

# CHAPTER 1

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## INTRODUCTION

### Stalin, Science, and Politics after the Second World War

Joseph Stalin collected many encomiums while ruling the Soviet Union. At various times the Soviet press called him, among other things: “the Standard-bearer of Peace,” “the Great Helmsman of the Revolution,” “the Leader of the International Proletariat,” “Generalissimo,” and “the Father of Nations.” In the years following the Second World War he assumed yet another title: “the coryphaeus of science.”<sup>1</sup> As the “leader of the chorus”—or coryphaeus—Stalin stood on the podium while Soviet scientists sang in rhythm to the commanding movements of his baton.

Stalin tried to live up to the ideal of a man who united political power and intellectual acumen. Between the end of the Second World War and his death in 1953 he intervened in scientific debates in fields ranging from philosophy to physics.<sup>2</sup> In late 1946, when Stalin was sixty-seven years old and exhausted from the war, he schooled the USSR’s most prominent philosopher on Hegel’s role in the history of Marxism. In 1948, while the Berlin crisis threatened an irreparable rift between the United States and the USSR, Stalin wrote memos, held meetings, and offered editorial comments in order to support attacks against Mendelian genetics. In 1949, with the first Soviet atomic bomb test only months away, Stalin called off an effort to purge Soviet physics of “bourgeois” quantum mechanics and relativity. In the first half of 1950 he negotiated a pact with the People’s Republic of China and discussed plans with Kim Il Sung about invading South Korea, while also writing a combative article on linguistics, carefully orchestrating a coup in Soviet physiology, and meeting

with economists three times to discuss a textbook on political economy. In some cases he denounced whole fields of scholarship, leading to the firing and occasional arrest of their proponents. His efforts to unmask errors in science were paralleled by an equally intense drive to show how each discipline could contribute to building communism and serve as a symbolic weapon of Soviet superiority in the battle with the West along an “ideological front.”

Why was Stalin so keen to be a scholar? His direct involvement in academic disputes reveals a side of the aging dictator that supplements what we have long known about him from the extensive memoir literature. He took ideology seriously. He was not simply a megalomaniac and reclusive old man who used scholarly debates only to settle political problems. (After all, he had much more direct ways of taking care of things he did not like.) The evidence shows he was far more concerned about ideas than was previously known. We do not have to accept the intellectual value of Stalin’s proclamations about biology, linguistics, physiology, or political economy to recognize that he consistently spent time on the details of scholarly disputes.

Applying Marxist-Leninist principles to academic controversies often led to unpredictable results. Even those members of Stalin’s inner circle who were responsible for ideology had to wait for word from the coryphaeus before they could be confident that they understood the outcomes he had in mind. For his part, Stalin’s strategies for solving scholarly conflicts evolved in response to ideas put forth by scientists themselves. When he did reveal his judgments, others were left with the unenviable task of interpreting his words and working out their implications for a wide range of fields. In this sense Marxist-Leninist ideology was often subject to reformulation.

This book analyzes the content of Stalin’s scientific forays, places them within the context of the broader academic disputes, and then traces their impact on both domestic high politics and the Soviet conceptualizations of the Cold War. In order to do this, the story moves up and down the Soviet system, from the institutes and universities where scientific debates often began and where their effects became apparent, to the presidium of the colossal Academy of Sciences, to deliberations in the Secretariat of the Central Committee, and finally to Stalin’s office and desk, where the leader passed final judgments.

