

PROFESSOR GEORGII PAVLOVICH BARSANOV and V.I. Vernadsky and A.E. Fersman Mineralogical-Geochemical School

One hundred years elapsed from the birthday of Georgii Pavlovich Barsanov, Professor, Doctor of natural science, a worthy inheritor and successor of the V.I. Vernadsky and A.E. Fersman mineralogical-geochemical scientific school who was for a quarter of century at the head of the A.E. Fersman Mineralogical Museum and, for more than 30 years, of the Chair of mineralogy at the Moscow University.

The Georgii Pavlovich's entire life was bound with the scientific, teaching and educating work in mineralogy. Since the beginning of 1930-ies, he has been working, under the A.E. Fersman leadership, in the Lomonosov Institute and Mineralogical Museum in Leningrad, involved also in regional mineralogical and geochemical researches in Azerbaijan, Georgia, Southern and Northern Osetia and Kabardino-Balkaria. After these institutions were moved to Moscow, Georgii Pavlovich, keeping on working in the Mineralogical Museum, began, since 1937, his teaching work in the Moscow Institute for Nonferrous Metals and Gold. In 1948, G.P. Barsanov picked up these activities and created an original course of mineralogy basing himself upon the ideas by V.I. Vernadsky and A.E. Fersman. In the pre-war years, he was engaged in detailed mineralogical researches in the Ilmeny Mountains, Middle Urals. He returned to them after the pause due to his contusion that he got in the autumn of 1941 at the Northwestern Front participating in slugging as a battalion chief. He has been then evacuated in Miass, Urals, and was invalided for 7 years up to 1948. In spite of this, Georgii Pavlovich proceeded his researches yet in 1942. His unique results in the rare-earth tantaloniobates and metamictness became hereafter the bases of his Candidate and Doctoral Theses presented by him in 1943 and 1948. The latter was awarded the Academy of Sciences Prize.

In the early 1950-ies, Georgii Pavlovich was universally acknowledged as an authority in

theoretical mineralogy and a prominent connoisseur of minerals as well as extraordinary teacher and crisp lecturer.

In 1953, Georgii Pavlovich became Director of the Mineralogical Museum of AS USSR. In the same year, he was elected the holder of the Chair of mineralogy at the geological faculty of Lomonosov Moscow State University at the newly built edifice in Leninskie (Vorobyevy) Gory. Here, the traditional and new, fundamental and applied researches successfully developed under his leadership during his entire activity and hereafter.

Georgii Pavlovich Barsanov is one of remarkable inheritors to the mineralogical and geochemical school of V.I. Vernadsky and A.E. Fersman. Certainly, A.E. Fersman mostly influenced upon the formation of Georgii Pavlovich's scientific interests; he worked under Fersman's leadership at the Mineralogical Museum since 1931, after he graduated the Leningrad University. Having had headed the Mineralogical Museum and developing his teacher's ideas, Georgii Pavlovich suggested the new principle to organize museum expositions: instead of show-cases devoted to particular deposits, a series of scientifically topical exhibitions appeared. On the base of his structural-chemical classification, the exhibition "*Systematic of Mineral Species*" was created. The same classification was accepted for the widely known multivolume academic reference book "*Minerals*", which was published since 1960 by the mineralogists of some academic institutes (including the Mineralogical Museum) and the Lomonosov Moscow State University.

As the result of G.P. Barsanov's interest in history of the Museum and Russian mineralogy, the "*Historical Exhibition*" appeared. The expositions "*Mineral Coloration Causes*", "*Pseudomorphs*", "*Processes of Mineral Origin*", "*Mineral Forms*" were also created, the

exhibition "Geochemistry of Elements in Mineral Formation" was made over essentially.

Under the guidance of Georgii Pavlovich Barsanov, the Mineralogical Museum that already was named after Academician A.E. Fersman became a large world assemblage of minerals and one of main centers of scientific mineralogical researches with its own laboratories. The annual issues of "Trudy Mineralogicheskogo muzeya" (*Proceedings of the Mineralogical Museum*) that was yet established by V.I. Vernadsky appeared under the editorship of G.P. Barsanov. The Georgii Pavlovich's own works devoted to the methods of mineral investigation, history of mineralogy in 18th – 19th centuries, Academician A.E. Fersman's creative work as well as results of the researches in the mineral luminescence and coloration made on the base of the Museum vast collections were published too. They had a positive influence on formation and development of the native school of mineral physics.

Holding a chair of mineralogy at the Moscow University, G.P. Barsanov revealed his talent for organizing educational process and scientific work.

