviet propagandists seemed almost to celebrate the constant lurching from one near calamity to another: fires in the shafts, flooded caissons, collapsing buildings. Only bullying, threats, press exposés, and the cajoling of tyrannical party bosses held the project together in the quicksand society.[56]

If, as the Soviets assumed, technology would automatically work better under socialism, then socialist labor could take risks previously unimaginable. Workers in the pressurized caissons endured air pressures of 30 pounds per square inch, twice the maximum specified in Soviet regulations, and often for two or three straight days. A tunneler paralyzed in the collapse of a shaft became a celebrated hero, wrote for Metrostroi publica-

54. Kolli and Kravets (n. 27 above), 81; Kosarev, *Kak my stroili* (n. 3 above), 207; Kravets, *Arkhitektura Moskovskogo metropolitena* (n. 32 above), 30.

55. Wolf (n. 2 above), 242; Kosarev, *Kak my stroili*, 219–20, 235, 260–61, 235, 138. A recent work traces the Bolshevik obsession with overcoming the constraints of time to key tenets of the Marxist intellectual tradition: Stephen Hanson, *Time and Revolution: Marxism and the Design of Soviet Institutions* (Chapel Hill, N.C., 1997).

56. Kosarev, *Kak my stroili*, 11, 13, 16, 19, 22, 56, 62–65, 71, 78, 93, 137, 156, 162, 168, 171, 216, 226, 231–32, 254, 262, 285, 371–80, 387, 448; Lopatin (n. 8 above), 512–25.

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tions, and eventually authored children's books glorifying the metro's construction. An engineer named Bobrov remembered the construction of three 34-meter vaults in a vestibule below the Moscow City Council hotel: Between where they planned to build the vaults and the street above lay a 7-meter-thick layer of quicksand mixed with alluvial rock. Workers built a structure of wooden supports, each 40 centimeters thick, to stabilize the soil so "the hotel of the Moscow City Council and the Committee for Labor and Defense across the street did not collapse." As work began the sounds of the supports snapping echoed "like gun shots" through the tunnel. Bobrov and his colleagues tried as best they could to ignore the deafening sounds and continued working, "replacing the broken supports with new ones" on the fly.[57]

If party leaders made risk-taking obligatory, they treated protests on technical grounds as tantamount to counterrevolutionary activity. Kaganovich singled out the metro's geologists as "pre-revolutionary" in their cautionary statements about Moscow's subsoils. George Morgan, an American engineering consultant, received a tongue-lashing for suggesting that a brigade of Komsomol recruits should slow down and be more careful. While technically correct, he admitted he had "underestimated human material." One concrete worker denounced an engineer for demanding that concrete be poured directly onto a surface covered with a muddy pool of water. She understood the "objective" reasons for the engineer's order: "It was necessary to pour concrete and there were insufficient conditions for doing so." But the engineer's "subjective" state—his lack of faith—made him an enemy of the revolution. In the end, she believed he was a wrecker and therefore a political enemy, not because he was a hired enemy agent or merely incompetent, but because he "succumbed to the temptation" to meet the deadline the easy way.[58] Another engineer unwisely questioned Kaganovich's decision to run the Arbat line not directly under the street but rather under some adjoining houses, fearing that the houses might collapse. Kaganovich reminded him that a socialist society had no private ownership, and therefore did not face the problem of buying rights-of-way from homeowners.[59] In the stylized manner of the show trials, the chastened engineer called himself a "physically ill man" for being unable to take risks and admitted that his "physical weakness" interfered with his "creative abilities." In Kaganovich he saw "a man of great physical power."[60]

As these examples suggest, the party advanced a peculiar view of industrial safety and accidents, blurring distinctions between technical incompe-

57. Bobrick (n. 7 above), 275; Reznichenko (n. 1 above), 140; A. Bobrov, "Rasskaz stroitelia," *Sovetskoe iskusstvo*, 11 May 1935, 1.

