

tions of partial differential equations and Green's functions. A brief but comprehensive résumé of recent investigations concerned with these two topics is given. The writer points out that the important difference between the Green's function and the elementary solution of the corresponding differential equation, corresponds to a similar difference between Cauchy's problem and Dirichlet's problem. That is to say the Green's function, like Dirichlet's problem, depends very closely on the form of a certain surface or hypersurface, whereas the elementary solution, like Cauchy's problem, does not. From this fact it is readily seen that considerations of analysis situs will play an important rôle in the study of Green's functions. Hence these functions are related to all the principal topics of the preceding lectures, and therefore, as the writer expresses it, a discussion of them forms an appropriate conclusion.

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*Die elliptischen Funktionen und ihre Anwendungen. Erster Teil.* By ROBERT FRICKE. Leipzig, B. G. Teubner, 1915. x+500 pp. Price 22 Marks.

THE present volume is the first of a series of three which Dr. Fricke proposes to write on the elliptic functions and their applications. It appeared in October, 1915, and is devoted to the function theoretic and analytic bases of the theory of elliptic functions. One would naturally expect that a treatise on elliptic functions from the pen of Dr. Fricke would follow the lines of thought developed by Klein and his students thirty-odd years ago. Consequently, on turning the pages of the present volume, one is not surprised to be reminded again and again of modes of thought, of formulas, and of geometric diagrams made familiar through the Klein-Fricke Modulfunktionen. Dr. Fricke refers to this when he writes in the preface: "That I should adhere in the main to the methods of presentation, the use of the invariant theory, geometric representation, and so forth, which more than thirty years of close scientific companionship with my teacher and friend F. Klein have made my own, I may regard as self-evident."

The introduction, consisting of 105 pages, is devoted to an exposition of theorems concerning analytic functions of a single complex variable. This material is made to lead up to a statement of the basic problems of the theory of elliptic func-