treated with skill and clarity. It should be added that he will also find a short readable proof of the Cauchy formula $\int_J f(z) = 0$ in which $f(z)$ is assumed to be regular over the inner domain D of the rectifiable simple closed curve J and continuous in $D+J$. Here again the power of Alexander's lemma shows itself in solving rapidly the separation problems that arise.

P. A. SMITH

Étude Critique de la Notion de Collectif. By Jean Ville. (Monographies des Probabilités, no. 3.) Paris, Gauthier-Villars, 1939. 144 pp.

Professor Ville has written an interesting and valuable discussion of the concept of a collective, upon which many mathematicians found the theory of probability. The author discusses systems of play in detail, and generalizes this idea to that of a "martingale." This leads to a new criterion for the exclusion of sequences from probability discussions, that is, to a new definition of collective. Any given set of sequences of probability 0 can be excluded by this new criterion, whereas the system criterion, used by Copeland, Popper, Reichenbach, Tornier, Wald, can be used only to exclude certain sets of sequences (necessarily of probability 0). Ville extends the definition of a martingale to the case of a stochastic process depending on a continuous parameter, and shows that some of his sequence results go over.

It is unfortunate that this book, which contains much material which clarifies the subject, should contain so much careless writing. This ranges from uniformly incorrect page references to mathematical errors. Thus (p. 46) it is claimed (and used in a proof) that every denumerable set is a G_δ. The author's main theorem on systems is not as strong as earlier results with which he is apparently unfamiliar. (Cf. Z. W. Birnbaum, J. Schreier, Studia Mathematica, vol. 4 (1933), pp. 85–89; J. L. Doob, Annals of Mathematics, (2), vol. 37 (1936), pp. 363–367.) His discussion of random functions is inadequate and obscure, for example, his demonstration that his main theorem on martingales does not go over to the continuous process uses as an example a measure on function space not in accordance with the usual definition of probability measures on this space.

A specialist who can overlook such slips will find many stimulating ideas in this book. Other readers can profit by the comparative analysis of the different criteria for collectives, and by the discussion of martingales.

J. L. DOOB

Problems in Mechanics. By G. B. Karelitz, J. Ormondroyd, and J. M. Garrelts. New York, Macmillan, 1939. 9+271 p.

This is a collection of nearly 800 problems in statics, kinematics and dynamics. Some two thirds are based on those compiled by the late I. V. Mestchersky, of the Polytechnic Institute of St. Petersburg. The authors have not only translated these, but have replaced the metric by English engineering units and given them a background suitable to American students.

The book is intended to supplement a first course in mechanics as applied to engineering. Thus the problems vary from simple exercises in resolution of forces and falling bodies to those on tensions in cables and curvilinear motion under central forces. Many will provide hard practice in the application of mechanical principles, but none are of the puzzle type. Only rudimentary calculus or differential equations and no knowledge of Lagrange's equations is assumed. As is the case in actual engineering practice, with few exceptions the problems are reducible to those in one or