Controversies erupted in many academic fields in the 1940s and early 1950s. Six stand out because of their broad implications and because Stalin and his closest lieutenants in the Soviet government and the Communist Party directly intervened in them. These six debates—or “discussions,” as they were often called—took place in philosophy, biology, physics, linguistics, physiology, and political economy.<sup>3</sup> Stalin’s active participation in these debates demonstrates that more was at stake than scholarly disagreements: the science wars of the late Stalin period encompassed themes crucial to the Party’s legitimacy and fundamental to the Soviet worldview in the early Cold War. Marx-

ist-Leninist “scientific philosophy” provided the foundation for the ideology that underpinned the state and society. Physiology and biology had a direct bearing on the new “Soviet man” that the system tried to create and on nature, which communism promised to transform. Quantum mechanics and relativity in physics potentially challenged Marxist-Leninist materialist epistemology even as they seemed crucial for the development of atomic weapons. Linguistics encompassed issues of consciousness, class, and nationality. And political economy required a critique of capitalism, a justification of Soviet socialism, and a road map for achieving communism in the USSR and throughout the world.<sup>4</sup>

Stalin did not venture into scientific laboratories, conduct specific experiments, or solve equations. Yet he insisted that science was intertwined with the foundations of socialism and with the Party’s *raison d’être*. Thousands of newly accessible and previously unexplored documents from Communist Party, Russian State, and Academy of Sciences archives reveal that he was determined—at times even desperate—to show the scientific basis of Soviet Marxism. As both an editor and an author, Stalin actively engaged with the content of scholarly work and contemplated its overall implications for Marxism-Leninism. His memos and top secret documents are saturated with the same Marxist-Leninist language, categories, and frames for understanding the world that appeared in the public discourse. He did not keep two sets of books, at least on ideological questions.<sup>5</sup>

Under Stalin’s guidance, the USSR went further than any previous state in placing the support of science at the center of its stated purpose.<sup>6</sup> As a Marxist presiding over an agrarian country, Stalin was eager to modernize as quickly as possible. He believed that science provided the key to updating and industrializing the economy. Principles of scientific management would improve not only industrial production but all other aspects of societal development. Like Engels and Lenin before him, Stalin understood Marxism as a science inextricably tied to the methodology and laws of the natural sciences. Marxism-Leninism claimed to provide a “science of society” that would help to create a “kingdom of freedom” on earth. The Party’s political authority relied on the perceived rationality and scientific basis of its actions. If Marxism-Leninism was scientific, and science would flourish if it was based on Marxist principles, it followed that science and Soviet Marxism should mutually reinforce each other. They led to the same discoveries about the nature of things and, together, progressed steadily to absolute truths.

Science played a unique role in Soviet ideology. When Soviet citizens publicly spoke or wrote about Soviet ideology, they were referring to a set of ideas identified and propagated by the regime and used to justify the superiority of the Soviet state. In principle, these ideas were derived from interpretations of canonical texts by Marx, Engels, and Lenin and were supposed to reflect and shape Soviet reality. They were supposed to be all-encompassing and inter-

nally consistent with “Party lines” defining the parameters of acceptable positions within various fields of thought. Soviet ideology contrasted with “bourgeois ideology”—a pejorative term depicting ideas in the Western political “superstructure” that reflected the capitalist “economic base.” By definition, Soviet ideology was an accurate depiction of the material world, while bourgeois ideology consisted of lies and illusions that helped the capitalists to maintain power. The regime strictly upheld its prerogative to judge every activity on ideological grounds. But what about the cases when science and Soviet ideology seemed to contradict one another? Unlike the literary or artistic intelligentsia, whose challenges to the Party’s authority were based on subjective notions of justice and moral truth that the Party could simply reject, scientists based their autonomy on very limited fields of expertise that provided them with specific access to objective laws. Scientists claimed that their work reflected reality, just like Soviet ideology.

