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(*b*. Paris, France, 7 January 1859; *d*. Paris, 22 January 1921)

mathematics.

A brilliant representative of the French school of mathematics at the end of the nineteenth century, Humbert distinguished himself primarily through his work in fields pioneered by Poincaré and Hermite.

Orphaned at a very young age, Humbert was brought up by his grandparents, industrialists in Franche-Comté. First a boarder at the Oratorian *collège* in Juilly, where he studied classics, he completed his secondary studies at the Collège Stanislas in Paris and entered the École Polytechnique in 1877. For several years he worked as a mining engineer: first in Vesoul and then in Paris, where the École Polytechnique and the École des Mines were quick to add him to their teaching corps.

Humbert earned his doctorate in mathematics in 1885. In 1891–1892 he was a laureate of the Academy of Sciences, and from then on he was well known. Elected president of the Mathematical Society of France in 1893 and named professor of analysis at the École Polytechnique in 1895, he was elected in 1901 to the Academy, filling the seat left vacant by the death of Hermite. From 1904 to 1912 he was Camille Jordan's assistant in the Collège de rance and on occasion lectured in his place. Humbert then succeeded to Jordan's chair and continued the teaching of higher mathematics in that institution.

Humbert married in 1890, but his wife died a short time after the birth of their son Pierre; he remarried in 1900. A man of high moral character and intellectual rigor, Humbert was remarkably gifted not only in mathematics but also in clarity of expression and intellectual cultivation. He exerted a great influence and was able, by his discretion and objectivity, to assure respect for his religious convictions during a period of some hostility toward religion in French scientific circles.

Besides his two pedagogical works, it was through numerous memoirs (approximately 150, which have been collected) that Humbert held a major place in the mathematical discovery and production of his time. His writings were inspired by his interest in the study of algebraic curves and surfaces and were marked by the lucidity with which he related the problems biography in encountered in this area to questions of analysis and number theory.

In his doctoral dissertation Humbert completed Clebsch's work by providing the means of determining whether a curve of which the coordinates are elliptic functions of a parameter is actually of type one. He soon noted the advantage for algebraic geometry obtained from a very general technique of representation gained by using Fuchsian functions.

Humbert familiarized himself with the work of Abel, whose theorem concerning the rational sums of certain systems of algebraic differentials he made the subject of important developments and elegant

geometric applications. He then derived every possible advantage from the use of Abelian functions in geometry. In his memoir on this subject, submitted for the Academy's prize in 1892, Humbert solved the difficult problem of classifying left curves traced on hyperelliptic surfaces of type two (Kummer surfaces); but his solution excluded the case in which the four periods of the function which defines the surface are joined by a relationship with integral coefficients. Next, Humbert studied Abelian functions presenting singularities of this type and showed that these singularities are characterized by an integer.

He thus enriched analysis and gave the complete solution of the two great questions of the transformation of hyperelliptic functions and of their complex multiplication. He also pointed out the resulting consequence: the existence of a group of transformations of certain surfaces into themselves constitutes an essential difference between the geometry of surfaces and that of curves. But, most important, he completed the work of Hermite by pursuing the applications to number theory throughout his life.

The progressive alliance of geometry, analysis, and arithmetic in Humbert's works is a splendid example of how a broad mathematical education can assist discovery. The results he obtained, and with which his name remains linked, have survived the revolution of modern mathematics, although they belong to a very specialized field.

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