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## The State, Geology and Nature in the USSR: The Experiences of Colonising the Russian Far North

We shall subjugate space and time,  
We – young masters of the earth.  
*The March of Happy Fellows (1930s)*<sup>1</sup>

Geologist! my friend and tired brother,  
Protect our century from grief –  
From the bottom of the sacred Baikal  
Do not find any oil or gas.

– *Mikhail Vishniakov (1970s)*

The visible open spaces today contain in themselves marks of activities of past generations. What type of interaction with these open spaces is seen in the modern Russian landscape? A traveler in the northern and eastern regions of Russia will be struck not so much by the beauty of the environment as by the innumerable and ubiquitous remnants of the industrial past – mountains of scrap metal that have grown into the landscape, expired factory-settlements, dead production plants. It is a special characteristic of Russia that the industrial development of the country's outskirts happened with incredible speed. In a very short time during the Soviet period new settlements were founded in the scarcely populated territories, a multitude of new industrial centres were built, around which infrastructure, transport and communal networks were

investigation of the vast Soviet territory was exceptionally fast. The scale of surveys before the revolution was not that impressive. Siberia, the north and the Far East remained practically unknown in terms of geological information.<sup>1</sup> However, by the 1950s the whole gigantic land-mass of the USSR was covered by geological surveys, geological maps of various scopes were developed. Special attention was given to those regions that had perspectives in terms of "strategic" resources and new industrial centres were born in many studied places. In a period of 40 years the humble academic geology became one of the most numerous and popular disciplines in the USSR.

How and with what measures was this burst of geological investigations made? How did the transformation of the institutes of power and the political context affect the surveys? We shall try to answer these questions by analysing four periods in the history of the development of geological surveys in the Far North and the Far East of the USSR: a) until 1917, b) 1917-1930, c) 1930-1953, d) 1953-1970. These periods are marked by historical events (the revolution, establishment of a repressive regime, and the death of Stalin) that became landmarks for the whole country and, partly, for the history of geology.

### The Development of the Branch of Geological Survey and Mining in Czarist Russia (until 1917)

The point where the institutional history of mining begins in Russia is considered to be the year 1700, when Peter I gave the order to found "The Board of Mining Affairs" (an organisation that was responsible for all mining development in the country). In 1773 in St. Petersburg the first Mining Institute was formed to educate mining engineers. The first scientific associations of geology appeared in St. Petersburg and Moscow in the beginning of the 19th century: The Royal St. Petersburg Mineralogical Society (1817) and The Society of Naturalists (1868). They consisted of representatives of the land-owning class that were interested in mineralogy and the natural sciences. On the whole, until the revolution, geological science was dominated by intellectuals, mostly of noble birth, who were orientated to solving academic issues.<sup>2</sup> Their number was

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formed. A majority of the new industrial regions are located in areas of severe climatic conditions - in the Far North and the Far East. Now many of those settlements that were created during the Soviet industrialisation, because they turned out to be unprofitable due to the big expenses spent on sustaining the social and technological infrastructure in a harsh climate. A contemplation on the abandoned landscape and some talks with those few people who have remained make the traveller feel nostalgic towards the dynamic history of these places and make him wonder about their future.

In what way did the domineering method of exploiting the natural environment, which brought about these observed results, develop and get form in Russia/the Soviet Union? What were its premises, what were the projects of the government and how did ordinary people, who completed these projects, live their lives? In this article, an analysis is presented of the ways of interaction with the natural environment that were typical of the Soviet society. We will discuss the process of colonising the northern and eastern outskirts of the USSR with an example of the history of the development of geological surveys that evolved intensively in the first stages of industrialisation. The focus of the analysis is the state strategy of colonising the open spaces and its practical realisation.<sup>3</sup> The time period we are dealing with is 1917-1970, which illustrates the given issues best. The territory concerned consists of the areas of the Far North and the Far East of Russia. This choice was made because these scarcely populated territories were the prime concern in the Soviet Union's industrial plans.

### Colonising Open Spaces: Opening the Bosom

In many countries a qualitatively new stage of colonising territory is characteristic to a period of industrialisation and accompanied with the mobilisation of science to the interests of production. The geological discipline is especially important in that it "opens up the bosom of the earth" - it provides information about hidden resources and raw materials that are crucial for the development of mass industry. In the USSR the intensification of geological surveys began in the second half of the 1920s, after the course was set for forced industrialisation. The speed of geological

relatively small, but the results of the activities of individual scholars were highly appreciated on an international level.

Connections between Russian academic geology and the mining industry were relatively weak. The industry was well developed, but concentrated almost exclusively in the historically contingent production centres and produces only a few types of raw materials. This section of the industry had its own cadres that looked for natural resources for companies and, in practice, did not engage in scientific study. In the context of this article it is important to note that one of the special characteristics of the organisation of the Russian mining industry in the 19<sup>th</sup> century was the massive use of slave labour. After 1861, when the emancipation came, the industry almost crashed, because it became impossible to use unpaid labour. The level of mechanisation was extremely low, manual labour was the norm, which meant a sharp increase in the prime cost of the product as workers now had to be paid. Only twenty years after the emancipation did the industry start to regain its ground: mining was partly mechanised and joint-stock companies began to be formed. However, forced labour continued to be used in the mining business, only on a smaller scale. Thus, for example, in the beginning of the 1920s, prisoners were drawn to the Chermkhovskii coal mines. Also in Sakhalin, there was active use of prison labour in the coal mines.<sup>2</sup>

In 1882 a Geological Committee (Geolkom) was founded in connection with the Mining Department. It was meant to be a synthesis of the academic and applied interests. However, due to a comparatively low level on financing and a small amount of officials its function became mostly the geological charting of the country and the making of maps. The number of people in the Geolkom immediately after the revolution consisted of less than 70. In 1870 as a result of its activities a combined geological map of European Russia was published. The Asian parts of the country were not charted in terms of geology (with the exception of a few regions with a developed mining industry). In the years between 1915–1917, within the Russian academic circles, an idea was born to create a system of scientific institutions that would be orientated to the solving of practical industrial problems. On the basis of this idea was the wish to discover resources in order to put the World War I-ravaged country back on its feet. Scholars of the Academy of Sciences suggested the government that the scientific organisations be reformed with the aim of harnessing natural resources and, thus, stimulating economic growth.<sup>3</sup> This fact

testifies that the demand for practical scientific solutions and for studies that orientated to the needs of the industry arose in Russia even before the Soviet period. Though, the fundamental reforms of the scientific and educational institutions began only after the revolution.

