
Obituary

Hans Schwerdtfeger (9 December, 1902–26 June, 1990)

Born and raised in Göttingen, Germany, Hans Schwerdtfeger studied at its university when it was the centre of the mathematical universe. Some of the greatest mathematicians and physicists of the time, including Hilbert, Herglotz, Courant, Franck, Born, and van der Waerden, were his teachers there. Moreover, Hausdorff and Toeplitz were his teachers in Bonn, where he received his Ph.D. in 1934. In 1935 he married Hanna Maeder, then a student in Göttingen and later a lecturer of mathematics until 1983.

His father, a Prussian Major, was an early casualty of World War I. His family suffered particularly during the hyper-inflation of the 1920's. Hans interrupted his high school studies to work at Siemens-Schuckert in Berlin. Young men of such background were prime candidates for recruitment by the Nazis but, quite to the contrary, Hans Schwerdtfeger showed great courage as an outspoken critic of the regime. He fled Germany in 1936 to Prague and in 1939 through Zurich, Grenoble and Toulon to Sydney, Australia. He was Lecturer and Senior Lecturer at the Universities of Adelaide and Melbourne, respectively, from 1940 till 1957. He then came to McGill University in Montreal as Associate Professor and was, from 1960 till his retirement in 1983, Professor there. He continued to have strong convictions and opinions and did not hesitate to express them vigorously. He spent his retirement years as Visiting Research Fellow at the University of Adelaide.

Hans Schwerdtfeger was elected Fellow of the Royal Society of Canada in 1964. He was a world class mathematician who wrote 58 papers and 5 books. Under the influence of Schwerdtfeger's book on the Geometry of Complex Numbers (Univ. of Toronto Press, 1962), Bert Schweizer (Univ. of Mass., Amherst) raised a problem about circle preserving (Moebius) transformations. "Translated" into the language of straight line preserving transformations (collineations), this problem gave rise to a large body of research on the nature of minimal subsets of the plane on which only linear functions preserve collinearity. (By 1970, this question was completely answered: three straight lines are not enough, three straight lines and a point are enough). An important quantity (invariant) related to collineations is the cross ratio on a line. When this was characterized as the only invariant function of four points on a line under such (projective) transformations, by a functional equation, Schwerdtfeger generalized the cross ratio from four to an arbitrary number of

points (in more general spaces) and proved the uniqueness of this new invariant. This too is equivalent to solving a functional equation. In view of such results, Hans Schwerdtfeger was invited to and took very active part in the yearly international symposia on functional equations between 1966 and 1979.

His main fields of interest were Galois theory, matrix theory, theory of groups and their geometries and complex analysis. He achieved important results in all these fields.

He was an inspiring teacher, gratefully remembered by his students. He had a prominent role in revitalizing mathematics in Australia and was a focal point in the scientific and, with his wife Hanna, in the social life of McGill's Department of Mathematics. In addition to his research and teaching, he is remembered for his integrity, dignity, generosity and friendship.

(Much of the McGill University Faculty of Science's Resolution on the Death of Professor Hans Schwerdtfeger, formulated and moved on September 11, 1990 by William Moser, has been incorporated in this obituary, as have reminiscences of Hans's son, Professor Peter Schwerdtfeger of Flinders University, Adelaide).

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