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(*b*. Walks, Livonia [now Latvian S.S.R.], 23 October 1865; *d*. Riga, Latvia, 25 December 1921)

mathematics.

The son of George Bohl, a merchant, piers Bohl first studied in his native city and then at a German Gymnasium in Viljandi, Estonia. In 1884 he entered the department of physics and mathematics at the University of Dorpat, Estonia, from which he graduated in 1887 with a candidate's degree in mathematics (equivalent to a master's degree in the United States), having won a gold medal for a competitive essay on the theory of in variants of linear differential equations (1886). Bohl defended dissertations in applied mathematics for his master's degree in 1893 (equivalent to a doctorate in the United States) and for his doctorate in 1900. (The doctorate, a degree that can be gained only after the candidate has done outstanding work in his chosen field, allows the holder to be called professor.) He received both of these advanced degrees from Dorpat. From 1895 Bohl taught at Riga polytechnic Institute (from 1900 with the rank of professor); and when the institute was evacuated to Moscow at the beginning of World War I, he accompanied it. He returned to Riga in 1919 and was appointed professor at the University of Latvia, which had been founded that year. Two years later he died of a cerebral hemorrhage.

In his master's dissertation, Bohl was the first to introduce and to study that class of functions (more general than ordinary periodic functions) which in 1903 were named quasi-periodic by the French mathematician E. Esclangon, who discovered them later than, but independently of, Bohl. Finite sums of periodic functions with, generally speaking, incommensurable periods (of the type $\sin x + \sin \sqrt{2}x + \sin \sqrt{3}x$) are an example. Herald Bohr' concept of almost-periodic functions is the further generalization of this class.

In his doctoral dissertation, Bohl, following Henri poincare and A. Kneser, presented a new development of topological methods of systems of differential equations of the first order. To the investigation of the existence and properties of the integrals of these systems, he applied a series of theorems which he developed and proved, concerning points that remain fixed for continuous mappings of *n*-dimensional sets of points. L. Brouwer' famous theorem on the existence of a fixed point under the condition of the mapping of a sphere onto itself is easily obtained as a consequence of one of the propositions completely demonstrated in Bohl's "Über die Bewegung…" Bohl's topological theorems did not, however attract the attention of contemporary mathematicians.

Studying one problem of the theory of secular perturbations (1909), Bohl encountered the question of the uniform distribution of the fractional parts of functions satisfying certain conditions. The theorem he developed was also developed independently by H. Wayland W. Sirerpinski; it was generalized by Weal in 1916. Later the theory of the distribution of fractional parts of functions became a large part of number theory.

BIBLIOGRAPHY

I. Original Works. For Bohl's early work, see *Theorie und Anwendung der Invarianten der linearen Differentialgleichungen* (Dorpat, 1886), which manuscript is in the Historical Archive of the Estonian S. S. R., Tartu: and *Über die Darstellung von Funktionen einer Variablen durch trigonometrische Reihen mit mehreren einer Variablen proportionalen Argumenten* (Dorpat, 1893), his master's disertation. His doctoral dissertation, "O Nekotorykh Differentsialnykh Uravneniakh Obshchego Kharaktera, Primenimykh v Mekhanike" ("On Some Differential Equations of a General Character, Applicable in Mechanics;" Yurev, 1900), is also available in French as "Sur certaines équations différentielles d'un type général utilisables en mécanique," in *Bulletin de la société mathématique de France*, **38** (1910), 1–134. See also "Über die Bewegung eines mechanischen Systems in der Nähe einer Gleichgewichtslage," in *Journal für reineundangewandte Mathematik*, **127** (1904), 179–276; and "Über ein in der Theorie der sakularen Störungen vorkommendes Problem," *ibid*., **135** (1909), 189–283.

II. Secondary Literature. For further information on Bohl, see A. Kneser and A. Meder, "Piers Bohl zum Gedächtnis," in *Jahresbericht der Deutschen Mathematikervereinigung*, **33** (1925), 25–32. A complete bibliography of Bohl's work and of literature devoted to him appears in A. D. Myshkis and I. M. Rabinovich, eds., *P. G. Bohl, lzbrannye Trudy* ("P. G. Bohl, Selected Works"; Riga, 1961), biography and analysis of scientific activity, pp. 5–29.

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