### "The Battle for the Bosom"<sup>4</sup> (1917–1930)

The change of the political regime in 1917 brought with it a change in the way the country entered new territories. The leading motivation for the colonisation of Siberia that the Russians had engaged in for already some centuries remained (as in Czarist Russia) economical, political and military advantages. However, at the heart of it, the method and character of the expansion changed. Before the revolution the main forces behind Russian territorial expansion were various interest groups: the military (mostly Cossacks), scholars, entrepreneurs and merchants (mostly involved in gold and fur trade). Despite the high interest of the state in the occupation of the eastern regions, the Czarist government in most cases had no chances to define the course of local developments – it was defined by the interest groups at the spot. After the revolution and, especially, with the arrival in power of Stalin there was a change of the pluralist model of occupation of open spaces in favor of a monolithic one. Within the framework of the socialist system the activity of various groups in the regions was subjected to a single plan that was dictated by the state. The management and decision-making took place in the centre, while the interests of local processes played a minor role.

The battle with nature<sup>5</sup>. The change in the colonising regime was made possible by the evolution of corresponding ideological concepts. The ideology of subjugating nature was born in the USSR in the 1920s. This was linked to the sweeping wave that romanticised industrialisation and was characteristic of the literature and press at the time. On the basis of this ideology was the presupposition about the omnipotence of man, about his capacity to reform wild, passive nature as he pleased. This relationship gave birth to revolutionary Romanticism and pathos – one must fight nature, subdue it, conquer it. One must overthrow the old and build something new. Nature was seen as the enemy, alien and wild. On the whole, the romanticisation of the battle against nature is characteristic to countries

that are more industrialised, such as the USSR and the USA. The way of perceiving and colonising open spaces can be described as "colonisation of nature" - with some caveats - as opposed to "civilising nature" that has been practiced in Europe for many centuries, i.e. the gradual spread of populated areas, organisation of territories, perceiving nature as "my household" (I shall take care of it), as opposed to seeing it as "an wild, alien area" (I shall seize it).

Changing the natural environment in response to the collective needs of the Soviet was closely connected with the formulation of "the new (Soviet) man". "Man, while changing nature, changes his own nature", this was the motto that the Soviet writer Maksim Gorky repeated in the 1930s.<sup>10</sup> The Soviet battle against nature was supporting and continuing the class struggle with the capitalist world. Let us once more quote Gorky who was without a doubt the literary leader of this struggle in the first decade of Soviet power:

There is an ongoing battle in the Soviet Union between the rationally organised will of the working class against the elemental forces of nature, against that element in human nature which is essentially, among other things, an instinctive anarchism of the self that has been nurtured for centuries by the class-system.<sup>11</sup>

One of the first poets who proclaimed the battle against nature was Malakovski. He embraced the revolution wholeheartedly and also accepted the ideology towards the subjugation of nature: "Build! With full proletarian speed. Breaking is not a shame in construction! Raze to the ground, even if it means levelling the Kazbek!<sup>12</sup> It is all the same, one will not see it in the haze"<sup>13</sup>. The revolutionary construction demands the wiping off of all obstacles on the way. A mountain that is invisible to man has no point and man's duty is to reform, straighten out and replace natural beauty with new, man-made steel ornaments.

Geological science in the service of industrialisation. Another moving force in the uncoding Soviet colonisation was *scientific knowledge*. Science and the development of technology were the basic instruments of modernisation in the transition towards the industrial age in many countries, but a special characteristic of the Soviet case was the fact that the strengthened role of science was accompanied by the development of the repressive machinery that limited the free circulation of information.

In connection with the intensification of industrialisation<sup>14</sup> in the 1920s, a massive mobilisation of scientific know-how towards the interests of the industry took place in the Soviet Union. Geological science was partly called upon to uncover various types of natural resources that were necessary for the development of heavy-industry in central Russia. The likelihood of discovering rich natural resources in the country gave hope to those who hoped to keep the Soviet Union free from the necessity of importing these materials. Furthermore, exporting certain types of resources (mostly gold) was one of the main sources of income for the Soviet government. The money received made it possible to buy important machinery and technology for the new industries being built. These were the main reasons behind the special interest showed by the Soviet government towards the development of geological surveys in the USSR. At the same time, the boom of geological investigations was accompanied by a hardening of attitude of the political regime towards academic circles.

How did the merging of science with the needs of industry happen and what were the mechanisms used by the Soviet authorities to put pressure on the opposing academicians? Let us look at these questions on the basis of an analysis of the process of reforming the system of academic and educational institutions in the USSR, concentrating on the departments of geology (similar changes took place within all disciplines). The new Soviet system of management of the academic and educational institutions appeared gradually. In the first years after the revolution the core of geological science consisted of scholars who had received their degrees before the revolution. Many of them expressed a negative or neutral opinion of the revolution's changes in the country and the new regime, but still they were allowed to continue their activities and even received money for certain areas of research. Up to the end of the 1920s, this relative autonomy of scientific institutions was retained. After the emergence of Stalin as the leader of the country and the toughening of the political regime, systematic attacks took place against academic freedom, censorship became increased and state interests replaced those of science in the conduct of research.

