

POINTS OF VIEW OF CAUCHY AND WEIERSTRASS
IN THE THEORY OF FUNCTIONS.

Leçons sur les Fonctions monogènes uniformes d'une Variable complexe. Par EMILE BOREL. Rédigées par GASTON JULIA. Gauthier-Villars, Paris, 1917. xii + 165 pp.

THE point of departure in this monograph is the opposition between the points of view of Cauchy and Weierstrass in the definition of functions of a complex variable called *monogenic* by Cauchy and *analytic* by Weierstrass. The conclusion which is reached—and it is supported by detailed investigation and significant results—is that the point of view of Cauchy is the more fundamental one. In fact, it is contended that the work of Weierstrass is confined to a class of functions more special than that which should be considered and that in a more general class the central theorems are maintained, so that there is no reason for confining attention entirely to the analytic functions of Weierstrass.

The researches of which we have here an exposition convenient for the reader go back as far as a quarter century. Borel entered upon some of the matters involved as early as 1892 and published the first results in 1894. But it was as late as 1912 when he made known the principal results of the theory of non-analytic monogenic functions. This was in his lecture before the Fifth International Congress of Mathematicians at Cambridge. This earlier exposition was incomplete in many respects; and it was only in the course of lectures at Paris of which this book is the reproduction that he has completely developed the theory, entering into detail in the demonstrations and leaving no delicate point without careful illumination.

It was intended that this book should appear at the end of 1914; but M. Gaston Julia, a student at the Ecole Normale Supérieure, who was charged with preparing the notes for publication, was called into the army and was wounded in January, 1915. Notwithstanding his sufferings, he continued with the labor of seeing the manuscript through the press even though he was also at the same time engaged in remarkable researches of his own suitable "for perpetuating French mathematical traditions." The difficulties under which the