

CHRONICLE

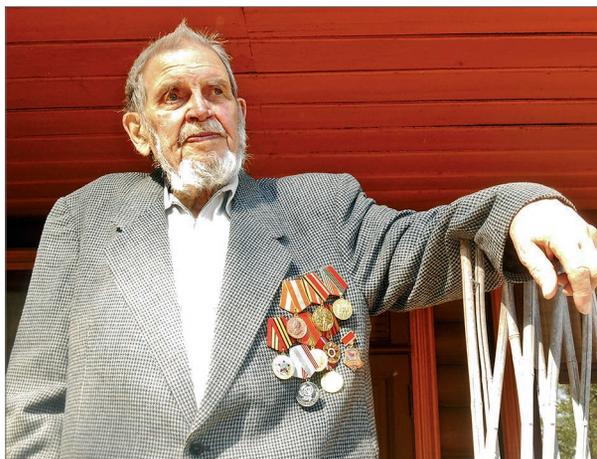
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FOTIEV SERGEY MICHAILOVICH
(on the 90th anniversary)

F.M. Rivkin

“Fundamentproject” OJSC, 1/1, Volokolamskoe rout., Moscow, 125080, Russia; f-rivkin@narod.ru

This article is dedicated to the 90th anniversary of Sergey M. Fotiev, widely known as a prominent researcher in geocryology, teacher, and editor of the scientific journal. He rendered almost 60 years to studying the geocryological conditions of Eastern, Central and Western Siberia, and the Russian Far East, Chukotka, Yakutia and Transbaikalia region. Sergey M. Fotiev authored 10 monographs, more than 100 scholarly articles and 12 published maps. Sergey M. Fotiev's legacy left to the world science includes six PhD theses in geological-mineralogical sciences defended under his scientific supervision.

Scientist, geocryology, “the Kingdom of Ice”

For many years, friends and colleagues of Sergey M. Fotiev would call him Maitre.

This title, coined by Sergey E. Sukhodolsky long time ago and readily picked up by other colleagues, has proven to be true for Sergey M. Fotiev, inside and out, owing to his dignity, his attitude to work and research activities underlain by the foundation of his consistent, rigorous methodology, and judging by the breadth of views, and how he related to younger scholars. The dictionary defines “Maitre” as one of those borrowed French words that have some additional meanings in the Russian language rather than simply being the French spelling of master: maestro, master, instructor, teacher, mentor. Each of these fully fits the remarkable personality of Sergey M. Fotiev.

Sergey M. Fotiev was born on November 28, 1927 in Moscow. When World War II broke out he was a teenager and had a chance to finish only grade 6 of a secondary general school, while his further

schooling was cut short and continued till his graduation in line with a reduced educational program. An eighth-grade pupil, he was mobilized to the labor front in December 1942, and assigned to Aircraft Factory No. 23 producing TU-2 dive bombers. Until the end of WW II, Sergey M. Fotiev worked in the chassis-frame workshop of the aircraft factory, boring chassis cylinders for dive bombers on a boring-machine. His work intermingled with studying at a school for working youth. Seeing as it was a war time, the students were allowed to work 8 hours, while the regular shift was 12 hours; therefore the 12-hour working rate was “recommended” to fit in 8 hours. 1946 was the year of his graduation from school, and a time when he was awarded with the medal “For Valiant Labor in the Great Patriotic War of 1941–1945” for self-denying work during the Great Patriotic War.

In 1946, Sergey M. Fotiev became a student of hydrogeological faculty at Moscow Geological Pros-

pecting Institute (known as MGRI) n.a. Sergo Ordzhonikidze, which surprisingly had presented by itself a “technical” challenge through the CEO of the aircraft factory who would not let go of a valuable worker. Which was why Sergey had to take entrance exams during the time off between work shifts. However, the successfully passed exams and his official admission to the institute did not work, and the director persisted ignoring his resignation. It was not until August 31 that he signed Sergey M. Fotiev’s resignation notice, which indeed was a tense situation as studies at the institute were to start the following day, September 1. Yet still, what mattered most was that he had his foot in the door of geological science and academic research.

Learning in the field traditionally being one of the fundamental components of the geoscience curriculum, his studies were intermittent with field practices at scientific research stations near Zagorsk and in the Crimea, as well as a practical course of geological survey in the Zailiysky Alatau, and finally undergraduate practice in Yakutia as part of the Zheldorproekt Yakutia Expedition GULZhDS (Directorate of Camps for Railway Construction) subordinate to the USSR Ministry of Internal Affairs.