The most characteristic changes took place in the Academy of Sciences - the main scientific organisation in Russia, within which functioned departments and committees of both humanistic and natural sciences (including geology). After 1925, when the Russian Academy of Sciences was renamed the Academy of Sciences of the USSR and proclaimed "the

highest Soviet educational institution", the government started to act repressively towards it. The state ignored protests from scholars. The mission of the reform of scientific institutions was, firstly, to uproot dissent that was seen to be flowing from the academia and, secondly, to establish state control over all the areas of research, in order to harness science to the "building of socialism". Change of regulations, lifting of censorship, placing government's own candidates as members of the Academy, threats of dismantling the Academy in the case of disobedience of government orders, fabrications of accusations against scholars – these were only a part of the ways in which the authorities put pressure on the independent intellectual elite of Russia. Analogical measures were taken against the Geolkom, the central geological institution of the country.<sup>11</sup>

In the 1920s, besides the reform of scientific institutions, another major change took place within the system of geological education. This change was directed at the broadening and reorganisation of the discipline's sphere. On the basis of the faculties of geology at universities and academies, various institutes were created that prepared specialists for different areas of the mining industry.<sup>12</sup> Furthermore, in connection with the acute lack of technicians, a country-wide network of courses for education of workers (*rabfak*) was set up, preparing technical staff for geological expeditions. Young people went willingly to these institutions, as they provided fantastic career opportunities within the expanding industry that lacked specialists. An additional stimulus was provided by the raised scholarships that many mining institutes and polytechnics gave out. Naturally, the level of education of these quickly graduated geologists left room for improvement, but still, the high demand and numerous opportunities for practical work on the field stimulated active self-education among the students, which partly compensated for the inadequacies in theoretical expertise.

Yet another goal of the forced production of a large number of young "proletarian cadres" was the gradual ousting of "bourgeois specialists" from Soviet science (i.e. those who had a non-proletarian background and/or had received their education during the Czarist regime). The campaign against the domination of scholars unloyal to the government was a part of the government's general policy of taking control over science. The following illustrates the situation well: in 1930, in connection with the foundation of the Moscow Institute of Geological Survey, a student from the final year was nominated as its director. He received his geology diploma a year after coming into office.<sup>13</sup>

The main methods of intimidating the stubborn elite were purges and a series of "academic cases", where most of the defendants were scholars. Among the most visible processes where geologists were arrested are, for example, the following: the cases of *Geolkom* (1928–29), *Shakhtynskoe* (1928), *Prompartia* (1930), *the Case of the Academy of Sciences* (1930–31), *the Case of Sabotage in the Oil Industry* (1928–31), *the Case of Sabotage in the Gold-Platinum Industry* (1930) and *the Case of Sabotage and Espionage of Counter-Revolutionary Groups within the Profession of Geological Surveys* (1930–32).<sup>14</sup> By the beginning of the 1930s, all attempts at opposition were crushed, massive purges were completed in all academic institutions (dismissing those politically unreliable) and a huge number of scholars of different disciplines were thrown in jails and work-camps. The free-thinking scientists, who had received a fundamental, high-quality education before the revolution, were hastily replaced by young cadres that were loyal to the Bolsheviks. Total control was taken over the academic world and its activities were subjected completely to the needs of the "building of socialism". As for geology, the main duty, for a long time, was the conducting of field research with the aim of preparing the ground for the quickly-developing industry.

Expeditions. Industrial development of the new territories demanded a systematisation of the available information, as well as the gathering of new data. On the basis of scattered and incomplete data that had been collected by pre-revolutionary scholars, scholars predicted the existence of big mineral reserves in the vast, unpopulated territories of the Far East and Far North. However, the collected data was in most cases not enough and further study and mapping of the regions was needed. Besides scientific demands, the expeditions aided geopolitical aims as outposts of the government: they embodied the Bolsheviks' claims of a concrete presence in the localities and furthered their influence in the country's distant corners. In some regions, the expeditions played the role of demonstrating the USSR's claims on disputed territories.

The first post-revolutionary expeditions were sent out in 1918. These consisted of a whole complex of geological tasks that were supposed to complete the detailed description and evaluation of the perspective of the regions for the economy. They were organised even before the move towards applied, practical science. For this reason, the expeditions consisted of specialists in many types of resources (minerals, water, bio-resources, animals). At the same time, they conducted many different

investigations, e.g. geographical, geological, botanical, hydrographical and others. Mapping and mineral prospecting were among the most vital tasks of these fieldworks.<sup>19</sup> Moreover, special geological expeditions were also prepared in order to count and investigate further the promising locations that were found before the revolution. In order to show the context within which these expeditions took place, let us remind the reader that these expeditions were organized just a few years after World War I and the revolution, at that time the country went through a civil war, where "whites" and "reds" fought for power. It is interesting that during this time, both sides sent out survey teams, because both were lacking resources, especially fuel and metals. In this difficult situation, the investigators, while trying to conduct their studies, had to fulfil additional military and party-related tasks. Thus, for example, in the northern regions the expeditions were ordered to collect and deliver food (fish and game) for the Red Army.<sup>20</sup> Here are listed the main areas where these expeditionary groups were sent to between 1918–1928: the Kol'skii peninsula, the Noril'skii territory, Karelia, Pechorskii krai and the Ukhтинskii and Aldanskii territories.

