

LOREN R. GRAHAM

The Soviet Academy  
of Sciences and  
the Communist  
Party, 1927-1932



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THE SOVIET ACADEMY OF SCIENCES AND  
THE COMMUNIST PARTY, 1927-1932

STUDIES OF THE RUSSIAN INSTITUTE  
COLUMBIA UNIVERSITY

The  
Soviet Academy  
of Sciences  
and the  
Communist  
Party,  
1927-1932

BY LOREN R. GRAHAM

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*to the Albjergs:*

VICTOR LINCOLN  
MARGUERITE HALL  
PATRICIA PARKS



## P R E F A C E

Of all the scientific institutions in various countries of the world, the one which is by far the most important, relative to the scientific life of its nation, is the Academy of Sciences of the USSR. No other academy, society, university, or research foundation dominates the field of science in its country to the degree the Academy of Sciences in the Soviet Union does Russian science.

Founded early in the 18th century, its predecessor, the Imperial Academy of Sciences, was already a venerable institution by the time of the Russian Revolution. Only since that political overturn, however, has the Academy come fully to occupy its unique position among scientific institutions. The crucial period for an understanding of how this transformation occurred was the first five-year plan, usually considered to have lasted from 1928 to 1932, but which began to take effect in 1927. The traumas of industrialization and collectivization in this period are by now well known to students of Soviet history. Less well understood is the cultural revolution of the same period, of which the renovation of the Academy of Sciences is part.

At the present time there is no serious historical study of the Soviet Academy of Sciences in any language, to say nothing of an examination of the Academy in the years of the first five-year plan, although a group of Soviet scholars is currently working on a volume which will complete a general history of the Academy by adding the period since the Revolution.<sup>1</sup> The few articles and sections of broader histories published outside the Soviet Union which do refer to the Academy

<sup>1</sup> The first two volumes, covering the Academy from 1724 to 1917, have been published: K. V. Ostrovitianov *et al.*, eds., *Istoriia akademii nauk SSSR*, I, Moscow-Leningrad, 1958; II, Moscow-Leningrad, 1964.



usually mention briefly that during this period there was a political purge of certain scholars. There was, indeed, a purge of the Academy, one of the most regrettable pages of its history, and this study presents many details of that terror previously unpublished. On the more intellectually interesting side, however, the Academy was occupied in these years by an intense controversy over the goals, organization, and functions of scientific research institutions in the Soviet state. This discussion has attracted almost no attention from Western scholars.

The Soviet government's policy toward the Academy was not entirely one of coercion for the sake of political control; the government was an active supporter of science although its leaders disagreed about the methods and means of support. These men believed that science would develop more freely in Russia than anywhere else in the world. Following several alternative interpretations of the Marxist doctrine of the base and the superstructure, which described cultural expressions as derivative functions of the economic base of society, the Soviet ideologists spoke of the creation of a "socialist science" which would quickly demonstrate its superiority over "capitalist science." They promised to promote science even more vigorously than heavy industry. The Soviet Union, notwithstanding its persecution of dissident scientists, was the most enthusiastic supporter of science and technology of all contemporary governments.

A word about definitions is necessary. Throughout this study the word "science" has been used as the word *nauka* is employed in Russian, or *Wissenschaft* in German. This usage is required in order to discuss the *Akademiia nauk* in Russian terms. Therefore the word "science" in these pages includes the social sciences or humanities as well as the natural sciences and mathematics. Nevertheless, the greatest emphasis has been placed on the Soviet attitudes toward the natural sciences. The reasons for this stress are twofold. First, the discussions of the planning and organization of science in the Soviet Union

in the period of this study to a large degree concerned the natural sciences. Second, Soviet attitudes toward the social sciences are much better known in the West than the corresponding evaluations of the natural sciences.

