Constitution of Atomic Nuclei and Radioactivity. By G. Gamow. Oxford, Clarendon Press, 1931. viii+114 pp.

This book is one of the International Series of Monographs on Physics and gives an account of the knowledge of atomic nuclei at the time it was written (May 1931). Except in Chapter IV, where an interesting account of the theory of inelastic collisions, according to wave mechanics, is given, very little mathematics is used. The following chapter headings give an idea of the contents: The constituent parts and energy of nuclei. Spontaneous disintegration of nuclei. Excited states and electro-magnetic radiation of nuclei. Artificial transformation of nuclei.

F. D. MURNAGHAN

Vorlesungen ueber Funktionentheorie. Part 2. By Alfred Pringsheim. Leipzig, Teubner, 1932. xiii+498 pp.

The volume under review is the last part of the author's *Vorlesungen ueber Funktionentheorie*, and the final section of the two volume *Vorlesungen ueber Zahlen- und Funktionenlehre*,* and is devoted to a discussion of the properties of single-valued analytic functions. Coming as it does as the second section of a work on infinite series, it is quite natural that this treatise on analytic functions should be dominated by the Weierstrass angle of approach, namely, that of power series. In fact the author set himself the goal of presenting this theory exclusively from this angle, so far as possible. As a consequence the choice of material presented is dictated by the method employed. However, one cannot help but be impressed with the results obtainable, and the power of the method.

To give a brief summary of the contents, one finds in the first chapter a treatment of infinite products of functions, especially of the linear variety, the Weierstrass product theorem as applied to entire functions, and its application to the factorial and gamma functions, winding up with the extension of the Weierstrass product theorem to the case in which the zeros of the function are isolated, but may have continuous arcs as derived set.

The second chapter gives a systematic treatment of entire functions of a finite order, and derives beautiful results giving the relationship between the order of the function, the behavior of the coefficients of the power series, and the convergence properties of the reciprocals of the zeros of the function. It is gratifying to find these interrelations collected in one place, and so clearly presented. The chapter also contains a proof of the Picard theorem for entire functions of finite order, based on the result that any change in a finite number of coefficients of an entire function of finite order with a finite number of zeros makes it an entire function with an infinite number of zeros, and emphasizing the unusualness of the existence of the exceptional values mentioned in the theorem.

The third chapter treats of fractional transcendental functions, giving the Mittag-Leffler theorem for the case of simple poles, and leading up to an extensive treatment of the properties of doubly periodic functions. The last part of the chapter discusses the conditions that a function have on its circle of

* Reviewed in this Bulletin: Part I, 1: vol. 25 (1919), p. 470; part I, 2 and 3: vol. 28 (1923), pp. 63–65; part II, 1: vol. 32 (1926), pp. 551–554.