In the middle of the 1920s we can see a further intensification of these expeditions, but there was a tendency to specialise them more. The investigations were orientated to the search of minerals that were of vital strategic importance, e.g. gold, tin, nickel, copper and iron. Concrete results were expected – opening up of possible mining sites. Year by year the number of expeditions grew. Thus, for example, from 1927–29 to 1928–29 their number rose from 628 to 938.<sup>21</sup> Funding for these surveys also grew. In part, one of the decisions of the Soviet government that was made in the 1920s obliged the Gosplan and VSHV to assign to the Geolkom not less than 100 billion roubles, against the suggested amount in the five-year plan, "judging from the necessity to quickly overcome the severe backwardness of our geological surveys and expand their number according to the needs of our economy."<sup>22</sup> On the whole, from 1923 to 1927 the geological budget rose twelve-fold (from 900,000 roubles to 10.5 billion roubles).<sup>23</sup>

Besides the general and specialised scientific expeditions, the task of which was to study the various different natural resources, other types of expeditions were also ordered. Thus, for example, in the 1920s special groups were organised in the Far North and Far East that began to collect information about the socio-economic situation of the population (mostly indigenous people). Their nature was very different from ethnographical

investigations – one of the organisers was the NKVD and the main task was not scholarship, but the gathering and systematisation of information about the local population. Various methods were developed in order to use the population as labour force, e.g. there was a count of the agricultural products and furs produced by the local farmers. Yet another task of such expeditions was agitation in support of the Soviet power and aiding local Soviet elections.<sup>24</sup> Sometimes the arrival of the expedition in the far regions fixed Soviet authority over the locality. Furthermore, transport expeditions were another form of non-scientific surveys. Their task was to find the most economic transport routes in these areas that were hard to access.<sup>25</sup>

Thus, during the period we have now been observing, there was a change in the way territories were occupied – from a multi-faceted approach towards a more specialised one. The orientation of the Soviet government towards quick-paced industrialisation was finalised by the end of the 1920s. Geological science became one of the disciplines that were mobilised very early on in order to realise the building of socialism. Scientific knowledge was in the service of industrialisation. This was made possible by the radical reorganisation of educational and research institutes, as well as repression of the scholars of the "old school". The young, quickly educated people who were loyal to the Soviet authorities went to numerous expeditions for investigations of the country's territory. By the 1930s these surveys had already found and/or studied new, rich areas of mineral resources. In some regions which seemed most promising the building of major mining industries was started. A large number of labourers was needed for the industrialisation of these scarcely populated areas. Let us now see what resources were used by the government in the further development of these regions.

### The Geological Storm: GULAG, the War and Post-War Recovery (1930–1953)

The geographical isolation and the lack of transport routes significantly hindered the process of industrialisation of the newly-discovered rich resources. The totalitarian regime, fully established in the USSR by the 1930s, developed organisational measures that allowed them to overcome

GULAG system, the state created a special controlling organ over the labour-camps of metal and mining industries (GULGMP). The inmates of these camps served the industry, mining coal and pumping oil and gas in the northern and eastern regions of the country.<sup>30</sup>

One of the biggest mining superorganisations among the Soviet camps was the Dal'stroi, which was created in 1931 soon after the discovery of gold in the Far East. At first its mission was to develop the goldmines of Kolyma and Chukotka. After that, both its powers and occupied territory was increased. By 1941 the territory subject to the trust was over 2,266,000 km<sup>2</sup>, which was 10% of the whole area of the USSR at the time.<sup>31</sup> We already noted above how great was the significance that these surveys and search for gold had for the Soviets: the gold was used to buy technology and machinery from the West, to hire foreign experts and specialists to get the country's production running smoothly. The local authority of the Dal'stroi was in practise unlimited: it coordinated and controlled all works and projects throughout the vast territory (geological surveys, construction and mining), it regulated the use of prison labour within different industries and was in charge of the network of prison camps. Dal'stroi was not a part of the GULAG hierarchy, but answered only to the OGPU-NKVD-MVD.

Systems like the Dal'stroi, though much smaller in scope and scale, functioned in other northern regions as well. In 1935, for the development of the Noril'skii azur-nickel mines, the system Noril'lag was created (Noril'skii correctional labour camp), which controlled all the geological surveys and mining works in the region. On the whole, from the moment of its founding, the Noril'skii mining-concentration complex orientated on the use of prison labour. Soon after the death of Stalin and his administration, the complex became uneconomic (the development of relatively low-quality ore was economic waste after the possibility of "free" labour disappeared). In order to not close down this massive mining complex, the authorities took several measures: 1) the material base was enlarged by further surveys of the surrounding region, in order to find richer sources; 2) in order to solve the labour problem, a campaign was organised to recruit young specialists, who were called to come and "subdue the stern lands of the north".

The main problem in the process of colonising the northern and eastern territories was the almost complete lack of roads. This made it impossible to deliver cargoes, develop construction and take full advantage

obstacles that seemed all but insurmountable – the endless Russian steppes without roads which stood in the way of natural resources. By the beginning of the 1930s the state policy of occupying new territories for economic use began to acquire new characteristics: in order to make colonisation more effective, a new system of governance was developed, within the framework of which the NKVD received unlimited powers over the occupied territories. By 1935 the following industrial complexes were founded in Khibiny, Noril'sk, Aldan, Magnitogorsk etc. (mining of gold, nickel, iron and coal). The tempo of geological investigations continued to grow, because the developing industry demanded more and more mineral resources. The ever more complicated systems, which now included surveyors as well as miners, demanded the setting up of new forms of coordination and control. At the same time, a wheel of political repressions was running amok in the USSR. While aiming to increase the effectiveness of the colonising of the distant territories, the authorities began to implement a new organisational form – the "superorganisation"<sup>32</sup>. This was a structure that had extreme powers in the regions. It was created especially with the aim of speeding up the process of colonisation. Its duties included the consolidation of efforts, a sharp increase of the tempo with which the government was penetrating into the regions.<sup>33</sup> Within the framework of the superorganisation, all the little economic units were combined and they enjoyed an almost unlimited power in the occupied areas, obeying only the direct commands of the internal police, the name of which varied through the years from MVD-NKVD-OGPU. A characteristic feature of these organisations was the large-scale use of forced labour.