The relationship between science and the Party evolved over the course of Soviet rule. During the 1920s the sciences, particularly the natural sciences, were relatively free from a radical Bolshevik agenda that sought to revolutionize thought in the name of building proletarian culture.<sup>7</sup> While theorists debated the meaning of dialectical materialism as a Marxist philosophy of science, Lenin defended “bourgeois technical experts” and the contribution they could make to modernizing the state. The regime denounced bourgeois literature, art, social policies, and the like, but it supported bourgeois scientists. During the Great Break of the late 1920s and early 1930s, however, zealous Marxist-Leninist philosophers promoted some scientific theories as “proletarian” and rejected others as “bourgeois.” In an attempt to create “red specialists,” activists and young students pushed to expose, fire, and arrest so-called saboteurs and wreckers among the “bourgeois experts.”<sup>8</sup> In 1931 Stalin called for an end to the radical upheaval of the period, and subsequently the Party supported a calcified dialectical materialism based more on loyalty to the Party than on specific philosophical tenets. Scientists and the regime reached a new *modus vivendi* in which the Party supported scientific research while retaining control over scientific planning.<sup>9</sup> By the end of the 1930s young scientists who owed their education to progressive Soviet policies tended to be more sympathetic to Marxism-Leninism, and young leaders in the Party and state apparatus who had received training in technical disciplines tended to see themselves as part of a new Soviet intelligentsia.<sup>10</sup>

The Second World War altered the relationship between ideology and science in three crucial ways. First, scientists found themselves relatively free from Party oversight. Second, the atmosphere of international cooperation exemplified by the antifascist Grand Alliance created an opportunity for Soviet scholars to participate in “world science” and weakened the distinctions between “bourgeois” and “proletarian” science. And third, the development of atomic weapons, radar, and antibiotics during the war clarified that science

was a crucial component of national security, which increased Party support and scrutiny. In these fields, science in the West was in the lead and could not be dismissed. The wartime mood was summed up at an international celebration of the 220th anniversary of the Academy of Sciences in the Kremlin in June 1945. With Stalin and foreign scientists in attendance, the Soviet minister of foreign affairs, Viacheslav Molotov, proposed a toast for “the development of close collaboration between Soviet and world science.”<sup>11</sup>

The opportunity for cooperation in science did not last long. In February 1946, Stalin delivered a speech blaming capitalist policies for the outbreak of the two world wars and outlining a plan to guarantee that the USSR would be militarily prepared for the next global conflict. From the perspective of American policy makers, the Cold War was under way.<sup>12</sup> The speech also assured that science would be an important sphere of international competition. “I have no doubt that if we give our scientists proper assistance,” Stalin said, “they will be able in the very near future not only to overtake but even outstrip the achievements of science beyond the borders of our country.”<sup>13</sup> The Cold War was not just about geopolitics and military conflicts. It also pitted two ways of organizing science against one another.

Stalin provided practical support for the effort to surpass foreign science. In early 1946 Stalin told Igor Kurchatov, the physicist in charge of the Soviet atomic bomb project, “our state has suffered much, yet it is surely possible to ensure that several thousand people can live very well, and several thousand people better than very well, with their own dachas, so that they can relax, and with their own cars.”<sup>14</sup> This was true not only of physicists working to end the American atomic monopoly. The rising tide raised all ships: funding for the Academy of Sciences expanded rapidly, as did the number of institutes and the number of scholars working in them. In turn for their loyalty and hard work, Stalin gave scientists material comforts that were extremely rare in the USSR at the time.<sup>15</sup>

Science became a sphere of Cold War competition in ways that went beyond national security. Stalin assigned Soviet scholars two key roles on the “ideological front” of the Cold War: they had to criticize Western ideas, and they had to export Soviet ideas to newly emerging socialist states in Eastern Europe and Asia. Sustaining the argument that communism was the only viable way to organize society required a certain ideological coherency, which scholars could provide. One of the best ways to prove the merits of a materialist worldview was to show that adhering to it inevitably led to scientific breakthroughs. Soviet intellectual achievements could serve as symbolic measures of the superiority of the Soviet system. Scholars from every discipline joined the battle along the ideological front. Stalin implored one group of economists, for instance, to recognize the broader significance of their work, which would be “read by Americans and Chinese . . . studied in all countries. . . . It will be a model for everyone.”<sup>16</sup> Soviet scholars had to espouse universal theo-

ries in an effort to win the hearts and minds of people around the globe. Stalin saw the real need for and value of science, hence his own involvement.

