MR0314930 (47 #3479) 17E05
Holgate, P.
Characterisations of genetic algebras.
J. London Math. Soc. (2) **6** (1972), 169–174.

I. M. H. Etherington [Proc. Roy. Soc. Edinburgh **59** (1939), 242–258; MR0000597 (1,99e)] introduced the nonassociative algebras that he called train algebras. As this class of algebras seems to be too large for a structure theory to be developed, R. D. Schafer [Amer. J. Math. **71** (1949), 121–135; MR0027751 (10,350a)] defined "genetic algebras", determined their structure and showed that they are train algebras. Train algebras are defined in terms of the minimum polynomial of a generic element while Schafer genetic algebras are defined in terms of the transformation algebra. The present author gives alternative characterisations of Schafer genetic algebras. A commutative algebra A over a field F is said to be baric if there is a non-trivial homomorphism of A into F. The kernel of a baric algebra is denoted by $N(A)$. By $L(A)$ is meant the Lie algebra generated by all right multiplications in A. The author shows that a baric algebra A is a Schafer genetic algebra if and only if $L(A)$ is solvable and $N(A)$ is nil and discusses the genetic implications of this theorem and others. In particular, certain properties of an algebra carry over to the duplicate algebra. (In genetic terms, properties of the gametic algebra carry over to the zygotic algebra.) *M. L. Tomber*