The massive use of prison workers in the survey and mining works helped the government to solve the problem of organising the new industrial zones that possessed harsh climatic conditions and very few inhabitants.<sup>34</sup> Where to acquire the labour force from, how to move the people there, how to stimulate them to travel to the outbacks, how to create the needed funds for their payments – all these problems were cynically resolved by the mass repressions of the country. Starting in 1930<sup>35</sup>, the work of prisoners and the so-called "special migrants" was used as the main labour force in the mining industry and geological surveying of such areas as Kolyma, Chukotka, Yakutia, the Murmansk region, the northern parts of Krasnoyarskii kraj (Noril'sk), the Komi republic (the Pechora basin, the Timano-Pechoraika province) and others. In 1941, within the

of the mineral resources. This is why the very first task was the building of roads. This work was done almost completely by prisoners. The level of mechanisation was terribly low, and even when the technology was present it did not survive the harsh weather conditions and often broke down. Thus, the authorities started to save their precious equipment and use the prisoners for the heaviest work – with shovels and wheelbarrows.

Those, who had special skills needed in the camps, escaped this fate. Geologists were an obvious exception. Those scholars who were sent to the mining camps had the chance to practise their knowledge. The authorities organised special scholarly bureaus in the camps – called *sharashki* – in which imprisoned scholars worked (including geologists). The geologists even had the opportunity to go out and do fieldwork, because there really was nowhere to escape – the open tundra was all the guarding they needed. The distance to the closest populated village could be hundreds of kilometers. Thus, science was an integral part of the whole system of prison labour. The fate of Nikolai Urvantsev is a typical example. He was the geologist who discovered the mineral resources in Noril'ski. Between 1919–1926 he led a series of expeditions in the area and found large areas of coal, nickel, platinum and azure.<sup>12</sup> Later, in 1935, he was arrested and accused of counter-revolutionary activity. After serving some time in a camp in Karaganda, he was transferred to Noril'lag, where he was included, by the orders of the commandant, in a group (almost 70 of them) of well-known scholars, geologists among others, collected from different camps. Thus, for over fifteen years Nikolai Urvantsev worked as a prisoner in the mining of the resources he had discovered. He was released only in 1956, after the death of Stalin.

Geology and the military's order. In the end of the 1930s the military threat to the Soviet Union increased, which served as a stimulus for further intensification of the geological surveys in the north and east. In order to solve problems of defense, the industrial might of the country needed strengthening. Thus, many new industrial complexes were set up in the flanks, behind the Urals, away from the country's western borders. On the eve of war, a strategy was developed where factories could be evacuated from the industrially developed zones to the east. Their successful functioning in the new location demanded the presence of mineral resources, which was being created (by surveying) by the geological expeditions right before the beginning of the war. The evacuation of factories from the front (and from places that were threatened with occupation) to the east took

place immediately after the war began. Many factories that had produced "peaceful" goods until the war were reformed for the production of military products. During the war geological surveys were aimed at the exposition of new strategic resources: iron, lead, tungsten, nickel and cobalt. Moreover, it was the task of geologists and geographers to create maps of the possible areas of military action. The intensive growth and development of the geological industry continued after the war. In 1947 the Ministry of Geology of the USSR was formed. In 1948 the first geological map of the USSR was printed and it was already virtually free of blank spots.

A good example of the extremely close collaboration of the geological expeditions and the political and military administration is the history of the search for uranium.<sup>13</sup> The competition for the atomic bomb between the USA and the USSR had started during the war. The threat that, after Japan, the next target for an atomic attack would be the Soviet Union was an unbelievably strong incentive for the creation of a Russian atomic bomb. By 1944 the first Soviet reactor was put to work. However, there was an inadequate amount of uranium available for its testing. Many state organisations and departments were concentrated to the lightning-fast solution of this problem. Starting in 1944, an intensive search for uranium took place in the whole of the USSR.<sup>14</sup> Besides the numerous specialised "uranium" expeditions<sup>15</sup>, every geological survey (no matter what their orientation) had to contain a radiology operator, who measured the routes for radioactivity. As a result, already by 1947, a small number of uranium resources were uncovered. It turned out that uranium is a widely distributed mineral and had simply "not been noticed" before, as there was no "demand" for it. All of the surveys took place in secret – even the word uranium was banned from use, the substance was labelled "the first". In the various mining institutes special faculties were formed in order to train specialists in uranium. The problem of uranium was finally solved in the 1960s, when various changes took place in the technical equipment of geological expeditions: new methods of aerial survey became possible and they allowed the measurement of radioactivity of the soil from the air.

To sum up the special characteristics of the given period, we need to notice the extreme importance of the work performed by prisoners in the initial stages of the industrial colonisation of the northern and eastern parts of the USSR. The lack of workforce in the regions was compensated by a massive voluntary and involuntary transportation of people into the

new areas. The high prime cost of the output was compensated by the massive use of "free" forced labour. The geological surveys were integrated into the camp-system and also made use of prison labour up to a high degree. The repressive nature of the Soviet system and the concentration of power supported the great combining of efforts to solve concrete problems related to the provision of raw minerals to the industry.

### Enthusiastic Colonisation: "Everybody, to Colonise the North!" (1953-1979)

After the death of Stalin in 1953, the GULAG lost its power base - amnesty was declared and many prisoners were released (and later rehabilitated). The majority of the mining complexes founded during the Soviet period met with serious economic problems: After the possibility of using free labour disappeared, a part of the locations became unprofitable, especially under the low degree of mechanisation. By this time, the economic losses brought by the war were mostly covered. The main strategies in overcoming this economic crisis in the mining industry were the following: intensifying the geological surveys and using new methods of searching minerals, increasing the level of mechanisation and the work that was aimed at the resolution of the problem of cadres in the northern and eastern regions of the country.

