

IN COMMEMORATION OF L. G. BERG

Lev Germanovitsh Berg, Doctor of Chemical Sciences, Professor of Kazan University, the first president of ICTA, one of the founders of differential thermal analysis, died on March 30, 1974 at the age of 78.

L. G. Berg was born in 1896 in Kazan, son of a professor of Kazan University. He graduated from the Kazan Veterinary Institute and entered the Chemical Department of Kazan University as an external student in 1918 as he wished to be educated chemically.

In 1919 Berg was lecturer at the Chemical Department of Kazan Veterinary Institute, and from 1920 at the Department of Inorganic Chemistry of Kazan University too.

In 1928 Berg was sent on a scientific mission to the Chemical Institute of the Academy of Sciences of the USSR. There he attracted the attention of N. S. Kurnakov, who invited him to collaborate with him. In 1931 Berg started working under Kurnakov's leadership in the Laboratory of General Chemistry of the Academy of Sciences of the USSR (now the Institute of General and Inorganic Chemistry of the USSR in Moscow).

In 1936 Berg was awarded the scientific degree of Candidate of Chemical Sciences.

Evacuated during the war, Lev Germanovitsh continued his intensive scientific work in Kazan and in 1943 the degree of Doctor of Chemical Sciences was conferred on him. In 1944 together with A. V. Nikolaev and E. J. Rode, he published the first monograph on thermal analysis, "Thermography".

Invited by Academician A. E. Arbuzov, in 1950 Berg moved to Kazan and continued his scientific work in the Kazan branch of the Academy of Sciences of the USSR and simultaneously at the Department of Inorganic Chemistry of Kazan University.

In 1926–1928 Berg carried out his first scientific work on the investigation of potassium chlorate and its hydrates. For his research in this field he was awarded the Kucherov Prize by the Russian Physical Chemical Society.

In all their subsequent works, Berg and his school followed Academician Kurnakov's ideas.

He studied the solubility isotherms of salt systems and binary salts, and investi-

gated the physico-chemical fundamentals of the chemical purification of potash, the treatment of polyhalite, and the treatment and concentration of salts from the Carpathians. He studied the phase composition of a layer with high salt content in brine deposits, and also binary compounds of calcium and sodium sulphates and their role in the forming of tenardite. L. G. Berg paid much attention to the problem of chemical soil stabilization, and studied the chemistry of salt melts and other problems.

However, the main contributions to chemistry of Berg and his team stemmed from the work in which DTA was applied and that aimed at improving this method.

The first papers on thermal analysis, published in 1939, were accomplished under N. S. Kurnakov's leadership in co-authorship with E. J. Rode, A. V. Nikolaev and I. N. Lepeshkov. These works were devoted to the problems of using the heating curve method to investigate the characters of natural salts.

Berg's last works in the field of DTA were papers prepared for the 4th International Conference of ICTA and were devoted to the problems of the accuracy and speed of quantitative DTA and the study of labile phases by DTA.

Lev Germanovitch published over 200 works on thermal analysis, of which 3 monographs and 4 text-books were devoted to differential thermal analysis.

Special attention should be paid to the works which constitute the beginning of a certain stage in the development of differential thermal analysis.

The early works of Berg and I. N. Lepeshkov from 1939–41 played the main part in the problem of using thermal analysis for the investigation of natural salts and laid the foundations for all later works on quantitative and qualitative DTA on the phases of natural salts and their mixtures.

The paper by Berg and O. K. Janatieva entitled "The thermographic method of determination of solid phases in multiple points of compound systems" laid the foundations for the application of DTA to the investigation of the solid phases of water-salt systems.

Together with V. J. Anosov, Berg was the first to make an attempt to establish the mathematical background of the thermographic determination of the heat effects of reactions with the help of DTA, and thus he was one of the founders of quantitative DTA. The investigations of Berg and I. S. Rassonskaya showed the applicability of the DTA method to the determination of dissociation pressures and heats of dissociation.

An article "Investigation of gas evolution processes with automatic registration of gas volume on the pyrometer" was published in 1951. This work was accomplished jointly with B. J. Teitelbaum and started an entirely new field of DTA: thermogasvolumetry.

The investigations of Berg and M. Sh. Jagpharov showed the possibility of using DTA for the determination of the thermo-physical properties of substances and the heats of phase-transformations for non-variant solid-phase transformations.

The work of Berg and N. P. Burmistrova "Thermographic investigation of salts using the registration of conductivity" first revealed the possibilities of simultaneous recording of thermal curves and electrical conductivity change curves

with the purpose of investigating different phase transformations and chemical reactions.

In 1959 Berg and E. E. Sydorova reported an original means of determination of thermal conductivity by DTA. In 1961 they reported on DTA without a reference, and on the use of DTA to determine molecular weights.

Berg and his young colleagues (V. P. Egunov and others) paid much attention to the problems of further developing the theory, methods and practice of DTA.

Lev Germanovitsh Berg made a great contribution to the development and propagation of DTA both in the USSR and abroad. He was the first to begin giving special lectures on "Thermography" for students of the Chemical Department in Kazan University.

In 1942, in common with G. G. Zurinov, Berg published a practical handbook "Kurmakov's pyrometer", which was used by thermal analysts all over the Soviet Union. The same authors published in 1967 their "Practical handbook on thermography" for students.

Three All-Union conferences on thermal analysis were organized and the proceedings of conferences 1 and 2 were published under Berg's leadership. These conferences became regular, and were organized by Riga, Moscow and Novosibirsk. Up to now five All-Union conferences on thermography have taken place in the Soviet Union.

Lev Germanovitsh wrote a monograph on thermal analysis "Thermography", republished twice, a "Practical handbook on thermography", and other books on DTA. He prepared 1 Doctor and 31 Candidates of Chemical Sciences.

Berg's scientific work was universally recognized. From 1965 to 1968 he was President of ICTA. Berg is author of Chapters 11 ("Simple Salts") and 16 ("Salts, Minerals") in the basic work "Differential Thermal Analysis" published by the Academic Press. From 1968 Berg was member of the editorial board of "The Journal of Thermal Analysis".

Lev Germanovitsh Berg's merits were universally recognized in the Soviet Union. For his outstanding public services, Berg was awarded the Lenin Order, two medals, and the title Honoured Scientist. The world's chemical scientists have lost one of their most talented representatives. Berg's very lifework will keep alive his memory most lastingly.

N. P. Burmistrova