Despite the value of scholars in Cold War competition, Stalin never fully trusted their loyalty. The lingering appeal of international cooperation and “world science” challenged the strict dichotomy between East and West that the Party emphasized. Even the stunning success of the USSR in the Second World War, an apparent vindication of Stalin’s policies, exacerbated tensions between the regime and the scholarly elite. Soviet citizens hoped that victory in war would bring improvements in living standards and increased ideological flexibility. Instead, financial instability, widespread famine, severe health care problems, and the Party’s attempt to gear the economy for the Cold War led to unexpected sacrifice by ordinary citizens.<sup>17</sup> Stalin believed that this social dissatisfaction could undermine confidence in the system more generally. So, rather than loosening its grip, the Party tightened it and looked for scapegoats who could be blamed for the persistent hardships. Soviet intellectuals, including scientists, who had actively developed contacts with foreigners during the relative openness of the wartime alliance were easy targets.

As international tensions rose, Stalin moved systematically to reestablish control over all sectors of society. Scientific discussions became a means by which the Party could ensure scientists’ loyalty to the state and to Party principles. Stalin worried that Soviet intellectuals had fallen under the influence of Western culture. In 1946, at his boss’s behest, Party secretary Andrei Zhdanov led an attack against Soviet writers for their “formalism” and “subservience to bourgeois culture.” Similar denunciations followed in music and art in a campaign that became known as the *zhdanovshchina*. These internal struggles were clearly connected to the international situation. In 1947 Stalin ordered Zhdanov to deliver a major policy speech declaring that the world was divided into “two camps” and that there could be no neutral parties between them.<sup>18</sup> Like everyone else, scientists had to conform to the bipolarity of the Cold War. In 1947 Stalin told the popular writer Konstantin Simonov, “if you take our intelligentsia, scientific intelligentsia, professors, physicians—they are not sufficiently inculcated with the feeling of Soviet patriotism. They have unjustified admiration for foreign culture.”<sup>19</sup> Soon afterward the Central Committee distributed a closed letter to all Party members condemning “servility to the West” and calling on the intelligentsia to “defend the interest and honor of the Soviet state.”<sup>20</sup>

Some scholars responded to the Party’s call to arms by reviving in their own disciplines the class categories and divisions from the debates of the late 1920s and early 1930s. They accused some Soviet scientists of “bourgeois” values and discredited their ideas as manifestations of “bourgeois” science. With the world divided into “two camps,” the Party demanded that Soviet science contribute to the advancement of socialism and exemplify the superiority of socialist ideology. The invocation of the vocabulary of class warfare was at odds,

however, with a more recent drive to praise all things Russian. Beginning in the mid to late 1930s—that is, during the retreat from the radicalism of the Great Break—the Party began to cite the positive attributes of Russians and Russian traditions as a means of explaining the special role of the USSR in the world. The Second World War or “Great Patriotic War,” as it was known in the USSR, only strengthened this shift.<sup>21</sup> In this nationalist vein, it was claimed that Russians had laid the foundation for the natural sciences, had invented the radio and airplane, and were responsible for many of the greatest ideas the world had ever known. Postwar ideology required scientists in every field to work out a new set of tenets that encompassed the seemingly contradictory elements of class and Russocentrism. The new Soviet patriotism—in its Russocentric manifestation—became a standard for judging the value of scientists if not their science.

The opposite of patriotism was subservience to the West. By the late 1940s the struggle to ensure loyalty among Soviet citizens had evolved into an effort to purge Soviet society of all “cosmopolitan” influences. Officially, the “anti-cosmopolitan” campaign targeted anyone with foreign contacts and those who had ever expressed admiration for foreign culture. In practice, cosmopolitanism quickly became associated with Jews. Local organizations responded by firing thousands of Jews because of their alleged disloyalty. The Party arrested many prominent Jews, sentencing them to death or years in forced labor camps. Because of their disproportionate representation in the academy, Jews in scientific fields were particularly vulnerable to the campaign.<sup>22</sup> Secret memos show how troubled Party leaders became when they realized that Soviet physics, economics, and other fields were dominated by Jews and other ethnic minorities. The xenophobia of “anticosmopolitanism” permeated the scientific discussions. Rather than simply determining whether a scientific theory corresponded to the latest interpretation of Marx and Lenin’s writings, meetings became forums for denouncing individuals—almost always non-Russians—for maintaining contacts with and citing foreign scientists.