The campaign of agitation for the industrial colonisation of the north and the far east and for the participation in the building of new industrial complexes was mostly directed at young people, as they were more likely to decide on moving into new regions. Moreover, this was the generation that had been born and socialised in the Soviet system and, thus, more loyal to the state ideology. The propaganda campaign, which aimed to stimulate enthusiasm, emphasised the material benefits that young people could gain in new places - high salaries, good accommodation, a prestigious occupation.

The slogans about subduing nature played an important part in the agitation. There was a drift from the rhetoric of the revolution (that was characteristic of the literature of the 1920s), which called for a battle against the elements, against wild nature, to a pathos of such ideas as the omnipotence of man, capable of controlling the chaotic and meaningless

environment. Let us now look more closely at the ideology of subduing nature in the 1960s. We should note that it was an important component of the official rhetoric that talked about the necessity of industrial colonisation of the north and the east. Its contents can be analysed with the help of three lines of discourse: *the Meaningless Void, the Lair with riches, the Protector of treasures*<sup>36</sup>.

In order to subdue something, one must strip the object of subjugation from any inherent meaning and value. Within the framework of this discourse, nature itself has no meaning or rationale, but gains a teleology only thanks to the arrival of the civilised man and the building of various objects that give a certain locality significance. The indigenous people who were living in those places, as well as other biological species, have no rationale according to this point of view. Thus, they are liable to unification and/or to be taken advantage of. "All around the dull taiga stood dark - the realm of impassable swamps and midges. (...) how long, before men arrive there, deepen the rivers, dry out the swamps, clean out the taiga, build roads, cities"<sup>37</sup>.

Treasure, storage, riches, the plentiful bosom - all these metaphors were used by the Soviet journalists when describing natural resources. "The road is there only on the map. But here, in the taiga, are only trails of beasts, only wild bushes and swamps, and a cloud of bugs. One must go through all this in order to find the treasure that nature has hidden behind seven bolts. And here they come through the taiga, the pioneers, that we call - geologists"<sup>38</sup>. The geologist acquires the treasure for the country, conquering them from the wild bushes, swamps and mosquitoes. And although he himself travels without roads - on the trails of beasts - after him come roads (the main symbol of man's occupation of an area) and cities are built. The first and the second line of discourse portray "a union of contradictions" and they are intimately connected. They could be collectively named with the oxymoron "rich emptiness", meaning that nature is at the same time seen as *Nothing, void* - "territory" that has no point, as it has no signs of human activity - and as a *Resource* (natural resources) - the potential riches hidden in its "bosom".

Despite the fact that nature is often portrayed as lacking emotions - dumb, asleep, quiet - she is nevertheless an acting force. She is capable of hiding her treasures, fighting against men. "High and deep in the very heart of the mountains nature has hidden one of her treasures - molybdenum. It is not easy to get to it, harder still to dig it out from its stony chambers.

But there come the brave people, up to the mountains. They laid down roads through the cliffs, erected walls of workshops and houses, broke the locks of the chambers. Man turned out stronger than the hardest rock. And for his stubbornness, nature gave him her treasures. The prized ore flowed down like a majestic river<sup>79</sup>. Man (the Soviet man) is a much more active force than nature. She – just guards, he – being brave – penetrates, vanquishes and constructs.

The dominating view of nature in the Soviet public discourse included an idea of nature as passive, pointless matter that had no creative incentives. The Soviet person was completely separate from nature. He strives to be free of any dependencies and has the capacity to bring order into the chaotic elements, which are, mostly, harmful. Nature, in this doctrine, is not just a mechanism which can be divided into parts, studied and then used as one pleases. In the Soviet interpretation, nature is also an enemy that must be vanquished. In the battle against this enemy, man realises himself – becomes a kind of super-man – a divinity that rules the earth.

In the 1950s, the change from forced labour in the mining industry was completed by the arrival of young labourers and by the increasing level of mechanisation. The geological expeditions continued throughout the country. The scale of these projects is illustrated by the fact that by the 1950s the geologists from the Soviet Union consisted over 50% of all the geologists of the world<sup>80</sup>. During this period an important change took place in the character of the geological organisations – new technological possibilities were now feasible. For this reason, in the mid 1950s, a technological boundary can be said to have been crossed. Where earlier the main instrument of geology was the hammer, the transport – a boat, reindeer, dogs, camels or horses, the guides – local indigenous people, now after this boundary was crossed, the geologist's arsenal included boring instruments, geophysical and radiometric devices, the helicopter was the main transport<sup>81</sup> and the guides were not that important, thanks to the appearance of detailed maps (although in some regions they were still needed).

The indigenous people living in the regions, which had industrial potential, met with serious pressuring. The forced collectivisation, the transformation in the system of agriculture, the occupation of land by the state, russification and marginalisation of native languages, separation of parents and children due to boarding schools – and this is just the tip of the iceberg<sup>82</sup>. The geological surveys in the regions with an indigenous

population also affected their lives (naturally the economic transformations in the country affected the newly-arrived young workers, as well). Right until the end of the 1950s, the actions of an enormous group of scholars and expeditioners did not do much harm to the local way of life. On the contrary, it brought the locals additional income<sup>83</sup>. A geologist with a hammer, who used "live transport" (reindeer, horses or dogs) and hired local guides was not seen as a threat. However, with the arrival of new technology – new methods of survey (boring), new modes of transport (airplanes and landrovers) the relationship between the geologists and the locals became more tense. The main reason for this change for the worse were the ever more visible traces of human activity on the environment, on which the indigenous population was completely dependent. As a result of the massive mechanised intervention, the fragile northern ecosystems were largely ruined. Many traditional areas of the indigenous populations suffered. In some cases this resulted in a conflict between the geologists and the locals, as the locals saw the connection between the destruction of their environment and those who first arrived at the scene and uncovered the minerals.