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<sup>2</sup> The transliteration system used in this book is a slightly simplified Library of Congress system, without ligatures. A particular problem in transliteration appears when Russian family names are known abroad in forms at variance with this standard system (Vernadsky, Oldenbourg). There is no transliteration system which will avoid this kind of problem. Thus V. I. Vernadskii and George Vernadsky are spelled in different ways even though they are father and son. The same problem will come up with S. F. Ol'denburg and Zoe Oldenbourg, who are grandfather and granddaughter. It would be clearly wrong either (a) to impose the French spelling on the Russian branch of the family or (b) to keep the woman's name in the Russian form regardless of the fact that she is widely known in the West by a different spelling. Similar problems arise with Ipat'ev (Ipatieff), Gor'kii (Gorky), Mendeleev (Mendeleyev), and others.

was the assistance of my wife, Patricia Albjerg Graham. The dubious interpretations and errors in fact which may remain are, of course, my responsibility. A portion of Chapter II appeared in *The Russian Review* (April 1964), pp. 135-48, and another portion in *Survey* (July 1967), pp. 61-79.

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THE SOVIET ACADEMY OF SCIENCES AND  
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*Sergei O'denburg (1863-1934), Permanent Secretary  
of the Academy of Sciences, 1904-1929*



*Nikolai Bukharin (1888-1938), Communist Party leader, and candidate for membership in the Academy of Sciences who in the election campaign of 1928 received the largest number of nominations*

## CHAPTER I

### THE IMPERIAL INHERITANCE

---

*I have lived to the moment when I can proudly announce, in full consciousness, that Russian science exists—that Russian science about which in our youth we could speak of only as a dream, or if you wish, as a faraway ideal. / V. I. Modestov, 1890<sup>1</sup>*

#### *The characteristics of Russian science*

Scientists usually do not favor the view that science in various countries displays different characteristics. They frequently state that the traditional fields of science study aspects of nature which do not contain patterns formed by human activity and therefore stand apart from man and his cultural traditions. They notice the ease with which any scientist is able to converse on a technical topic with his counterpart in a foreign nation, which often leads them to conclude that science is an international language, one without local dialects.

Such a disbelief in national characteristics is largely justified if one concentrates on the theoretical core of science. Divisions along national lines are exceedingly rare in modern science. If, however, along with science proper, one wishes to consider a number of activities closely, sometimes inextricably, connected with it, such as the organization and political controls of science, the philosophy of science, and the relative development of or traditional emphases on various scientific fields, then the importance of the natural and social environment

<sup>1</sup> V. I. Modestov, "Russkaia nauka v poslednie dvadtsat' piat' let," *Russkaia Mysl'* (No. 5, 1890), p. 90.

becomes manifest. Furthermore, in those areas where the common word for science includes not only the natural sciences but also all other fields of scholarship, "science" obviously contains components of the cultural heritage of the area.

In Russia a number of factors gave science, considered broadly as a social, political, and intellectual activity, distinctive characteristics. Several of these characteristics, such as the effect on scientific research of the immense virgin territories of the Russian state, with their diversity of natural and ethnic areas, were not different in principle from characteristics of research in other geographic regions, such as North America. Other features of the pattern of scientific research in Russia, such as the place of the Academy of Sciences among governmental institutions, can be explained only by referring to the political and cultural history of that area.

In the last few centuries science has been primarily a Western phenomenon, one of the quintessential elements in the cultural, economic, and political expansion of the West. Thus the question of Russian attitudes toward science contains within it broad implications for the perennial discussion of the relative position of Russia vis-à-vis the West. An analysis of the position of Russia with reference to science would contain little intellectual interest if Russia were completely outside the stream of Western scientific thought—as were many areas of the world before the beginning of this century. However, a careful consideration of Russian history in the last 300 years will almost certainly result in the conclusion that while Russia in the 17th century was indeed unaware of the intellectual developments of that great age for science, by the end of the 19th century she was capable not only of educating some of her more fortunate citizens to the level of advanced Western science, but even of producing a few great figures who could extend the boundaries of science in certain areas beyond the positions achieved in the West. Rather than being separated from Western science, Russia before the Revolution had been close enough to that science to be affected profoundly by it,

and even to occasionally help form it, but at the same time not intimately enough associated with it to form a natural and comfortable alliance. The peculiar relationship which was established, containing elements of both eagerness to master science and awkward anxiety about its implications for Russia, left an imprint on the pattern of scientific research.