With so much at stake, it is little wonder that the Soviet Union’s most powerful Party and government leaders—including Zhdanov, Georgii Malenkov, and Lavrenty Beria—got involved in scientific discussions. Scientific disputes became particularly heated in part because they fell under the jurisdiction of both the Party and the state and as such became focal points for clashes between Stalin’s lieutenants. Andrei Zhdanov’s power derived from his position in the Party, where he was in charge of defining and enforcing unanimity in Soviet ideology and culture. Scientific controversies left him vulnerable because they revealed potential doctrinal fault lines. In contrast, his rivals Malenkov and Beria derived their strength from their dominance of the state apparatus, including ministries that funded and monitored science and education. They could use scientific discussions to enhance their own power by highlighting Zhdanov’s inability to solve the persistent problems along the

ideological front. Beyond that, doctrinal issues interested them primarily as a means to gain favor with Stalin.

The six postwar scientific meetings addressed a common theme: in each case Party leaders and scholars struggled to make space for both Soviet ideology and Soviet science. Each discussion began with scholarly disagreements in scientific institutes, in popular and scientific publications, and in the Central Committee. Scientific administrators such as Sergei Vavilov, the president of the Academy of Sciences, and Sergei Kaftanov, the minister of education of the USSR, actively oversaw disputes and forwarded their opinions to Stalin and other Party secretaries. Individual scientists presented their arguments to the Party as well, either by publishing articles or by appealing directly to patrons in the highest echelons of the Party. In the Central Committee, responsibility for monitoring scholarship rested with the Agitation and Propaganda Administration (Agitprop) and within it the Science Section.<sup>23</sup> Because Party personnel at this level did not have the authority to settle major conflicts on their own, particularly complicated or troublesome disputes made their way up the Party apparatus to the Party Secretariat.

In the second stage of each discussion, Party leaders and scholars set about settling the scientific conflicts and defining a unified ideological position. As controversies became more heated, Party secretaries reviewed the analyses and plans of their subordinates. Depending on the nature and seriousness of the matter, decisions would either be made by the Secretariat or passed along to the apex of Party power, Stalin and the Politburo. At times Stalin dramatically reversed decisions made at lower levels. The threat of such actions by Stalin left Party organizers and scholars alike in a state of constant uncertainty about the validity and proper meaning of their carefully crafted recommendations.

The decisive meeting in each field was organized to strike the proper balance between the Party's role in determining the outcomes of debates and the importance of scholarly participation. In other spheres of Soviet life the Party did not hesitate to use decrees, speeches, and publications to articulate and uphold ideological tenets. These techniques would not suffice when the goal was to reconcile Marxism-Leninism with major scientific findings. Instead, Stalin and the Central Committee insisted on the scientific discussions. Scholars, in the course of debates that were closely observed (but never totally controlled) by the Party, were supposed to forge an understanding of their disciplines that was in harmony with ideology, even when the Party's views were not clear to them, or indeed to the Party supervisors themselves.

In order to help formulate ideologically correct science, the Party often promoted what can be thought of as "comrade scientists"—that is, heroic figures combining both ideological vigor and scholarly expertise. The Nobel laureate physiologist Ivan Pavlov, for instance, was posthumously presented as a great scientist whose materialist philosophy and outstanding scientific advancements went hand in hand. The linguist Nikolai Marr was posthu-

mously knocked off a similar pedestal, but only after scientific and Party administrators alike had spent years declaring that his theories had done more to advance Marxist linguistics than anything ever written. Georgii Aleksandrov in philosophy and Trofim Lysenko in biology also embodied a blend of scholarship and Party-mindedness, but for differing lengths of time and with strikingly different outcomes. Of course, Stalin was the ultimate comrade scientist. In all six scholarly discussions, Stalin either contributed an essay of his own or intervened indirectly through instructions to Party leaders or scientists. While he was alive, Stalin was the only person in the Soviet Union who, by definition, never erred on either ideological or scholarly issues. Indeed, his role was so important that major scientific discussions could not be settled until Stalin's views were known.

