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CLAUDE CHEVALLEY (1909–1984)

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Both parents of Claude Chevalley came from Protestant families. His mother was the daughter of a Calvinist minister from southern France, who had a distinguished career in the Protestant hierarchy, culminating in the deanship of the Protestant Faculty of Theology in Paris. Chevalley's father was the son of a Swiss watchmaker who had settled in western France. He held several teaching positions in secondary schools before entering the diplomatic service; when Chevalley was born, his father was the French consul in Johannesburg.

Chevalley's intellectual gifts were soon apparent, and allowed him to enter the École Normale Supérieure in Paris at the early age of 17. There he met J. Herbrand, who was one year older, and with whom he struck a deep friendship, unfortunately broken when Herbrand died in a mountain climbing accident in 1931. Both starting doing research while still students at the École Normale; they were interested in topics that were taught nowhere in France at the time, such as mathematical logic, number theory and algebra; after their graduation, with the help of research grants (very scanty at that time), they were able to visit German universities where these fields were being actively developed. The research they did there was strongly influenced by the work of E. Noether, E. Artin and H. Hasse; it was chiefly concerned with the theory of algebraic numbers, and was highly valued by the German school.

The main contributions of Chevalley during the years 1930–1940 were focused on both local and global class field theory. What is now called "global" class field theory deals with abelian extensions of number fields and has its origin in the early results of Kronecker, H. Weber, and Hilbert at the end of the 19th century. Inspired by the special cases Kronecker and Weber had treated, Hilbert had formulated general conjectures; these (later generalized by Takagi) established a one-to-one natural correspondence between the abelian extensions of a number field K and certain classes of ideals in K, and also described how a prime ideal in K splits in an abelian extension of K, in terms of that correspondence. Hilbert's conjectures were proved between 1910 and 1923 by Furtwängler and Takagi, whose results were completed in 1927 by E. Artin's famous "reciprocity law" which exhibited an explicit isomorphism between the Galois group of an abelian extension E of K and a quotient group of the group of ideal classes of K, in the construction of which there entered the norms in K of the prime ideals of E.

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