Perhaps the first characteristic of science in imperial Russia the observer would notice is the uncommonly large role played by the central government. In other European countries the governments nourished in varying degrees the scientific centers that spontaneously sprouted in the environment of increasing material and intellectual achievement, but in Russia the government was forced to import such centers complete.<sup>2</sup> This necessity for the total transplanting of scientific studies was a legacy of the Russian culture of the Muscovite and Kievan states, which was singularly devoid of rationalistic and naturalistic elements. However tantalizing the proximity to old Russia of the classical sources in Byzantium and the Arabic sources in the central Asian regions may be to the historian of science, this proximity was for Russia geographical and not intellectual. There was no moment in Russian history when the reception and coalescence of these two important streams of early scientific thought was a real possibility. The few glimmers of scientific enlightenment which did appear in Russia before 1700, notably by means of Catholic or Jewish influences, generated no large response. Consequently, when Russia emerged as a state in the European system during the reign of Peter the Great it possessed no centers of scientific studies, and the responsibility for the creation of such institutions fell upon the imperial government. The formation of educational

<sup>2</sup> The forced birth of a scientific society by governmental edict was not unique to the history of Russia; the Prussian Academy of Sciences in Berlin (*Societas Regia Scientiarum*) and the *Accademia del Cimento* of Florence were created largely through the efforts of the ruling Hohenzollern and Medici families. Here the comparison with Russia ends, however, since in both Italy and Germany there were enough educated men with scientific interests to staff the new organizations, while the Russian government was forced to import foreign scientists.



and scientific institutions was for Peter a necessary step for the strengthening and modernization of Russia, not essentially different in his mind from the development of a navy or of industries capable of producing modern arms.

Peter the Great sponsored the first nonclerical schools in Russia—the navigation and mathematics schools, the artillery academy, the short-lived but fascinating Glück gymnasium, and in 1725 the Academy of Sciences which included in its charter provision for a gymnasium and a university. This pattern of central control was continued throughout the history of the empire. The scientific researchers and teachers of Russia were wards of the government.<sup>3</sup> With the exception of church schools and a few private schools, which were isolated from the advanced scientific research of the West, all schools in tsarist Russia were taught by civil servants.<sup>4</sup>

Science was associated in the minds of Russians with the revolutionary reforms of Peter the Great. Science was opposed to old Russia, to the religion of the Orthodox church, to the superstitions of the people. It was a threat to those nobles who hoped to maintain their positions on the basis of blood rather than achievements. It was promoted by those people who wanted Russia to become a modern state. Consequently, the conflict between science and the values of the old order was quite sharp, perhaps more marked than anywhere else in Europe. But while this disparity between science and the old culture in Russia was very large the result was not a public struggle between the two, a debate between two different systems, but instead a deepseated estrangement. In contrast to western Europe where the old values, especially those of religion, were defended by spokesmen who were often highly educated themselves and even on occasion conversant in sci-

<sup>3</sup> The most interesting private endeavors in Russian science were the scientific societies, founded in large numbers in the 19th century. James Swanson, of the University of South Florida, is currently making a study of the societies and early Soviet attitudes toward them.

<sup>4</sup> Nicholas DeWitt, "Scholarship in the Natural Sciences," in C. E. Black, ed., *The Transformation of Russian Society*, Cambridge, Mass., 1960, p. 399.

ence, and where consequently a genuine debate occurred, in Russia the opponents of science were rarely capable of such a dialogue. Among the Slavophiles of the 1840s and 1850s, it is true, were spokesmen of Old Russia who possessed intellectual sophistication, but their leaders pointedly chose not to oppose science. Their hope was to utilize the techniques of Western science and technology without sacrificing what they considered the superior moral values of traditional Russian culture. It is not among the Slavophiles, often more Western in intellectual outlook than they cared to admit, that one must look for the opposition to science in Russia, but to religious groups, which feared what they considered the undermining of divine authority, to the aristocracy, which resisted the egalitarian nature of advancement in scientific activity, and intermittently to the government which moved to block the importation and propagation of politically subversive doctrines by Russian students who studied the sciences in western Europe. These forces of resistance to the development of science vacillated in intensity and were sometimes in conflict with each other. Even the most conservative rulers of Russia recognized that science could benefit their country and bring glory to their crown; they promoted, albeit often ineffectively, its development as long as science did not threaten the established order.<sup>5</sup> The Church, an almost constant opponent to science, had at least to its credit its disapproval of the Magnitsky era; the aristocracy contained a number of people with interests in science and its ranks were open, at least legally, to scientists from lower classes who achieved distinction. Nevertheless, the opposition to the development of science offered by these three great inertial forces in the last 150 years of Russian history—government, church, and aristocracy—was immense.

