functional calculus again in such a way that it can be applied to algebras in which the spectra of elements need not be compact.

The subject of this course is inevitably highly technical and the author has made great efforts to ease the lot of the reader by a colloquial style and a liberal use of heuristic discussion. However, the reader will still have to work hard.

F. F. BONSALL

DUBIN, D. A., *Solvable Models in Algebraic Statistical Mechanics* (Oxford Science Research Papers, Oxford University Press, 1974), £5·25.

The branches of mathematics most useful to statistical mechanics are functional and complex analysis, ergodic and probability theory, and the theory of C^*- and W^*-algebras. In return, the " rigorous " approach to statistical mechanics has led to new ideas in these subjects. Solvable models, providing a good qualitative picture of actual physical systems, are also useful as mathematical laboratories. In this way, statements plausible " for physical reasons " often become theorems of some interest to pure mathematicians.

This book is a survey of the simplest solvable models, selected and explained by a mathematical physicist.

It is not a book of pure mathematics, and it may be hard reading for a mathematician, because of both the style and the content. It would repay extended study, especially if this leads to new directions and emphasis in the classical subjects.

R. F. STREATER

MASON, J., *Groups, a Concrete Introduction using Cayley Cards* (Transworld Student Library, 1975), 125.pp., £0·85 (soft cover).

This original and engaging little book on elementary group theory draws on the author's experience in presenting the material for a second year course at the Open University, and discusses groups, subgroups, homomorphisms and the first homomorphism theorem, permutations and Cayley's Theorem, using so-called " Cayley cards ".

First, the alternating group A_4 is presented graphically as a pack of 12 cards, each with two sets of 4 dots down two opposite sides, the dots being joined in an obvious way so as to present the permutation involved (3 packs of cards are included with the book). The group operation is juxtaposition of cards, and associativity is inherent. Then, using these cards, ideas are illustrated in the group A_4, and in other groups, before they are introduced abstractly. Thus the author is able to discuss the difficulties encountered when coping with abstractions, and in fact a large part of the book is concerned with the learning process itself. The student is made to work with the Cayley cards so as to render concrete the various notions met, thus avoiding the danger of abstract algebra being too " abstract ". One drawback to this approach is that the student's ability to manipulate abstract symbols is not developed sufficiently, but perhaps this may wait for a more advanced course; indeed, a final section contains suggestions for further reading. Two excellent features (among many) are a final review of the concepts met using the quaternion group of order 8 in place of A_4, and the tightening of Cayley's theorem to show that A_4 can be retrieved as a subgroup of S_4 rather than as a subgroup of S_{12} (in the usual notation).

There are some faults. Major results are buried in worked exercises, cyclic groups are covered too quickly and in an obscure fashion, and at times the argument develops too rapidly. More unfortunately, there are errors in Exercises 2.7, 3.1 and 5.15, the logic in Exercises 2.6 and 3.21 needs to be tightened, and there are some misprints in