Planning Science

By

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ORDER OF LENIN
MEMBER OF THE SUPREME SOVIET OF THE U.S.S.R.

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IN Socialist economy, which is based on the application of the latest technique and makes use of the vast experience accumulated by man, science and scientists hold a high place. The Civil War and foreign intervention were still in progress when the young Soviet Republic, beset by enemies on all sides and in dire need of the bare necessities of life, established an extensive system of scientific research institutes, at the same time making every effort to improve the working and living conditions of those engaged in scientific work. Even in this early period Soviet scien-
tists were widely enlisted in the work of drafting a plan for the development of the national economy, since only science could serve as the foundation of such an undertaking.

It was in 1919 and 1920 that, with the collaboration of two hundred scientists and engineers representing the most diverse departments of human knowledge, and on Lenin’s and Stalin’s initiative, the celebrated plan for the electrification of Russia was drawn up. This plan, which at first encountered many a sceptical jeer, was put into execution and completed much earlier than the time originally specified. The former Imperial Academy of Sciences was singled out for particular attention by the Soviet Government, although the majority of its members were at first far from sympathetic to the Socialist October Revolution.

The great Russian writer, Maxim Gorky, initiated the formation of a government committee to ease the life of men of science. In the most difficult years of the

young Soviet Republic, this committee managed to have sanatoriums and rest homes set aside for scientific workers, secured various allowances for them, and aided them in procuring foreign literature and apparatus for the pursuit of their scientific labors.

In 1925, when the Academy of Sciences of the U.S.S.R., as it was now styled, celebrated its bicentennial, the Soviet Government invited numerous foreign savants for the occasion. The whole tenor of the festivities held under government auspices was ample proof of the paramount importance attached by it to science as a factor in the building of Socialist society.

Science has made great strides in the U.S.S.R. during the twenty-one years of the latter’s existence. Objective proof of this statement is the fact that in 1938 there were no less than 902 scientific research institutes in the country, with a total staff of 29,246 scientific workers. These figures are exclusive of factory and collective-farm laboratories and their personnel.

and of the observatories in the Arctic, which come under the jurisdiction of the Chief Northern Sea Route Administration. In January of last year the grand total of all scientific workers in the U.S.S.R. was eighty thousand.

The following table illustrates the expansion of the Academy of Sciences:

<table>
<thead>
<tr>
<th>Year</th>
<th>Institutes</th>
<th>Members</th>
<th>Scientific Workers</th>
<th>Appropriation (rubles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1917</td>
<td>1</td>
<td>45</td>
<td>109</td>
<td>1,509,000</td>
</tr>
<tr>
<td>1938</td>
<td>58</td>
<td>130</td>
<td>3,420</td>
<td>127,000,000</td>
</tr>
</tbody>
</table>

In 1938, Soviet budgetary appropriations for scientific research work aggregated 1,016,000,000 rubles.

As to higher education, statistics show that in all Russia before the Revolution there were only 91 universities and colleges, with a total enrollment of 112,000 students, primarily scions of the nobility, the landlords and the bourgeoisie, while today the corresponding figures are 716 and 601,000, with a student body consist-
ing of the sons and daughters of workers, peasants and members of the intelligentsia.

These figures alone suffice to demonstrate the close tie between Soviet science and the people. But to these mere numbers of scientific workers and students, true sons of the people, is to be added the all-important fact that in the U.S.S.R. the achievements of science do not become a source of enrichment of only a small group of persons, to the detriment of the vast majority of the population, but accrue to the benefit of the whole community. This distinguishing feature of Soviet science has asserted itself from the very inception of Soviet power.

We have already made mention of the enlistment of men of science in the work of drawing up the country's electrification plan. The subsequent Five-Year Plans for the national-economic development of the U.S.S.R., which have acquired world renown, were also based strictly on scientific principles.

The execution of these plans required a considerable increase in the utilization of the country's natural resources. It is a well-known fact that in tsarist Russia, which possessed enormous mineral wealth, these natural resources were explored and surveyed only to a very small extent. In this field, as well as in the prospecting for, discovery and surveying of other raw material and primary power sources, Soviet science played an extremely important part. During the last twenty years Soviet scientists have penetrated into the most distant parts of the country and have multiplied the known natural resources of the country several times over. The more detailed study of this wealth proceeds parallel with its application in industry. Thus, for instance, in 1920, immediately after the forces of intervention were driven out of the northern regions of the Soviet Union, commenced the prospecting for the rich mineral deposits of the Khibini mountains and the detailed study of these minerals. Geological surveys and tests cov-
cred a period of several years. As early as 1929 big chemical plants designed to manufacture mineral fertilizers and other chemicals began to be constructed at the sites of the newly discovered deposits.

This clearly illustrates how closely science and industry are associated in the U.S.S.R. Under the tsar science shied at any direct contact with the country’s economic life, and therefore developed like a hothouse plant. In consequence, none of the great discoveries of Russian science found any practical application. In 1842, for instance, Prof. Zinin of Kazan, a celebrated chemist, worked out a method for the mass production of aniline on which the development of the aniline dye industry and the manufacture of aniline pharmaceutical products was based in other capitalist countries, while in Russia itself Zinin’s discovery was not put to any practical use.

Under the Soviet Government such a state of affairs is impossible, for in the U.S.S.R. all scientific work is conducted in such a way that it is of direct benefit to Socialist construction.

The country’s 902 scientific institutes are divided into two categories: governing and departmental.