His undergraduate practice in 1950 was taking place in the area of the projected route of the future railway from Tynda through the cities of Aldan, Tom-

mot and Yakutsk, running further northeast through the Bering Strait as far as North America. It was there that Sergey M. Fotiev “touched” The Eternal Frost, or “the Kingdom of Ice (*Ledovoye Tsarstvo*, in Russian)”, as he himself would call it. Interestingly, 50 years later the idea behind the Alaska–Tynda rail link has revived again.

Back in 1995, Transcontinental Inc. invited Sergey M. Fotiev to take part in the development of the project for building the transcontinental American–Eurasian railroad through a tunnel under the Bering Strait. Sergey M. Fotiev headed a team of specialists commissioned to perform work outlined in the “Natural and engineering-geocryological conditions of the project implementation” section of the geotechnical investigations. A year later, the 1:2 500 000 map of geocryological zoning of the America–Eurasia transcontinental railroad was successfully compiled with M.M. Koreysha as a co-author.

The undergraduate practice had the most critical role in determining the future line of research and the main focus of Sergey M. Fotiev’s scientific activity. It was the first time in MGRI history, that results of a study of engineering-geocryological conditions had been presented for defense of the master thesis, given that ‘permafrost studies’ was not existent among academic disciplines in the MGRI curriculum at that time.



Sergey M. Fotiev among his disciples and colleagues (April 2017).

From left to right: S.M. Fotiev, N.G. Belova (*front row*); M.O. Leibman, G.E. Oblogov, Yu.B. Badu, F.M. Rivkin, N.V. Arutyunyan, E.Yu. Sokolova (*back row*).

After completion a full course of study at MGRI, Sergey M. Fotiev was assigned to work in Zheldorproekt GULZhDS, the USSR Ministry of Internal Arrairs, which was followed by his taking a postgraduate course at the Obruchev Permafrost Institute in Moscow, where the outstanding scientists, the masterminds of the Russian geocryology, such as N.A. Tsytovich, I.Ya. Baranov, V.A. Kudryavtsev, V.M. Ponomarev, P.F. Shvetsov and others would give their pioneering lectures to the hanging on their lips postgraduate students. Sergey M. Fotiev always spoke with a grateful remembrance of his teachers. He had learned a lot from them and developed their ideas in his scientific works. In 1958, Sergey M. Fotiev successfully defended his thesis entitled “Physico-geographical and geological prerequisites for the effective applications of different methods of thermal melioration” for a degree of Candidate of Sciences and the brand-new scholar was assigned to the Aldan (ALNIMS) permafrost research station of the USSR Academy of Sciences (in the vicinity of Chulman village), where he worked as a staff scientist while taking a postgraduate course, and after defending his thesis was appointed to be its director. As a matter of fact, the close focus on geocryological aspects in his scientific activity has never deviated since then. In 1961, Sergey M. Fotiev joined the Obruchev Permafrost Institute (OPI), the USSR Academy of Sciences, where he worked first as a junior research scientist and then academic secretary at the OPI Board of Academics. In 1963, as the Institute was dissolved, many employees, including Sergey M. Fotiev, changed it for the newly created PNIIS Institute with the State Committee of the USSR (Gosstroy SSSR) where Sergey M. Fotiev worked until 1996 in the capacity of senior, and later – of a leading researcher. In 1978 he defended his doctoral thesis “Evolution of cryogenic strata in the territory of the USSR and their influence on the formation of ground waters under various geostructural conditions” for the degree of Doctor of Sciences in geology and mineralogy.

His versatile scientific activities was heavily combined with teaching and practical work in this period. During his employment with PNIIS, Sergey M. Fotiev supervised young scholars in the field, which resulted in six candidate theses defended by T.N. Bogomolov, M.O. Leibman, N.S. Elesafenko, F.M. Rivkin, S.N. Brazhnik, I.G. Kazakova. Later, two of them defended their doctoral theses. His attention to details known to everybody at PNIIS, as well as his insistence on high standards, which Sergey M. Fotiev both demonstrated in his work and demanded from postgraduate students, has become a tradition for the newly completed theses to be “Maitre-verified” prior to being submitted to the Dissertation Council (Theses Board). Therefore, many of those who defended their theses with the PNIIS Dissertation Council, deservingly consider Sergey M. Fotiev as their second scientific adviser, as well as mentor and guiding light for many young minds who have

since become leading scientists. Sergey M. Fotiev annually gave numerous reviews on scientific and applied works at different levels, took part in complex expertise-based estimates, including those for the State Planning Committee of the USSR.