58. Kosarev, *Rasskazy* (n. 14 above), 217–18.

59. Kaganovich, *Pamiatnye zapiski* (n. 10 above), 438.

60. Kosarev, *Rasskazy*, 118; Reznichenko, 45

tence, political crime, and insufficient faith in party directives. In early 1933 Metrostroi's technical journal wrote that obstacles to the metro's construction had in fact been "conjured up by opportunists, liar specialists, and alien elements who have weaseled their way into the project to find a cozy position for themselves." Another journalist captured the Stalinist ethos in an instruction to his colleagues on how to write correctly about technical matters. One must avoid "sliding into the swamp of objectivity and empiricism, to catch the typical and characteristic, to recognize the masked enemy, and to toss out incidental sympathies and antipathies." Only by looking beyond observable phenomena, he added, would the "genuine forms of the new socialist reality" appear to the observer. Such were the utopian dimensions of risk and danger celebrated in Soviet technological style: objective reality no longer mattered.[61]

In short, official tales of the Moscow metro portrayed Soviets as bold risk-takers. Party leaders set wildly unreasonable goals (referred to as "plans") and then challenged workers and engineers to finish the job through acts of will and faith. Driven relentlessly by the whip of political denunciation, Soviets ventured into unknown technological terrain, guided always by the punishing hand of the party. They adapted Western technology on the fly. They reduced issues of industrial safety and incompetence to matters of insufficient faith or political sabotage. If these attributes reflected the chaotic reality of Soviet industrialization in those days, they also became positive virtues in the metro saga, distinguishing marks of Soviet engineering culture and even a point of national pride.[62] The myth of the metro legitimized in the symbolic realm the reckless mode of construction that exacted such tragically high costs during Stalin's program of hyperindustrialization.[63]

Equally important, the metro's successful completion suggested that Soviet technological style—despite its seemingly blundering nature—had passed muster: faith and violence combined with political patronage could replace material incentives and rational calculation. The accounts of the metro construction reveal a growing sense of pride in technological achievement and political validation—the notion that the measure of a society, to paraphrase Michael Adas, is precisely its mastery of technology and nature.[64] True, the Soviets could boast of numerous other instances in

61. *Metrostroi*, nos. 1–2 (1933): 3; V. Tarsis, "Vospominaniia o budushchem," *Nashi dostizheniia*, no. 5 (1934): 160.

62. "A good engineer," said one metro chronicler, "is obligated to be an enthusiast"; Kosarev, *Kak my stroili* (n. 3 above), 266. Wolf (n. 2 above), 259–60, refers to the "boldness" of Stalinist engineering principles.

63. The woeful consequences of this culture of risk are eloquently detailed in Graham (n. 6 above).

64. Michael Adas, *Machines as the Measure of Men: Science, Technology, and Ideologies of Western Dominance* (Ithaca, N.Y., 1989). For examples of the pride felt in the comple-

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which they demonstrated their mastery of technology in those years, but none so concrete and visible, none so useful to the average citizen, none so subject to mythological production as the metro, the prototype for future Soviet large-scale technologies. The metro shows in bold relief the quicksand engineering culture that produced the many ecological disasters of the Soviet period: disregard for social and material costs, belief that faith could overcome all obstacles, distrust of words of caution based on technical rather than political considerations. Yet without this ethos of fearless risk-taking, it seems doubtful the Soviet Union would have been able to recreate much of its industrial base behind the Urals in World War II, a critical factor in breaking the Nazi offensive. Nor would the Soviets have so audaciously followed the war's devastation by entering a space and arms race with the world's richest nation. Among other things that race produced the amazing Mir space station, which against all odds and on a shoestring budget has outlived the political system that created it.

The Mother of All Socialist Metros

The original lines of the Moscow metro laid the foundation for one of the world's most impressive subways. In its first fifty years, the Moscow metro grew from 13 stations to more than 120, and the average number of passengers carried daily increased from 177,000 to more than 6 million, making the Moscow system the world's busiest. By 1950, Moscow's subway trains averaged 25 miles per hour, with a top speed of 50 miles per hour, making it one of the world's fastest systems as well. The metro acquired technological and ideological momentum, reproducing its organizational structures in metro systems across the former Soviet Union and behind the Iron Curtain. It became, in the words of one official, "the mother of all socialist metros." Symbols of Soviet power accompanied riders in the metros of Leningrad, Kiev, Kharkov, Baku, Tblisi, Tashkent, Minsk, Gorky, Erevan, Novosibirsk, Sverdlovsk, and Volgograd—not to mention those systems built partly by Moscow engineers and architects in Poland and Czechoslovakia.[65]

