

8. R. H. Rand and D. Armbruster, *Perturbation methods, bifurcation theory and computer algebra*, Applied Mathematical Sciences, vol. 65, Springer-Verlag, Berlin, 1987.
9. F. Takens, *Normal forms for certain singularities of vector fields*, Ann. Inst. Fourier (Grenoble) **23** (1973), 163–195.
10. —, *Unfolding certain singularities of vectorfields: generalized Hopf bifurcations*, J. Differential Equations **14** (1973), 476–493.
11. —, *Singularities of vector fields*, Publ. Math. IHES **43** (1974), 47–100.

PHILIP HOLMES
CORNELL UNIVERSITY

BULLETIN (New Series) OF THE
AMERICAN MATHEMATICAL SOCIETY
Volume 22, Number 2, April 1990
©1990 American Mathematical Society
0273-0979/90 \$1.00 + \$.25 per page

Algebras, Lattices, Varieties, vol. 1, by Ralph N. McKenzie, George F. McNulty, and Walter F. Taylor. Wadsworth & Brooks/Cole, Monterey, California, 1987, 361 pp., \$44.95. ISBN 0-534-07651-3

Lest the title leave any uncertainty, Volume 1 initiates a comprehensive four-part overview of *universal algebra* as the subject is understood today. It concerns properties of *algebras* that are, by and large, independent of their particular operational type. Special algebras, such as *lattices*, are dealt with from the point of view of their role in the study of universal algebras (nonempty sets augmented with an arbitrary system of finitary operations). *Varieties*, or equational classes of algebras, arise as one of the central themes in universal algebra. This volume presents a thorough and exquisitely executed account of the foundations of universal algebra together with a fine exposition of several sample results that illustrate the depth and the beauty of the subject.

The sheer quantity of new work published in universal algebra makes a strong case for the need for such a series. The Mathematical Reviews' Mathematics Subject Classification encompasses most of the universal algebra in two categories: 06XXX Order, Lattices, Ordered Algebraic Structures; and 08XXX General Mathematical Systems. But the 1970 version, which offered the single letter sections 06AXX and 08AXX, quickly proved to be a poor reflection of the explosion of research that was erupting. Grätzer [3] estimated that about a thousand publications in universal algebra appeared between 1968 and 1979, and it seems likely that an equal