His excellent lectures of the mineralogy complete course always gathered full audience of students. They were notable for their bright and vivid form and, at the same time, exact statement of mineralogy crystallochemical, physicochemical, and genetic fundamentals. Georgii Pavlovich had a well-trained voice and impressive mimicry, which always attracted his listeners. His curriculum that included special training in traditional and up-to-date instrumental methods of mineralogical researches and theoretical seminars guaranteed the students to become specialists of highest qualification in mineralogy.

Thanks to Georgii Pavlovich's effective support the scientific and educational laboratories were outfitted with most up-to-date equipment for studying chemical composition, physical and physicochemical properties of minerals and experimental researches. Many of known specialists as well as graduated and postgraduated students were recruited for researching.

In addition to and, thereafter, instead of the classical diagnostics by external features and the blowpipe method, by optical constants and density, qualitative and complete chemical analysis,



Fig. 1. Georgii Pavlovich Barsanov

the new methods of spectral, thermal, and luminescent analyses were developed. Hereafter, laboratories of electronic microscopy and microprobe analysis were organized; the laboratory of spectral analysis with laser microprobe and the laboratory of thermal analysis with derivatograph were equipped. The researches were undertaken in mineral thermo-chemistry including specification of thermodynamic constants by the microcalorimetry method. The experiments in electrochemistry of minerals were being conducted successfully. The stability of minerals was studied under conditions that simulate the hypergenesis with participation of microorganisms. The works in mineral physics, luminescent and optical spectroscopy, electronic paramagnetic resonance, spectroscopy of Raman Effect got quite new contents.

The researches of mineral composition of cobalt, iron, and molybdenum-tungsten scarce deposits, rare metal pegmatites, and hydrothermal gold deposits were being developed in the department to solve some genetic, searching, and technologic problems.

Under G.P. Barsanov's supervision, a lot of graduation works was successfully presented as well as dozens of candidate and doctoral dissertations. There was a great deal of his direct educates and the Chair graduates who are known today as scientists, teachers and mineralogy specialists working in academic and branch institutes, in high schools and industry in Moscow and other Russian cities as well as abroad.

G.P. Barsanov published more than 130 scientific works and a series of monographs apart from numerous articles for the first and second editions of the Great Soviet Encyclopedia.



Fig. 2. Professor G.P. Barsanov with the his mineralogy chair colleagues: A.G. Teremetskaya, assistant professor (in the center), G.I. Bocharova, assistant professor (to the right). 1960-ies.

Besides, G.P. Barsanov led a very intensive scientific, organizational and public works as the Dean of Geological Faculty of Moscow University (1957–1961), member of senates, scientific editor and consultant of the Great Soviet Encyclopedia first and second editions, executive editor and editorial staff member in various periodicals, proceedings, collections, books and journals, consultant in industry and branch institutes, an active member of committees, Vice President of the International Mineralogical Association in 1960–1964. His merits were awarded with government decoration: *The Red Banner of Labor Order*, three *The Badge of Honor Orders* as well as numerous medals including "For Gallantry", "For the Victory over Germany", and "20th Anniversary of the Victory over Germany", diplomas and prizes. G.P. Barsanov was the "Honored Worker of science of the R.S.F.S.R."

Georgii Pavlovich is present to the mind of the Chair workers and graduates as exclusively bright and talented personality, prominent scientist, organizer and leader of scientific direc-

tions of wide topics range in fundamental and applied mineralogical researches. He was notable for his developed sense of responsibility and perfectionism, variety of his interests and views, permanent benevolence, optimism, and humor.

Besides his love for his profession, G.P. Barsanov was also engaged in photography. The Nature was usually his photographic object. He has created several splendid photo albums. His photo exhibitions in the library of the Geological Faculty are unforgettable.

G.P. Barsanov knew well and understood classic music, he was a Conservatory regular. These interests were in harmony with character and inner contents of Georgii Pavlovich, very interesting and talented person.

However, all this can not express his special fascination. Let us remember him together with his friends and collectives that he established and worked with. In the Soviet mineralogy and petrography, there were the three famous "musketees": Valerii Petrovich Petrov, Evgenii Konstantinovich Ustiev and Georgii Pavlovich Barsanov. There were many things to connect them. Their juvenilities passed in old Tbilissi, the town of Pirosmeni and Gudiashvili. They have soaked the old Georgian culture spirit. Then they moved to Leningrad and became familiar with the particular culture of this city that brought up a lot of prominent geologists, physicists and other scientists.

The collectives of the Chair of mineralogy of Moscow State University and Fersman Mineralogical Museum remember and love Georgii Pavlovich and are proud to have worked, learned or simply kept company with this remarkable person.

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