Stalin *ex machina* was decisive in principle. But confusion over the proper interpretation of the new Party line continued even after the discussions' official conclusions, leading most disciplines into long periods of stagnation. Efforts in the Academy of Sciences and the Ministry of Education to define and enforce a unified ideology based on Stalin's dictums proved futile, and Agitprop and the Science Section continued to lament what they deemed to be a crisis in Soviet ideology. Widely publicized declarations notwithstanding, inconsistencies abounded. The aftermaths of the discussions suggest that scientists, administrators, and Central Committee secretaries were all caught off guard by the direction of scholarly disputes. Outcomes from one discussion did not translate into clear lessons for other disciplines. Far from displaying a carefully formulated and executed message, each successive discussion revealed apparent contradictions in Soviet ideology that in turn resulted in further debate and floods of letters to the Central Committee demanding clarifications.

Although the debates shared certain structural features, the specifics of what was discussed and the conclusions they reached varied considerably. The discussion in philosophy, the subject of chapter 2, began in December 1946 in the Kremlin when Stalin informed an elite group of leaders and scholars that Aleksandrov's prizewinning history of Western European philosophy had overstated the influence of Hegel and other German philosophers on Marxism. Despite being head of Agitprop, Aleksandrov had misinterpreted what Stalin required of scholars working on the ideological front of the Cold War. The discussion culminated in June 1947 with a meeting at the Central Committee attended by a wide range of the Soviet political and scientific elite. Stalin maneuvered behind the scenes and Zhdanov, the Party's second in command, publicly attacked Aleksandrov and the discipline of philosophy in general.

A little over a year later, in the summer of 1948, Lysenko took advantage of his personal favor with Stalin to hold a meeting of the All-Union Agricultural Academy. As discussed in chapter 3, Lysenko revealed at the meeting that the

Party supported his outright suppression of Western, Mendelian genetics and favored a homegrown, Soviet theory that emphasized the inheritance of acquired characteristics. The story of Lysenko's monopolization of Soviet biology—what Stephen Jay Gould called “the most chilling passage in all the literature on twentieth-century science”—has dominated scholarship on Soviet science.<sup>24</sup> The context of the other scientific discussions clarifies that the situation in biology constituted only one part of a much broader effort to come up with a coherent understanding of the relationship between Soviet ideology and science.

The next meeting, discussed in chapter 4, had a very different outcome: it was canceled. The All-Union Physics Conference planned for early 1949, and modeled on the 1948 biology meeting, never took place, despite months of careful preparation by physicists and Party philosophers. A select number of physicists formed a cohesive and savvy group that managed to convince the conference organizers that the national meeting would never reach a consensus about what, exactly, ideologically correct physics would look like. Furthermore, Beria, the brutal police chief whom Stalin had put in charge of the Soviet atomic weapons project, recognized the expedience of protecting the scientists under his charge from attacks by ideological zealots. Physicists adeptly translated the importance of atomic weapons research into unprecedented control over their own profession. Andrei Sakharov, a young weapons designer at the time, participated in some of these political maneuverings and took away from them crucial lessons that he would later apply as a dissident.

In the spring and early summer of 1950, two more discussions—about linguistics and about physiology—took place, one right after the other. They are the subjects of chapters 5 and 6 respectively. In May and June 1950 *Pravda* printed dozens of conflicting articles on the state of Soviet linguistics. Then, shockingly, Stalin intervened with an essay overturning the previously held orthodoxy and suggesting that language was neither part of the economic base nor part of the political superstructure, two core categories of Marxist ideology. He also suggested that scientific innovation required free and open discussions. After the coryphaeus of science had spoken, scholars in every field, not just linguistics, scrambled to interpret the implications of the new pronouncements for their own work and for science more generally.