A certain preoccupation with theoretical or descriptive research rather than with engineering has often been cited as a

<sup>5</sup> Though he was one of the most conservative rulers of Russia Nicholas I (1825-55) actively promoted the development of scholarship in the sciences. His extreme distrust of Western political theories limited his achievements, however.

characteristic of the history of science in Russia. The great achievements of Russian scientists before the Revolution—those, for example, of Lobachevskii, Mendeleev, Pavlov, Butlerov—were primarily in nonapplied fields. The great works in the geographical sciences, either done by Russians, as in the case of Krasheninnikov, or promoted by the Russian government in the cases of Gmelin and Pallas, may be termed descriptions and compilations rather than applications. Those projects in the applied sciences which displayed promise were often abandoned far short of completion: Zhukovskii's and Chaplygin's work in aerodynamics, Popov's work on radio, Tsiolkovskii's rocketry experiments, Dolivo-Dobrovolskii's research on alternating current.

An effort to explain this preoccupation with theory and massive description must touch on the extremely difficult topics of the motivations of Russian scientists, the nature of the Russian economy, the impact of foreign technology, the geography of the Russian state, and the policy of the Russian government toward education and research in science. The most important reason why Russian scientists did not consider technology as important to their concerns as scientists of most Western countries was the relative underdevelopment of Russian industry. Industry was the logical focus of applied research, for which a clear precedent existed after the creation in Germany of the influential industrial chemical research laboratories in the last half of the 19th century. But not only was Russia's industry underdeveloped, it was largely controlled by foreigners who depended on external research bases. Thus Russia was deprived of both the pull toward technological research which the needs of a great industrial plant would have provided and the push toward new native industries generated by industrial laboratories.

Support for the view that the relative absence of technological research in prerevolutionary Russia stemmed more from the economic situation than from elusive factors like national characteristics, can be seen in the fact that a number of Rus-

sian émigrés trained in the schools of imperial Russia contributed significantly to technology when transplanted to another economic environment. In the United States alone the contributions of Sikorsky and Seversky in aeronautics, Ipat'ev in chemical technology, Zworykin in electronics, and Timoshenko in applied mechanics illustrate the Russian talent for applied science. And Soviet achievements in engineering in building up the economy, waging a successful major war, and the development of atomic weapons and space vehicles are even more impressive. Indeed it may be difficult to convince people with short memories that the Russians were once known as excellent theoreticians but poor engineers, although a study of 19th century Russian science and education confirms the impression. If the Soviet reputation has changed in recent years the economic and academic transformations of the late 1920s and the 1930s are partially responsible.

The prerevolutionary preference for pure science was also in part a result of the desire of Russian scientists to prove the worth of science in Russia. They were often not content with restricted topics of investigation; they desired topics either of grander scale than elsewhere or deeper in theory. This desire to pursue research which would gain prestige for Russia, easily identifiable in the writings of such men as Lomonosov and Mendeleev, prompted Russian scientists to stay abreast of the latest developments in western Europe, even though on the level of applied science Russia was hopelessly behind. Thus Russia tried to compete in the area of science which, at her stage of development, benefited her least—advanced theoretical research.

The trend toward pure science first became discernible in the second quarter of the 19th century. The early Petrine Academy, similar to most early scientific societies, devoted considerable time to solving the problems of applied science, and even the 1836 charter spoke of the attention the Academy should give to useful knowledge, but in the 1830s and 1840s theoretical science became increasingly the center of the