123. P. C. Rosenbloom: *Post algebras*: I. *Postulates and general properties.*

Post algebras are the algebras which bear the same relation to the n-valued logics defined by Post (American Journal of Mathematics, vol. 43 (1921), pp. 180–185) as Boolean algebras bear to the usual 2-valued logic. They are investigated here purely from the algebraic standpoint with no consideration of their interpretation as logic. The first postulate sets for these systems are introduced and the most important general properties are deduced. A fundamental theorem analogous to the Boolean expansion of functions in normal form is proved. The definition of "prime elements" is analogous to Huntington's definition for the Boolean algebras. "Powers of primes" are also defined. A theorem analogous to the fundamental theorem of arithmetic is proved to the effect that "in a Post algebra with a finite number of elements, every element is uniquely factorable into a product of powers of primes, disregarding order and repetition of factors." An arithmetic interpretation generalizing Sheffer's "Boolean numbers" is given. Several unsolved problems are discussed. (Received January 17, 1941.)

124. Ernst Snapper: *Structure of linear sets.*

It is shown that the linear sets of a vector space of arbitrary dimension over an integral domain in which every ideal has a finite basis admit a Noether decomposition into "primary" linear sets. The "associated prime ideals" of the largest primary components are uniquely determined invariants of the linear set. The proofs are based on definitions of "quotient ideal" of a linear set by a linear set, of "quotient linear set" of a linear set by an ideal, and of "product linear set" of an ideal and a linear set. The quotient ideal of a linear set by the whole space is called its "essential scalar ideal" and is fundamental in the definition of primary linear set. The radical of the essential scalar ideal of a primary linear set is prime and is called its associated prime ideal. The "isolated component linear sets" are uniquely determined by their corresponding prime ideals and the theory becomes the ordinary ideal theory in the case of dimension one. Also, this investigation gives rise to the notions of scalar ideal, almost-primarity, radical and essential radical, closed set, and dense set. (Received January 14, 1941.)

ANALYSIS

125. R. P. Agnew: *On methods of summability and mass functions determined by hypergeometric coefficients.*

Let α, β, γ be complex constants and $\gamma \neq 0, -1, -2, \cdots$. Let $\lambda_n(\alpha, \beta, \gamma)$, $n=0, 1, 2, \cdots$, be the coefficients in the power series expansion $\sum \lambda_n z^n$ of the hypergeometric function $F(\alpha, \beta, \gamma; z)$. Let $(H, \alpha, \beta, \gamma)$ be the Hurwitz-Silverman-Hausdorff method of summability generated by the sequence $\lambda_n(\alpha, \beta\ \gamma)$. (See Garabedian and Wall, Transactions of this Society, vol. 48 (1940), pp. 195–201.) Let C_r denote the Cesàro method of order r. For certain ranges of the parameters it is shown that $(H, \alpha, \beta, \gamma) = C_{\alpha-1}^{-1} C_{\beta-1}^{-1} C_{\gamma-1}$ and that $(H, \alpha, \beta, \gamma)$ is equivalent to $C_{\gamma-\alpha-\beta+1}$. These results determine conditions under which $(H, \alpha, \beta, \gamma)$ is regular and $\lambda_n(\alpha, \beta, \gamma)$ is the moment sequence of a regular mass function. (Received December 31, 1940.)

126. E. F. Beckenbach: *On almost subharmonic functions.*

It is shown that certain integral inequalities which, in the case of continuous functions, are known to characterize subharmonic functions and functions whose loga-