BORKOWSKI, LUDWIK STEFAN—logician associated with the University of Wrocław and the Catholic University of Lublin, b. August 7, 1914 in Obroszyn near Lwów, d. October 22, 1993, in Wrocław.

In 1933 he began to study philosophy at the University of Jan Kazimierz in Lwów and attended the lectures and seminars of K. Ajdukiewicz, R. Ingarden, and M. Kreutz. His studies were interrupted by a lengthy illness in 1938, but he completed them in 1946 at the Jagiellonian University. He completed his doctorate wtih a work on analytic and synthetic definitions. He earned his habilitation in 1960 with a dissertation containing the results of his study of quantifiers. In 1973 he received the title of extraordinary professor, and in 1970 he became an ordinary professor. From 1946 to 1949 he worked as a teacher in the Wrocław middle school. From 1948 to 1975 he lectured at the University of Wrocław. From 1975 to 1993 he lectured at the Catholic University of Lublin where from 1975 to 1984 he held the chair of logic.

Borkowski was the author of several dozen articles on logic, which were chiefly published in the journals "Studia Logica" and "Roczniki Filozoficzne" [Philosophical yearbooks], and in a book called *Studia logiczne* [Logical studies] (Lb 1990). His textbooks of logic were often reprinted and were widely recognized in Poland and abroad: *Elementy logiki matematycznej* [Elements of mathematical logic] written with J. Słupecki (Wwa 1963, 1984[4]), translated into Russian and English; *Elementy logiki formalnej* [Elements of formal logic] (Wwa 1972, 1980[5]); *Logika formalna* [Formal logic] (Wwa 1970), translated into German; *Wprowadzenie do logiki i teorii mnogości* [Introduction to logic and set theory] (Lb 1991).

Borkowski's main scientific interests were the study of quantifiers, logical calculi, the theory of definitions, the theory of consequences, the philosophical consequences of the results of logic, the most recent history of logic, especially the work of J. Łukasiewicz and K. Ajdukiewicz. He also worked on a presentation of logic in textbook form.

Borkowski's most important accomplishments in formal logical were connected with his study of quantifiers and axiomatic systems for non-classical logics. He introduced the concept of the n-argumented proper and quantitative quantifier and studied the properties of such quantifiers. This allowed him to construct systems of the calculus of predicates and the calculus of propositions having one primary term that is a two-argument quantifier. He formulated the principle of the independence of the syntactic category of the quantifier from the syntactic category of the variable joined by it, and on the basis of this principle he reduced the arithmetic of natural numbers to an appropriately expanded system of typical logic with the axiom of infinity and the typical equivocity of arithmetical constants. On the basis of a study of the meaning of the functors of necessity and possibility he presented certain systems of assumption rules for the systems of strict implication S4 and S5. He also constructed certain axiomatic systems for an intuitionistic propositional calculus and Aristotelian syllogistics, and he constructed a conceptually rich assumption system of the calculus of names without quantifiers.

He put his logical studies in a philosophical context and referred to concepts that are important for the theory of knowledge and the methodology of the sciences. He relied on an axiomatic method of demonstration in logic and introduced the concept of the deductive justification of propositions (different from the concept of the deductive derivation of assertions from axioms). He used this concept to distinguish between analytic propositions and synthetic propositions. By the means of contemporary logic he formulated a version of the definition of the classical concept of truth according to which a proposition is true if and only if the state of affairs the proposition describes exists, and he demonstrated that this definition was equivalent to A. Tarski's definition. He also worked on the theory of definition and the intuitive interpretation of multi-value logics.

Ludwik Stefan Borkowski [autobiographical sketch], RuF 41 (1984), 78–82; S. Kamiński, *Ludwik B. jako continuator logiczno-metodologicznych prac szkoły lwowsko-warszawskiej* [Ludwig Borkowski as a continuator of the logical-

methodological works of the Lwów-Warsaw school], RF 32 (1984) n. 1, 7–17; *Wykaz prac (Ludwika B.)* [List of works (of Ludwik Borkowski)] in: L. Borkowski, *Studia Logiczne* [Logical studies], Lb 1990, 489–494; *Księga pamiętkowa w 75–lecie KUL. Wkład w kulturę polską w latach 1968–1993* [Memorial book on the 75th anniversary of the Catholic University of Lublin. Contribution to Polish culture in the years 1968–1993], Lb 1994.

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