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100th ANNIVERSARY OF BIRTHDAY OF EDUARD ČECH

Ivan Kolář

This year the Czech mathematical community commemorates the 100th anniversary of birthday of a world known scientist, Eduard Čech. He was the greatest Czechoslovak mathematician and one of the leading world specialists in the fields of differential geometry and topology.

E. Čech was born on June 29, 1893 in a small village Stračov in Bohemia. In 1912 he began to study mathematics at the Charles University in Prague. He was very independent in his study and he learnt especially by reading the mathematical literature in the library. In 1915 he was forced to interrupt his study and to leave for service in army.

In 1920 Čech submitted his thesis under the title "On curve and surface elements of the third order in projective space". Then he studied in a systematic manner the projective differential geometry of surfaces and today he is taken for one of the founders of this field. At that time Čech familiarized himself with several new ideas by an excellent Italian mathematician G. Fubini and spent the academic year 1921-22 in Turin. Fubini realized early the extraordinary capabilities of young Čech and posed him many problems. Finally he offered Čech to write a joint book "Geometria Proiettiva Differenziale I, II", Bologna 1926, 1927. In this book, special attention is paid to the problem of projective deformation. To make their results more accessible to general public, both authors decided to prepare a single book in French "Introduction à la géométrie différentielle projective des surfaces", Paris 1931. This is one of the most famous books on projective differential geometry.

In 1923, while not yet 30, Čech was appointed extraordinary professor at the Masaryk University in Brno, where he worked up to 1945. Since the chair of geometry was occupied, Čech was given the task of lecturing mathematical analysis and algebra. This seems to be important for his coming interest in topology. In 1928 Čech was appointed full professor. In 1932 he wrote two topological papers of fundamental importance, "Théorie générale de l'homologie dans un espace quelconque", *Fund. Math.* 19(1932), 149-183, and "Théorie générale des variétés et de leurs théorèmes de dualité", *Ann. of Math.*, 34(1933), 621-730. Other basic contributions to algebraic topology are his short note "Höherdimensionale Homotopiegruppen", *Verhandlungen*

des internationalen Mathematikerkongresses, Zurich, 2(1932), 203, and his paper "Les groupes de Betti d'un complexe infini", *Fund. Math.* 25(1935), 33-44.

In 1935 Čech participated a famous conference on combinatorial topology in Moscow. His results met with such attention that he was invited to lecture at the I.A.S. in Princeton. After his return in 1936, he organized a seminar on general topology in Brno. In 1937 Čech published his most important paper in general topology "On bicomact spaces", *Ann. of Math.* 38(1937), 823-844. The topological seminar existed till 1939, when all Czech universities were closed by Nazis.

After the second world war, Čech moved to Prague, where he developed a great effort to organize Czechoslovak mathematical activities. Roughly speaking, in the period 1947-54 he was the director of the Mathematical Institute of the Czechoslovak Academy of Sciences. Since 1954 he organized the Charles University Mathematical Institute. Until his death on March 15 1960 he worked in the projective differential geometry of correspondences and line congruences. Nevertheless, he was also interested in general topology and wrote a book "Topological spaces" (in Czech).

Čech established two reseach groups working in general topology and differential geometry. The head of the geometric one was Alois Švec (1931-89). This group continued Čech's research by studying the surfaces and congruences with projective connection and some general problems on Cartan method of moving frames. Nowadays the group works in different directions.