

FROM THE EDITORS

Edward Marczewski (Szpilrajn) (1907–1976) was one of the most distinguished Polish mathematicians. He was a disciple and an active member of the Warsaw School of Mathematics between the two World Wars. In 1932 he received his doctoral degree for a thesis *On measures and the Baire property*, prepared under the supervision of W. Sierpiński. In 1945 he obtained his second degree (habilitation) on the basis of the paper *On absolutely measurable sets and functions*. Both degrees were conferred on him by Warsaw University. Marczewski's life and work after the Second World War were connected with Wrocław, where he was among the creators of the Polish scientific centre. In 1947 he cofounded the journal *Colloquium Mathematicum* and served as its Editor-in-Chief till his very death; he was also on the Editorial Committee of *Fundamenta Mathematicae*. Marczewski was elected a corresponding member of the Polish Academy of Sciences in 1958 and a full member in 1966.

The scientific output of E. Marczewski consists of nearly one hundred research papers and announcements published within the years 1930–1970. Until the late fifties his main fields of interest were measure theory, descriptive set theory, general topology and probability theory. In that period he also published isolated papers dealing with real and complex analysis, applied mathematics and mathematical logic. In the sixties his research interests concentrated on problems connected with the notion of independence in universal algebra and resulted in 17 papers published from 1958.

A characteristic feature of Marczewski's research was to deal with problems lying on the border-line of various fields of mathematics. He had also the ability to reveal relations and analogies between seemingly distant notions and theorems. He discovered a fundamental connection between the n -dimensional measure and topological dimension, and made a deep study of similarities and differences between the Lebesgue and Baire σ -algebras of sets. He also established the relationship between the notion of set-theoretic independence and that of stochastic independence. The discovery of such analogies led Marczewski to some interesting common generalizations of the existing theorems and notions. The examples to this effect are his theorem on the invariance of certain σ -algebras of sets under the operation (A) and his notion of an independent set in universal algebra. Among important notions and properties introduced by Marczewski are also

the characteristic function of a sequence of sets (nowadays often called the Marczewski function), universally measurable set and universal null-set (absolutely measurable set and absolute null-set in his terminology), properties (s) and (s_0) of sets, compact class and compact measure. Many of Marczewski's results found their way to monographs and textbooks. Besides those already mentioned this is true of his theorems on separability type properties of Cartesian products of topological spaces, results on products of compact and perfect measures, a characterization of almost subharmonic functions (a notion due to him). His name is also connected with fundamental results on partial order and invariant extensions of Lebesgue measure.

Marczewski's works have inspired numerous researchers. Among those who solved his problems are S. Banach, P. Erdős, S. Kakutani, W. Sierpiński. One of his long-standing problems has recently been solved by R. Dougherty and M. Foreman [J. Amer. Math. Soc. 7 (1994), pp. 75–124] who proved the existence of a paradoxical decomposition of the unit sphere in \mathbb{R}^3 into six pieces having the Baire property.

This volume contains 92 research papers and announcements by E. Marczewski, arranged in chronological order. Left out are only papers [35], [55], [73], [75] and [79] (see the list on pp. xxvi–xxxii). Four papers, originally published in Polish or Russian, appear here for the first time in English translation. The mathematical papers are preceded by a biography of Marczewski written by R. Duda and S. Hartman, a reminiscence of him by J. Łoś, and a list of papers about his life and work. A list of Marczewski's research and other publications is also included. The volume closes with a sample of his non-mathematical output. This is an article "*Platon et Archytas*" de Norwid, accompanied by an excerpt, translated into French, from a pamphlet by J. Łanowski and himself.

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