Despite these shortcomings, this book provides a good introduction to the subject matter. The beginner can learn much from it and the expert can use it as a reference book. It will have its impact on the future of the field.


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WILHELM STOLL

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*Elliptic modular functions*, by B. Schoeneberg, Springer-Verlag, New York, Heidelberg and Berlin, 1974, 229+viii pp.

Before the appearance of Gunning's *Lectures on modular forms* in 1962—if one leaves aside Hardy's 1940 book, *Ramanujan*, which does not attempt to deal with the theory of modular functions systematically, but instead treats the subject with the characteristically unusual (though always interesting) perspective of the great Indian mathematician in mind—the only book available in the English language in this important area of mathematics was Lester Ford's classic, *Automorphic functions*. First published in 1929 as an elaboration of a 1915 Edinburgh Mathematical Tract, Ford's book served the mathematical public well for many years. It is hardly a criticism to point out the obvious—that by the early 1960's it was long out of date. While Ford deals quite effectively with uniformization theory and with the geometry of discontinuous groups—in particular he gives a lucid account of the construction of fundamental regions for discontinuous groups by what has come to be known as "Ford's method" of isometric circles—a number of fundamental developments in the decades following the publication of Ford's book created the need for a new exposition of the theory of modular and automorphic functions in one complex variable.

Though small in size and limited in intention, Gunning's book went far toward beginning to fill this need. Treating the modular group and certain congruence subgroups from the viewpoint of the theory of compact Riemann surfaces, Gunning made available to his readers an entire complex of ideas too "modern" to appear in Ford's work. Notable examples are the application of the Riemann-Roch theorem to calculate the dimension of the space of cusp forms, the introduction of the Petersson inner product and