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(*b*. Illar, Denmark, 9 January 1873; *d*. Palo Alto, California, 16 November 1945)

mathematics.

The son of Erhard Christoffer Laurentius Blichfeldt, a farmer who came from a long line of ministers, and Nielsine Maria Scholer, Blichfeldt showed unusual mathematical aptitude at an early age. He was assisted in his studies by his father, and in general he did well in all subjects. He passed the university entrance examinations with honors but did not attend because his parents were unable to afford it.

Fortunately for Hans, his family emigrated to the United States when he was fifteen. He spent four years as a laborer on farms and in sawmills in the Midwest and West and two years traveling about the country as a surveyor. His phenomenal ability to do all the surveying computations mentally so impressed his colleagues that they encouraged him to become a mathematician. He entered the recently founded Stanford University in 1894 and received his B. A. in 1896 and his M.A. in 1897. Not having enough money to go to Europe for a doctorate, as was the custom among the better-known mathematicians, he borrowed the money from a Stanford professor, Rufus L. Green, and enrolled in the University of Leipzig, where he studied under the famous mathematician Sophus Lie. In one year he received his doctorate *summa cum laude*, with the dissertation "On a Certain Class of Groups of Transformation in Three-dimensional Space."

During the year 1898 Blichfeldt was employed by Stanford as an instructor. He obtained the rank of full professor in 1913. He accepted the chairmanship of the mathematics department in 1927 and served in that capacity until his retirement in 1938. In addition, Blichfeldt served as a visiting professor at the University of Chicago in the summer of 1911 and at Columbia University during the summers of 1924 and 1925. He was professor emeritus at Stanford until his death.

Blichfeldt was extremely active in the American Mathematical Society and gave numerous talks in many parts of the country on his favorite topics, group theory and number theory. In 1912 he was elected vice-president of the Society.

Blichfeldt's contributions were primarily in the form of articles for the Society publications and European mathematics journals. His lifework was devoted to group theory and number theory. Some of the many topics that he covered were diophantine approximations, orders of linear homogeneous groups, theory of geometry of numbers, approximate solutions of the integers of a set of linear equations, low-velocity angle fire, finite collineation groups, and characteristic roots. In addition, he published the text *Finite Collineation Groups* and coauthored *Theory and Applications of Finite Groups with* G. A. Miller and L.E. Dickson.

During his life Blichfeldt received many honors. In 1920 he was elected to the National Academy of Sciences, which at the time was an achievement for a mathematician. From 1924 to 1927 he was a member of the National Research Council. After he retired from Stanford, the king of Denmark made him a Knight of the Order of the Dannebrog.

Blichfeldt's contributions in group theory and group characters are now of considerable importance because of recent applications of Lie groups in the sciences.

BIBLIOGRAPHY

Blichfeldt's works include "On a Certain Class of Groups of Transformation in three-dimensional Spaces," in, *American Journal of Mathematics*, **22** (1990), 113–120; "On the Determination of the Distance Between Two Points in, *m* Dimensional Space," in Transactions of the American Mathematical Society, **3** (1902), 467–481; "On the Order of Linear Homogeneous Groups.I" *ibid*., **4** (1903), 387–397; "…II," **5** (1904), 310–325; "…III," **7** (1906), 523–529; "…IV" **12** (1911), 39–42; "A Theorem Concerning the Invariants of Linear Homogeneous Groups With Some Applications to Substitution Groups," *ibid*., **5** (1904), 461–466; "Theorems on simple Groups," *ibid*., **11** (1910), 1–14; "Finitem Groups of Linear Homogeneous Transformations," Part II of *Theory and Applications of Finite Groups* (London-New york, 1916), pp. 17–390, Written with G.A. Miller and L.E. Dickson; and, *Finite Collineation Groups* (Chicago, 1917).

G. H. Miller