By the beginning of the 1970s the geological industry grew even more. The number of people involved increased significantly<sup>84</sup>. Together with the new centralised Ministry of Geology, various geological organisations were developed within the ministries of industry, which were involved in the business of oil, coal, precious metals and other minerals. The geological departments had rather large budgets that were allocated according to the planned works, i.e. the higher the expectations, the more money they could receive<sup>85</sup>. Also, together with the field of applied geology, the sphere of theoretical investigations received more importance and Soviet schools of geology were formed.

To generalise the characteristics of the given period, we can note that one of the most important changes was the shift from the use of forced labour to the use of persuading young people to move into the regions. The whole country was in a state of permanent migration: people travelled to colonise the north and to the "great projects" of the state. One of the most important propaganda tools that stimulated the colonisation of the distant areas was the ideology of subduing nature, which was most effective in the 1960s. The legitimacy to the reorganisation of nature was gained by portraying nature as without rationale, as wild and passive. There was also a leap in the level of technology used, the types of transport available, the

level of mechanisation. Furthermore, new methods and instruments of investigation and survey were used. However, the change in the technology increased the effect of the expeditions on the environment and brought clashes with the local population.

## Conclusion

The history of the forced occupation of the northern and eastern territories of Russia in the 20<sup>th</sup> century is a good example of the complex interweaving of three factors: the development of technology, ideology and scientific knowledge. Paradoxically, it was the science, conducted by Soviet geologists in the difficult field conditions, which became one of the central forces behind the colonisation within the USSR. The scholars who were in love with nature and fulfilled their professional interests, aided the organisation of the Soviet industry and the strengthening of the state's power, even in those cases where they had to work for free, under constant surveillance of the NKVD. The repressive regime that had completely changed the system of education in Russia effectively used science and scientists for military and political goals. The long period of a complete absence of critical reflection led to a deformed and distorted function of science in the USSR. Science lost its humanistic edge. In some cases, contemporary geologists feel more sorry about the dismantling of the gigantic system of geological institutions and seldom think about the effect that their actions had on the environment.

The state ideology, an integral part of which were the ideas of a battle against nature, nurtured a widely spread technocratic philosophy in the USSR. The method of colonising the open territories that is characteristic to the dominating social class defines the future of those territories and its inhabitants, because the way in which environment is dealt with and how natural resources are used is decided within this framework. This single method used by the Soviet Union, which is only a choice of many others, has a tendency to dominate others. Those who profess other points of view must accommodate and devise other tactics and ways to voice their interests. These interests are always answers to the actions of the state, which has the power to realise the projects concerning any reorganisation of the environment.

## Endnotes

- 1 From henceforth, all translations by Erkki Seppänen, unless otherwise indicated.
- 2 The empirical basis of the article comes from the materials of the project *Constructions of Nature: Soviet Geologists as Professional "Conquerors of Nature"*, which was done by the author in 2002-2004 with the support of the Centre of Independent Social Studies (St. Petersburg, Russia) and the Institute for Advanced Studies on Science, Technology and Society (Graz, Austria). On the whole, 15 biographical interviews and 13 published and unpublished memoirs of geologists were collected in the project.
- 3 In fact, during that period even in the geographical maps of Russia there were blank spots, especially in the mountainous areas and in the northeast. This was because the geographical expeditions that were mostly ordered by the Czar's government in the 19<sup>th</sup> century, used mainly waterways as transport and could study only coastal areas. Still in 1917, in some in-land regions of Russia, not one surveyer had set foot in. The information about the geology of those regions that was received from local entrepreneurs (who were dealing in fur or gold) was scarce and contradictory, in a word, insufficient for the making of maps.
- 4 This process was similar in the West where geology was first considered "a gentleman's science". See Radwick 1985.
- 5 Stafeyev 2000; Chekhov 1985.
- 6 Grigoriev 1947. According to the "Soviet version" of the history of geology, the overall number of geologists in Russia (in all research and production institutes) until 1917 did not exceed 150 people. See Gubkin 1933. We should mention that such numbers contain a heavy ideological tone, as they were presented in order to demonstrate the unbelievable feats of Soviet geology in such a short period.
- 7 The development of such a system of institutions was done within the framework of the Commission of the study of forces of production in Russia (KEPS), in which participated all of the academic scholars, officials and workers producing relevant machinery. One of the most important problems that it was meant to solve was the providing of raw materials to the military and the homefront (as well as providing rations, medicaments and sanitation) (Bastrakova 1999; Kolchinskii 1999).
- 8 Fedorovskii 1931.
- 9 More detailed analysis of the ideology of conquering nature in the Soviet literature of 1920 can be found in Bolotova 2004.
- 10 Quoted in: Weiner, 1988. These words were taken from an epigraph to a collection of writings by Soviet writers called "The White Sea - Baltic Canal" (Gorky was one of the editors) that praised the forced labour of prisoners.
- 11 Gorky 1953.
- 12 The Kazbek is a mountain in the central part of the Caucasus, in Georgia.
- 13 Vladikavkaz - Tiflis.

