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# 100TH ANNIVERSARY OF BIRTHDAY OF EDUARD ČECH

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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. In the period 1923-45, Čech worked at the Masaryk University in Brno, where he achieved his most important scientific results. Moreover, he paid special attention to the organization of the research work in mathematics and to didactical problems.

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. The first coworker of Čech in Brno was Otakar Borůvka, who developed the theory of correspondences between projective planes at the end of twenties.

In 1923, while not yet 30, Čech was appointed extraordinary professor at the Masaryk University in Brno, where a vacant position arose after the death of Matyáš Lerch. 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. The most active participants of the seminar were Josef Novák and Bedřich Pospíšil. In 1937 Čech published his most important paper in general topology "On bicompact spaces", Ann. of Math. 38(1937), 823-844. In 1938 he established another seminar for the secondary school teachers, which was devoted to didactical questions, and started with writing first textbooks for secondary schools. The topological seminar continued working in secret during the second world war, when all Czech universities were closed by Nazis.

In 1945 Čech moved to Praque, 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. He participated on several textbooks for secondary schools. Until his death on March 15, 1960, Čech 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). Altogether, he published 94 research papers and 10 books.

Čech established two research groups working in general topology and differential geometry. The leading members of the topological group are Miroslav Katětov and Zdeněk Frolík (1933-89), the head of the geometric one was Alois Švec (1931-89). In Brno, the research in general topology was continued by Karel Koutský, Milan Sekanina, the third author and others. The next research in differential geometry was concentrated about a seminar headed by Jiří Klapka and Karel Svoboda.

Finally we remark that more information on Čech's life and work and on some further development in the leading directions of his research can be found in a new book "The Mathematical Legacy of Eduard Čech", Academia - Birkhäuser, Prague - Zürich, 1993.

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