

briefly; the various types of broadening and shift which are due to inter-molecular forces and which have been of interest in the terrestrial laboratory are not discussed, presumably because of their absence in stellar spectra.

Several chapters are then devoted to the chemical constitution, to the dissociative equilibrium of stellar compounds, and to the temperatures of the stars, with special reference to the sun. After this the discourse again turns toward spectroscopy, the subject being that of forbidden transitions. Near the end of the book we find a discussion of evidence regarding the state of nebulae, their degree of ionization, their temperature, their chemical composition.

Every reader will close the book with an acute realization of the power of analysis which has shed considerable light on these most elusive problems, and of the vastness of the field which still waits for investigation. A book by Roseland on astrophysics needs no recommendation. It is highly suitable that it should have appeared in the International Series of Monographs on Physics, thus aligning itself with some of the most outstanding treatises on modern physics.

HENRY MARGENAU

Éléments de géométrie infinitésimale. By G. Julia. Deuxième édition. Paris, Gauthier-Villars, 1936. 7+262 pp.

The second edition of Julia's differential geometry has entirely kept its original character. As such, it takes a very special position among the textbooks on the subject. In no other book are questions concerning contact and envelopes treated with so much elaboration and so much care. Not only does their discussion take more than a hundred pages of the first of the three chapters, but they also permeate many topics in later parts of the book. Great care is therefore taken in the application of the theory of implicit functions. In the new edition the author has here and there changed the order of the subjects, and added a few remarks, partly in footnotes, which have added to the clarity of an already very well written book.

D. J. STRUIK

Actualités Scientifiques et Industrielles. Exposés mathématiques publiés à la mémoire de Jacques Herbrand. Paris, Hermann.

1. *Sur quelques propriétés de polynômes.* By J. Dieudonné, 1934. 24 pp.
2. *Sur les suites stationnaires.* By N. Lusin, 1934. 19 pp.
3. *Étude des fonctions sousharmoniques au voisinage d'un point.* By Marcel Brelot, 1934. 55 pp.
4. *Charakterisierung des Spektrums eines Integral Operators.* By J. von Neumann, 1935. 20 pp.

1. The author develops an elementary method for determination of the radii of "starshapedness" and of "convexity" of some special classes of analytic functions and applies this theory to the case $z[P(z)]^{\alpha/n}$, where $P(z)$ is a polynomial of degree n and α is any real number.

2. Let (*) $E_0, E_1, \dots, E_\alpha, \dots, \alpha < \Omega$ be a transfinite sequence of Borel measurable sets, which is such that if α is a limit ordinal, then $E_\alpha = \lim_{\xi < \alpha} E_\xi$. The sequence (*) is said to be stationary if there exists a $\gamma < \Omega$ such that