- 14 The most important landmarks of industrialisation in the 1920s were the GOELRO-plan and the programme of forced industrialisation. The GOELRO-plan was made shortly after the nationalisation of all major industries (including the mining industry) that took place in 1918. The plan was made to restore and develop further the economy of the country that had been crushed by the wars and the revolution. This was to be done by means of complete electrification and also, by increasing the hauling of coal, gas, iron ore and increasing the production of pig-iron, steel, copper and other metals (Plan elektrifikatsii RSFSR 1955). The course of forced industrialisation was set in 1925 in the fourth meeting of the VKP, after a tough debate within the party. The alternative to this plan, which suggested that Russia's backwardness could be overcome very quickly, was a more reserved variant of industrialisation. This was proposed by the opposition, but they lost the debate (Industrializatsia Sovetskogo Soiuza 1997).
- 15 Perchunok 1991; Bastrakova 1999; Kolchinskii 1999.
- 16 For example, in 1930, they founded six new branches of the Moscow Mining Academy, named: Mining, Oil, Geological Survey (founded on the basis of the Faculty of Geological Survey of the Mining Academy and the Faculty of Geology at MGU), Peat, Steel and Base-metals and Gold.
- 17 Smirnov 1992.
- 18 Bazhenov et al. 1999.
- 19 An example of these expeditions: the Northern industrial-scientific expedition (created in 1920, had many different sections - survey of the northern areas of Russia. Natural resources - mineral, biological, animals).
- 20 Belov 1959.
- 21 Otchet o delakh'nostj Geologicheskogo Komiteta za 1928-29 operatsionnyj god, 1931.
- 22 Materialy k putel'nemu planu Geologicheskogo Komiteta 1928/29 i 1932/33 gg., 1929.
- 23 Gubkin 1933.
- 24 Kalhan 1931.
- 25 Melodubnik 1931.
- 26 A term used by the Russian historian Piliavov (1993). This idea also appears in the works of Shirukov (Shirukov 1997).
- 27 Piliavov 1993; Shirukov 1997.
- 28 As mentioned above, the use of forced labour in mining was not a Soviet innovation - the tradition has a long history in Russia.
- 29 The first camp that was designed for the mining industry was the Ukhtinskaiia expedition of geological survey OGPU, created in 1929, for the search and refining of oil resources in Komi. On the foundation of this expedition that was very soon renamed as Ukhtapechlag, a whole network of camps evolved: Ukhtizhemlag, Pechelag, Vorkutalag, Intalagpunkt (Staifev 2000).
- 30 Staifev 2000.
- 31 The data comes from Shirukov (1997). One must mention that the territory occupied by the Dal'stroi varied all the time, mostly expanding. When the trust was being organised (1932-35), its area was about 400,000-450,000 km<sup>2</sup>. However, its gradual expansion led to the decision that by 1951 the whole territory east of Lena and Aldan was included in the Dal'stroi. Along the Okhotskii shoreline, the territory from Ayan all the way to the East-Siberian shoreline and the Chukotskoe and Bering seas was also included in it. This area could easily have accommodated England, France, Spain, Italy, Japan and a few of the larger states of the USA. (Vasil'ev 1956, quoted in Shirukov 1997).
- 32 It is also typical that, during the Civil war (in 1919), Urvantsev organised an expedition for the "whites" (Kolchak). Later, he started to work with the Soviets, but when arrested, his charge was his co-operation with the "whites".
- 33 A similar analysis could be made of the history of diamond-mining in the USSR. Diamonds were the necessary raw material for some industries, but they had to be imported from abroad at a high price for a long time. In the 1940s-1950s, large-scale surveys of diamond-mines took place throughout the USSR, which led to the discovery of rich resources.
- 34 In order to coordinate all the efforts, a special First Main Control of Geological surveys (Pervyi Glavk) was created within the Goskomitet of Geology. The head curator of the "uranium-problem" became Ierlia (The SNK USSR decree from the 13th of October 1945: "On the concentration and specialisation of the searches and surveys of radioactive resources"). The First Glavk had unlimited powers and it controlled various organisations.
- 35 In 1946, 270 specialised search parties of uranium were organised ([http://www.urangeo.ru/dat/file\\_49.doc](http://www.urangeo.ru/dat/file_49.doc)).
- 36 These discourse lines were defined on the basis of an analysis of publications about geologists that appeared in the Soviet newspapers. The methodology of discourse analysis was used for the newspapers analysis. Five newspapers were analyzed from the 1930s to the 1960s. This article presents an analysis of the 1960s material only. A more complete analysis of the Soviet ideology towards nature can be found in Bolotova 2004.
- 37 Pravda, 2.04.1967.
- 38 Izvestia, 18.04.64.
- 39 Izvestia, 17.09.61.
- 40 Graham 1998.
- 41 We must note that all the aforementioned means of transports continued to be used, but to a lesser degree, because the aerial mode of transport was often cheaper.
- 42 Vakhnin 1993.

43. As a result of this "invasion" of expeditions, many indigenous people went through major agricultural reorganisations. This was partly aimed at meeting the demands of the expeditions, instead of the people themselves: the amount of animals that were used for transport was increased, the number of people capable of working as guides to geologists also increased. (Kosmachev 1965).
44. By 1985 their number was almost 700,000. (<http://gazeta.priroda.ru/index.php?act=view&g=7&r=1570>)
45. The following numbers are characteristic of the search for resources in the 1970s and 1980s: each year, over 30 million boreholes were made, over 1 million samples drilled and about 500,000 underground investigations conducted (<http://gazeta.priroda.ru/index.php?act=view&g=7&r=1570>).

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Arja Rosenholm and Sari Autio-Sarasma (eds.)

# Understanding Russian Nature: Representations, Values and Concepts

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Arja Rosenholm and Sari Autio-Sarasma (eds.)

## Understanding Russian Nature: Representations, Values and Concepts

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Conceptions of nature are part of Russian culture, self-understanding and national identity, and they also have implications for environmental politics and governance. In order to understand such cultural understandings, it is necessary to probe the historical and cultural meanings and values given to nature. In this volume different conceptions of and approaches to "nature" are characterized within national cultural systems of belief and knowledge. This culturally and historically oriented, multi- and interdisciplinary volume points out that there is no simple matter as such but nature culturally constructed and analyzed. Focusing on nature as a space transmuting national myth and political symbols, the articles emphasize how important it is to understand these national markers of Russian identity. This book is based on papers given at the David Aleksanteri conference in November 2003.

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