tion of linear functions of ordered dyads $X_{m+1}(\alpha)=\sum x_j\alpha_1\alpha_j$ $(j=1, 2, \cdots, m+1)$ with coefficients x_j in a suitable domain D (field F) relatively to any given abstract group G of order $m+1$ $(m=1, 2, \cdots)$ represented as a regular group of configurational sets of dyads on $m+1$ elements. Two dyads $\alpha_i\alpha_j$ and $\alpha_k\alpha_l$ are then equivalent if and only if they occur in the same configurational set of dyads. Multiplication is determined by $\alpha_i\alpha_j\times\alpha_j\alpha_k=\alpha_i\alpha_k$ and by the preceding equivalences. Other instances of dyadic representation of linear algebras are given by two examples: 1. $X_2(\alpha)=x_1\alpha_1\alpha_1+x_2\alpha_1\alpha_2$ with equivalences $\alpha_1\alpha_1=\alpha_2\alpha_2$, $\alpha_1\alpha_2=-\alpha_2\alpha_1$. 2. $X_4(\alpha)=\sum x_j\alpha_1\alpha_j$ $(j=1, 2, 3, 4)$ with equivalences corresponding to those given by the author (Math. Ann. vol. 69 p. 584). In both examples multiplication is determined by $\alpha_i\alpha_j\times\alpha_j\alpha_k=\alpha_i\alpha_k$ and by the associated equivalences. (Received July 11, 1946.)

278. M. C. Sholander: *On the existence of the inverse operation in certain spaces.*

In a set S of elements $x, y, \cdots$ which admits a binary operation—here denoted by multiplication—an element a will be called regular if both (i) $ax=ay$ implies $x=y$ and (ii) $xa=ya$ implies $x=y$. An element a will be called proper if for each element b in S there exist unique solutions x and y in S for the equations $ax=b$ and $ya=b$. It is well known that if the multiplication is commutative and associative S can be imbedded in a space S' of the same type in such a way that all elements regular in S are proper in S'. In this paper it is shown the imbedding process can also be carried out in case the multiplication is one satisfying the alternation law $(ab)(cd)=(ac)(bd)$ and in case the regular elements of S are closed under multiplication. Thus if all elements of S are regular, S' is a quasi-group of a type studied, for example, by D. C. Murdoch (Trans. Amer. Math. Soc. vol. 49 (1941) pp. 392–409) and R. H. Bruck (Trans. Amer. Math. Soc. vol. 55 (1944) pp. 19–52). Various conditions which insure the necessary closure property in S are given in the paper. (Received July 26, 1946.)

279. J. M. Thomas: *Eliminants.*

If $R(a, b)$ denotes the resultant to two polynomials $x(t)$, $y(t)$ whose constant terms are a, b, the polynomial $R(a-x, b-y)$ in the two indeterminates x, y is the *eliminant* $E(x, y)$ of $x(t)$, $y(t)$. This paper (i) proves $E(x, y)=f^k$, where f is an irreducible polynomial and k is a positive integer; (ii) proves $E(x, y)$ is reducible $(1<k)$ if and only if $x(t)$, $y(t)$ are also polynomials in a second parameter which is itself a polynomial of degree at least two in t; (iii) expresses in terms of $E(x, y)$ algebraic conditions that a single polynomial $y(t)$ be a polynomial in $x(t)$ of degree k, where $1<k<\deg y$ (these last polynomials have been called by Ritt composite polynomials, Trans. Amer. Math. Soc. vol. 23 (1922) pp. 51–66). (Received July 27, 1946.)

280. J. H. M. Wedderburn: *Note on Goldbach's theorem.*

It is shown in this note that, if p and q are primes and $r=(p+q)/2$ is a prime, then $p-q$ is a multiple of 12 unless r has the form $2p-3$ or, when unity is reckoned as a prime, also $r=2p-1$. The proof is elementary and depends on reducing modulo 12. Similar statements apply if q is replaced by $-q$. (Received July 30, 1946.)

Analysis

281. R. P. Agnew: *Methods of summability which evaluate sequences of zeros and ones summable C_1.*