The reader will have surmised by now that the reviewer has a very high opinion of this book. The exposition is not perfect, with some repetition of arguments, and too many formulas, but such quibbles are overwhelmed by the service the authors have rendered by making such fascinating material available to a wide audience. The authors needed five years to write up their results; an outsider trying to learn all of this from partial results in the literature would have faced an impossible task. The book is accessible to any motivated reader, although it is not easy reading; it is essentially self-contained, except for a few results which are cited (with references) in the later chapters. It cannot be the definitive treatment, since the subject is just getting started; recent developments include Borcherds' "two-variable moonshine," with many new concepts and results, but it is impossible to imagine a future treatment of these matters which would not be heavily influenced by this book.

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Group theory in physics, volume III, *Supersymmetries and infinite-dimensional algebras,* by J. F. Cornwell. Techniques of Physics (N. H. Marsh, ed.), Academic Press, New York, 1989, 615 pp., $55.00. ISBN 0-12-189805-9

The theory of classical Lie groups and algebras is of fundamental importance in mathematics as the meeting ground of algebra, analysis, and topology, and as an essential tool in modern physics. The book under review is the third in a series of volumes by Cornwell. In the first volume he covers some basic group theory, Lie groups, representation theory, and applications to molecular and solid state physics. In the second volume he discusses Lie algebras, their relationship with Lie groups, the structure theory of semisimple Lie algebras and their representation theory, Lorentz groups, Poincaré groups, and applications to the theory of elementary particles (global internal symmetries and gauge theory). Results and numbered equations from these two volumes are referred to in