In late June and early July, within days of the conclusion of the linguistics discussion, hundreds of physiologists convened in Moscow at a meeting organized to ensure that Soviet physiology followed a rigid interpretation of Pavlov's work. With heavy-handed coaxing from Stalin and the Science Section, a number of prominent physiologists defended Pavlov's insistence that conditioned reflexes provided the keys to understanding complex behavior in all animals, including humans. The Politburo set out to enforce the meeting's conclusion and charged the Science Section with overseeing a scientific coun-

cil that continued to repress those who defended a broader understanding of Pavlov's scientific contribution and legacy.

Finally, chapter 7 addresses a month-long meeting in late 1951 where hundreds of economists and political leaders gathered at the Central Committee to discuss a draft of a political-economy textbook. Stalin intended the book to be used in the Soviet Union and throughout the expanding socialist camp and therefore fretted over even the smallest details. Party Secretaries Malenkov and Suslov chaired the daily sessions, while Stalin took the lead role in organizing the discussion and shaping its outcome. In response to the meeting, he also published a long essay in which he declared that "Marxism regards laws of science—whether they are laws of natural science or laws of political economy—as the reflection of objective processes which take place independently of the will of man." The laws of science provided the standard by which to judge the validity of all thought, including the most fundamental ideas of Marxism-Leninism.



This book is based primarily on newly accessible materials from Russian archives. It has also benefited from a rich set of books and articles on Soviet science and a growing body of work on postwar Stalinism.<sup>25</sup> Even before the opening of the archives, historians of Soviet science were in the vanguard of the study of late Stalinism. This can be explained in part by the desire to understand both the Soviet Union's tremendous scientific accomplishments—such as the rapid development of atomic weapons, the launching of the Sputnik satellites, and the steady stream of Nobel Prizes in science for work conducted during Stalin's time—as well as its equally noteworthy disasters, such as the outlawing of the study of genetics. Beginning in the 1960s and 1970s, a number of scholars, including Loren Graham, David Joravsky, and Alexander Vucinich used published materials and in some cases interviews and limited archival access to analyze the relationship between politics and science in the USSR. Their work furthered our understanding of scientific institutions, philosophical disputes in science, and the role of the state and Party in both supporting and suppressing scientific ideas.<sup>26</sup> Nonetheless, as David Joravsky noted in 1970 in *The Lysenko Affair*, a restricted source base forced him and his colleagues to "postpone the conventional first question of historical inquiry: Exactly which high-placed men got together with which others to effect this and that policy? That traditional method of beginning historical inquiry must await the opening of the archives."<sup>27</sup>

While the published materials clearly help frame the book, the narrative and analysis are based on precisely the materials to which Joravsky referred. In many ways, the subject was well suited for archival research because so many of the most important decisions were recorded by administrative sec-

tions and individuals whose papers are now declassified. For the postwar period the archives are well organized, reflecting a stability and efficiency within the Party and academic institutions that was missing in the 1920s and 1930s. Information about the discussions flowed up and down the bureaucracy, leaving a substantial paper trail that allowed me to piece together how decisions were made and how they were carried out. Papers in the Moscow Party Archive (TsAODM) and the Archive of the Academy of Sciences (ARAN) reflect the way disputes germinated and were dealt with among rank-and-file scholars. Papers in the Russian State Archive (GARF) and the Russian Economic Archive (RGAE) show how state organs took charge of implementing Party decisions and at times acted as the principal organizers of discussions. But the most valuable repository for understanding Stalin and science is the Central Party Archive (RGASPI), which contains the Central Committee papers including those of Agitprop, the Science Section, the Politburo, and the Orgburo and Secretariat. These documents, along with the personal papers of various Central Committee secretaries, record much of the organizational mechanisms for each of the discussions. As I was writing this book, more and more documents from Stalin's archive at RGASPI became accessible to researchers. These papers revealed in stark detail the extent to which Stalin became personally engaged with the scientific disputes.