PNIIS, being the leading institute of the USSR State Construction Committee, governed the development of state construction standards and GOSTs in engineering research and geotechnical investigations, where Sergey M. Fotiev took an active part. Moreover, the PNIIS objectives included participation in inspections of organizations providing geotechnical surveys – regional and specialized trusts – for construction. Now we would call these by one word “auditing”. For many years, Sergey M. Fotiev was a member of the USSR Gosstroy (State Committee for Construction) Commission and participated in the verification of such organizations works, in drawing conclusions and recommendations for their development. With this mission, he traveled virtually across the entire territory of the USSR. The range of scientific investigations conducted by Sergey M. Fotiev is exceedingly wide in terms of regional extent (practically the entire territory of Russia’s permafrost zone) and their profoundness. Almost every project was completed by drawing up a map, for better representation of results of the study, and provided either general or regional typifications or classifications. The latter was always regarded by Sergey M. Fotiev as the “pith and marrow” of scientific work, which should serve firstly as the result, and secondly as the foundation for further research.

An interesting and inspiring personality, Sergey M. Fotiev was also life and soul of all the institute parties. His gift of giving toast was remarkable thanks to his ability to put the matter in a few words, his focusing on positive sides and finding kind words for each person.

In 1997 his long cherished idea of creating a peer-reviewed academic journal on the problems of geocryology was realized. Academician V.P. Melnikov invited Sergey M. Fotiev to the newly created scientific journal “*Kriosfera Zemli (Earth’s Cryosphere)*” where Sergey M. Fotiev served as a permanent assistant editor. Almost all the scientific publications passed through his hands. Sergey M. Fotiev is known as a strict reviewer and opponent, however his remarks are always found to be constructive and useful by the authors.

The “*Earth’s Cryosphere*” journal recognition received from the world geoscience community has been largely due to Sergey M. Fotiev’s ceaseless work and wise partnering with authors – the foundation, which he has squarely built.

The extensive list of scientific works by Sergey M. Fotiev includes: 10 monographs, more than 120 papers, and 12 published maps (not including those for special purpose), each serving as an attachment/illustrative material for the papers, monographs and reference documents.

A number of important monographs were published with Sergey M. Fotiev's active participation in their preparation (all in Russian):

1. Geocryology of the USSR. European part of the USSR. (1988) Nedra, Moscow.

2. Geocryology of the USSR. Western Siberia. (1989) Nedra, Moscow.

3. Geocryology of the USSR. Central Siberia. (1989) Nedra, Moscow.

4. Geology of the BAM zone. Vol. 2. Hydrogeology and engineering geology. (1988) Nedra, Moscow.

5. Hydrogeology of the USSR. Vol. XVIII. Krasnoyarsk region and Tuva ASSR. (1972) Nedra, Moscow.

6. Engineering geology of the USSR. Vol. 3. Eastern Siberia. (1977). Moscow University Press, Moscow.

7. Fotiev, S.M., 1978. Hydrogeothermal features of the permafrost zone of the USSR. Nauka, Moscow.

8. Fotiev, S.M., 1965. Ground waters and frozen deposits of the South-Yakutia coal-bearing basin. Nauka, Moscow.

9. Fotiev, S.M., Danilova, N.S., Sheveleva, N.S., 1974. Geocryological conditions of Central Siberia. Nauka, Moscow.

10. Fotiev, S.M., 2009. Cryogenic metamorphism of sedimentary rocks and ground waters (conditions and implications). Academic Publishing House "Geo", Novosibirsk.

A biographic-bibliographic essay dedicated to Sergey M. Fotiev's life and scientific career as a geocryologist, was authored by V.T. Balabanov, his friend and colleague (*Scientists-geocryologists. Sergey M. Fotiev*). The essay was published in 2002 by Melnikov Permafrost Institute SB RAS in Yakutsk.

Dear Maitre! Your friends and colleagues sincerely congratulate you on your jubileum and wish you good health, happiness and success in the years to come!