This issue of Archivum Mathematicum
is dedicated to the memory of Professor Otakar Borůvka

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OTAKAR BORŮVKA, an outstanding personality in the history of the Czech and Slovak mathematics and a founder of several basic concepts in different parts of mathematics, died on July 22, 1995, in his 96 years.

Otakar Borůvka was born on May 10, 1899 in Uherský Ostroh (Moravia, Czech Republic). After studies at the Masaryk University of Brno, he became a lecturer (1921), a reader (1928), and Professor (1934) at this University till 1970. He studied in Paris (1926 and 1929) with Prof. É. Cartan and in Hamburg (1930) with Prof. W. Blaschke, where he also met Professors E. Artin, E. Borel, J. Douglas, M. Fréchet, E. Goursat, J. Hadamard, H. Lebesgue, E. Picard, B. Segre, E. Vessiot and many others. In 1953 he became a corresponding member and in 1965 an ordinary member (Academician) of the Czechoslovak Academy of Sciences. From 1969 he worked in the Mathematical Institute of the Academy, branch Brno.

O. Borůvka's scientific work has covered extensive fields of Mathematics and reflects the main trends of the development of 20th century Mathematics not only in the Czech and Slovak Republics but throughout the world. His excellent results and new methods concern the theory of graphs, differential geometry, algebra and the theory of differential equations. He substantially contributed to the development of all these areas and established research schools. During his pedagogical and scientific activity he taught numbers of mathematicians; most of the mathematicians in Moravia and Slovakia are his pupils or pupils of his pupils. His incredible enthusiasm for work inspired them in a very large range of problems especially concerning abstract algebra, differential geometry and the theory of differential equations. Borůvka's results in classical analysis belong to the period 1923-1925, having been achieved mainly under the influence of his teacher, Prof. M. Lerch. In the pioneering paper *On a certain minimal problem* from 1926, Borůvka algorithmically solved the problem of a minimal cost of an electric network, a kind of the transport problem belonging to an essential part of the graph theory, at least ten years before the graph theory was established as a mathematical discipline.

In his monumental work on projective differential geometry O. Borůvka was the first who studied analytic correspondences between two projective planes. The results of his extensive paper from 1933 on (two dimensional) spherical surfaces in

2n-dimensional spaces of constant curvatures have found important applications in modern differential geometry. The research school in Bologna has been continuing Borůvka's original study in many respects. For example, S. S. Chern in his paper on minimal submanifolds immersed into spheres calls certain differential equations "Frenet-Borůvka formulae".

O. Borůvka is also one of the founders of some important conceptions of the general algebra. He established the theory of groupoids and collected his original methods and results in the monograph *Foundations of the Theory of Groupoids and Groups*, published in German (1960), English (1974), and several times in Czech.

In 1950 O. Borůvka started his systematic study of differential equations. On the basis of his perfect knowledge of classical analysis, differential geometry and algebra, he developed an original and fruitful theory of global transformations of linear differential equations of the second order. He introduced several new notions and methods, solved many open problems in this field, for example, the problem of global equivalence of such equations. The results of this qualitative theory of a global character, which exhibits a high degree of geometrization and algebraization is collected in his monograph *Lineare Differentialtransformationen 2. Ordnung*, published in German (Berlin 1967) and in English (London 1971). As was the case with differential geometry and algebra, numerous Czech and Slovak as well as foreign mathematicians have exploited Borůvka's methods and results in the theory of differential equations to solve various problems concerning not only equations of the second but also of higher orders. The assistance he was giving to the Komenský University in Bratislava for more than ten years in addition to his duties in Brno is highly appreciated by Slovak mathematicians as a substantial contribution to the development of mathematics in Slovakia.

Academician O. Borůvka has also well deserved of establishing the Institute of Mathematics of the Czechoslovak Academy of Sciences branch Brno and of founding the well-known mathematical journal, Archivum Mathematicum, issued by the Masaryk University since 1965.

The great importance of Borůvka's achievements has had wide response in a number of honours awarded to him in Czechoslovakia and abroad, and in numerous invitations to lecture at foreign universities and conferences. His contribution to the world science will never be forgotten.

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Further publications of Otakar Borůvka, mostly of a bibliographical or historical nature, are listed in a special monograph *Otakar Borůvka*, 240 pages, published by the Masaryk University, Granos Brno 1996, (in Czech with English, French and German summaries), ISBN: 80 - 902004 - 0 - 0.

This book contains also his very interesting comments to the development of mathematics in this century and personal remembrances to meetings with famous mathematicians in the last fifty years.