If the metro worked well as a transportation system, how did it fare as an instrument of social engineering? It is difficult, if not impossible, to

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tion of the Moscow metro within Soviet technical communities, see E. Drevnovich, "Za luchshee metro," *Izobretatel'*, no. 8 (1934): 23–24; K. Volkov, "Shchit metropolitena," *Izobretatel'*, no. 4 (1934): 20–21; A. Serebro, "Za luchshee metro," *Izobretatel'*, no. 1 (1935): 41; A. Gribova-Reshetnik, "Izobretateli metrostroia," *Izobretatel'*, no. 4 (1935): 16–17; the three part series by Gendel' (n. 8 above); S. Vetliugin, "Tekhnika pod zemlei," *Nashi dostizheniia*, nos. 7–8 (1934): 85–95. Wolf, 329, notes that foreign praises for the metro were widely published for Soviet audiences, a ritual technique of legitimization used in Soviet propaganda about large construction projects since the 1920s.

65. Reznichenko (n. 1 above), 402, 425–26. See Josephson (n. 3 above), 541–42, on technological momentum and the Moscow metro.

gauge the sentiments of the Soviet citizenry in that era, but any answer to this question must consider some central facts of Soviet life in the 1930s. A brutal program of hyperindustrialization, collectivization, and urbanization had turned Russia into a sea of displaced and disoriented peasants. Out of the sociological and geological quicksand the Moscow metro emerged as symbol of a new order, marked by clear social and political hierarchies, reflected in granite and marble. The metro also embodied the Soviet Union's unique and efficacious technological style, centered on an ethic of bold risk-taking that the Soviets claimed was impossible under capitalism. It taught social discipline to the multitudes of peasant immigrants streaming into the capital, who threatened social and political chaos, and instilled in them a sense of awe of the communist party. Visible symbol of looming prosperity and seeming validation for all the sacrifice and suffering of the first five-year plans, set against the backdrop of a capitalist world in seeming collapse and lapsing into fascist dictatorship, the Moscow subway may have been one of the Bolsheviks' most effective social engineering tools.[66] No viable alternative to the metro's vision of socialism appeared to most Soviets, especially given the regime's relentless co-optation of the language of social justice and welfare. People today speak of the end of history and the triumph of liberal capitalism; how plausible might it have seemed to a Soviet worker, a few generations removed from serfdom, brought up on Soviet propaganda, and descending for the first time on an escalator into the Mayakovski station, that history had ended precisely in the socialist society celebrated and propagated through the Moscow metro?

Certainly many who rode it in those years (one billion people by 1940) were enthusiastic participants in the metro spectacle. Many years later the Soviet journalist Iurii Zhukov remembered the excitement on the eve of the metro's opening. The Seventh Congress of Soviets was finishing its work. A delegation of metro workers entered the hall, turned on a green light from a signal lamp, and proclaimed: "The metro exists!" Twenty-five hundred delegates became the first passengers. Zhukov feared his old notes would "bore the young reader" and admitted that the metro's decorations were often excessive, particularly in the stations built after World War II. Even so, the first subway line shone "bright and clear . . . with expensive but solid marble, bathed in light [and] filled with fresh air." It was a "tangible and proud manifestation" of something he could only dream about in hard times. "Alabaster lights, similar to ancient Greek chalices" glowed at the Hunter's Row station. He had the sensation of standing "in an ancient cathedral with sacred oil burning in lamps." The guards in the station wore "smart, well-fitting uniforms," and from the tunnel came the hum of an approaching train. Four olive-yellow cars arrived, filled with "the white light of crystal lamps." Behind the wide train windows Zhukov spied the "happy,

66. Wolf, 333–34.

laughing faces of the first passengers, the builders of the metro and its first guests, the delegates of the Congress of Soviets." The journalist likened that day to a "carnival in a fairy tale marble palace. . . . I have remembered this unusual, hurried and anxious day not only to explain to uncomprehending foreigners how the cult of the Soviet metro was born . . . but also because these impressions reflect the unprecedented uniqueness of that epoch."[67]

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67. *Calendar: Thirty Years of the Soviet State, 1917–1947* (Moscow, 1947), unnumbered page for the month of May; a copy can be found in the Stanford University Library. Reznichenko, 37, 96–100.