The first category comprises the institutes of the Academy of Sciences, the best institutes of the several People’s Commissariats engaged in theoretical research, and some of the institutes forming part of the big research centers under the Council of People’s Commissars of the U.S.S.R., as, for instance, the Lenin All-Union Academy of Agricultural Sciences and the Gerky Institute of Experimental Medicine.

The second category consists of the institutes attached to the various branches of industry and agriculture under the respective People’s Commissariats.

The governing institutes engage primarily in the theoretical investigation of key problems which concern the national economy as a whole. These investigations shed light on the course of development of the productive forces of our country and make it possible to place production processes on a scientific basis, to govern these processes.

Scientific facts, established in this process, which it is deemed advisable to elaborate by technological research are sent on to the departmental institute engaged in the specific line in question for further investigation under the supervision of or in constant consultation with the governing institute. If there is no corresponding departmental institute, the governing institute itself works out this particular question.

The prime function of the departmental institutes is to render scientific and technical service to the branches of industry and agriculture to which they are attached. These institutes are charged with finding laboratory solutions for problems that arise in the routine of factory production, to seek to improve the technological processes in use and to work out new processes. In cases where it is necessary to make a thorough theoretical investigation beyond the capacity of the departmental institute, it
applies for assistance to the governing institute with which it is associated.

The functions of the departmental institutes also include the rendering of assistance to factory laboratories and the exercise of some measure of control over their work. The factory laboratories exercise control over production from the angle of technique, and do the research work incident to any specific scientific problem the factory must solve. These laboratories thus become a vital force in the work of their respective factories, and represent the primary research cells in the general system of scientific research.

In organizing the research work necessary for the building of Socialism, the Soviet Government applies the rule that scientific workers are to be given every encouragement to use their own initiative.

The annual plans drawn up by the director and the scientific collaborators of each institute specify the theoretical and practical work to be performed by each research worker and stipulate the time allowed. These plans are

Sergei Sobolev (at the left), a Member of the Academy at 29, instructing post-graduate students at the Institute of Mathematics.

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experience gained in factories, on construction projects, etc. This material is very valuable in making generalizations of grave import. Thus, in the work of Soviet research institutes, questions of theory and practice are closely interrelated. This is another intrinsic feature of Soviet science.

The industrial expansion of the U.S.S.R. is attended by rapid progress in every field of knowledge and culture. Archeology will serve to illustrate the point. In connection with the extensive building and reconstruction of new industrial plants and of entire cities, of hydroelectric power stations and canals, the institutes devoted to this science have been commissioned by the Soviet Government to make such archeological excavations as may be called for and to do so before the building operations are begun. For it is plain that after a construction project is completed, or even under way, the site should be closed to archeological research, particularly in the case of localities scheduled to be submerged beneath the waters of hydro-electric power reservoirs. Excavation for archeological purposes, for which great sums are appropriated by the Soviet Government, was extensively carried on in the zone of construction of the Dnieper hydro-electric station, the Kuibyshev hydro-electric development, the White Sea-Baltic Canal, the Moscow-Volga Canal, and the Moscow subway, among many others. These excavations brought to light much valuable material descriptive of the remote past of the territory now covered by the Soviet Union. Today more than two hundred finds of paleoliths have been listed within the confines of the U.S.S.R. while before the Revolution the number registered was not over twenty.

Soviet science devotes much attention to the elaboration of the humanities. The general rise in the cultural level of the country has greatly contributed to the success achieved in this sphere, too. There is great popular interest in the work of the various special institutes engaged in the study of philosophy, history, ethnography and linguistics. All sections of the population eagerly follow their progress.

Soviet citizens study the history of their country with great attention and strive to fully comprehend the laws of social development. Large editions of works on philosophy or history are often sold out in one day. Such books are bought not only by students, teachers, and other brain workers but also by manual workers and collective farmers.

The Academy of Sciences of the U.S.S.R. has in preparation a number of publications of capital importance. These publications, each of which consists of many volumes, deal with general history, the history of the peoples of the U.S.S.R. and their ethnography, the history of world literature and of Russian literature, of philosophy, etc. These volumes, which will give the reader a general summary of the achievements of Soviet science during the last twenty years, meet the great demand for such works from every section of the Soviet people.

Close connection with the people, service to the people, and elaboration of purely scientific problems side by side with direct aid in accomplishing the tasks of Socialist construction—these are the characteristics of Soviet science, the features that account for its general popularity. The planning of scientific work in accordance with the general tasks that face the country is excellent training for those engaged in the various fields of science, and accustoms them to feel that they are a vital and active part of one integral whole.

The ties between Soviet scientists and the entire Soviet people were strengthened still more with the adoption of the new Soviet Constitution, the most democratic in the world. No one can ever forget the happy, festive atmosphere, impregnated, none the less, with the solemnity of the occasion, that marked the days of the elections to the Supreme Soviet of the U.S.S.R.
and to the Supreme Soviets of the respective Union Republics. As the people walked up to the ballot boxes to cast their votes, one could read in their radiant faces the pride they took in the performance of this important civic duty. The candidates of the Communist-non-Party bloc were elected everywhere, without distinction of sex or nationality, for they were the finest specimens of Soviet citizenship—the best of the workers, collective farmers and professionals.

The sessions of the Supreme Soviet of the U.S.S.R. have demonstrated the close harmony existing among all the peoples of the great Land of Soviets, have given proof of their moral and political unity. This unity, this priceless asset, is the guarantee of the invincibility of the U.S.S.R. The men of science have made common cause with the masses, and this has injected a new content into their lives.