Now that many of those archives are open to research, this book uses thousands of primary documents to show how the politics of science was practiced in the Kremlin by Stalin and his closest subordinates. It is not a traditional history of science in that the processes of scientific investigation, institutional development, and discipline formation are set aside so that politics and ideology can come to the fore. When background on the history of specific scientific fields is necessary, the book relies on existing disciplinary histories.<sup>28</sup>

This book branches out from previous approaches in three ways. First, it uses archival material to analyze six different discussions in detail, and thus avoids the temptation to extrapolate from one discipline to reach general conclusions about Stalinist science. This complicates our understanding of Stalin's motives for organizing debates and allows us to see how the approaches of scientists and the Party changed from one debate to another. No single discussion emerges as typical or paradigmatic. Second, the chapters pay careful attention to the ways in which shifting domestic political concerns affected decision making, arguments, and the grounds on which people defended their ideas. Scientific debates are understood as both a forum for political battles as well as a means of reaching ideological settlements that had effects far beyond the walls of academia. Finally, the book takes advantage of the recent declassification of Stalin's papers to place the "coryphaeus of science" at the center of the story. This material—which includes drafts of his essays, his extensive editorial comments on other people's written work, minutes from Kremlin meetings with scholars, and much more—reveals how

these six discussions became focal points for Party politics and the effort to formulate Soviet ideology.

In many respects, Stalin's stint as the coryphaeus of science can be understood as part of the longer history of political leaders' desires to be taken seriously as thinkers. From Alexander the Great to the "enlightened despots" of the eighteenth century, heads of state have sought to justify their place atop the political landscape by placing their rule within a broader intellectual context. Confidence in the ability of human reason to control the natural and social environment blossomed throughout Europe in the century following the Enlightenment. Political leaders and political theorists alike held that the rational ordering of society based on the application of scientific knowledge would naturally lead to greater economic progress and social justice. By the twentieth century, governments in Europe and North America relied on rationality as a form of political legitimization.

Both superpowers in the Cold War claimed to have science on their side. In the United States, scientific administrators, such as Vannevar Bush and James Conant, and the sociologist of science Robert K. Merton argued that Western democracy and science mutually reinforced one another.<sup>29</sup> In 1950, Conant presented the mirror image of the Soviet argument: "Scholarly inquiry and the American tradition go hand in hand. Specifically, science and the assumptions behind our politics are compatible; in the Soviet Union by contrast, the tradition of science is diametrically opposed to the official philosophy of the realm."<sup>30</sup> Stalin also insisted on the unity of his political system and the scientific discoveries of his age. The effort to show how Marxism-Leninism constituted the best environment for science represents an extreme and at times brutal variation—but a variation nonetheless—on the broader story of the way in which science has been used to justify a full range of political systems in the modern world. In this sense, the story of the Soviet science wars offers lessons beyond the peculiarities of postwar Stalinism. Today's battles over stem cell research, global warming, and the teaching of evolution in schools are faint echoes of the controversies described in this book. To some extent, all modern societies must forge a working relationship between knowledge and power.

The physicist Peter Kapitsa wrote of the debate in his own field that "more than anything [it] reveals the mechanism of the Stalinist process. The battle of idealism and materialism in physics—this was only a philosophical mask which disguised political goals."<sup>31</sup> Like many of his fellow scientists, Kapitsa assumed that philosophy and politics were clearly distinct. But as the campaign for a coherent Marxist-Leninist ideology of science spread from one discipline to another, distinguishing the masks from the goals became difficult even for the participants, including Stalin. Philosophical content merged with political power; scientific argument melted into polemical leverage. The progress of science, which was so tightly intertwined with the self-image and foun-

dational ideology of the Party, required procedures developed from within scientific and Party traditions. All the participants in the discussions appreciated the wider significance of their contributions. Their job entailed nothing less than the clear and forceful articulation of a worldview that placed the Soviet system at the pinnacle of historical development. Failure to accomplish this goal would undermine the Soviet Union's legitimacy for those living within its borders and for those observing the socialist experiment from around the world.