If numerical analysts have been complaining that their admitted high quality public domain software packages do not yet have the deserved impact on the 'end-user', this book will certainly contribute to change the situation. But it is more than just a guide to numerical software: It is a fundamental work on numerical computation which makes many major achievements in numerical analysis available to the practitioner.

An English translation of the book is under preparation.

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8[68Q05, 68–06]—*Abstract machine models for highly parallel comptuers*, John R. Davy and Peter M. Dew (Editors), Oxford University Press, New York, 1995, xii + 337 pp., 24 cm, $80.00

For sequential computers the von Neumann model has served the needs of practitioners and theoreticians for a long time. In its simplest form a von Neumann computer executes instructions one at a time in a fetch-execute cycle. First an operation code and operand data are fetched from memory, then the corresponding instruction is executed and the result is sent back to memory for storage. Despite the many elaborations of this simple idea in actual computer hardware, reality has been represented closely enough by this model for some purposes. On the practical side, software and hardware designers have been able to advance their own craft without need for a detailed understanding of the opposite craft. And theoreticians concerned with such issues as complexity analysis of algorithms have also been able to make effective use of the model.

The model breaks down when multiple processors and memories are linked together in a parallel computer system. A variety of replacement models have emerged but often these are positioned too closely to either the software or the hardware end of the spectrum, with the result that the main advantages of the von Neumann model (simplicity and generality) are lost. This book contains 18 papers presented at a Workshop on Abstract Machine Models for Highly Parallel Computers which was held at Leeds University in April, 1993. The purpose of this workshop, the second on the subject, was to consider whether a model can be devised to bridge the hardware-software gap somewhere near its center. Interestingly, relatively concrete proposals have been made that appear to do this quite well. This book provides a valuable cross section of work in this important area of computer science.

DANIEL W. LOZIER

9[86-06]—*Mathematics, climate and environment*, J.-I. Diaz and J.-L. Lions (Editors), Research Notes in Applied Mathematics, Vol. 27, Masson, Paris, 1993, 315 pp., 24 cm, softcover, F 320

There are many books on water waves that are a successful blend of high quality mathematics and physics. With regards to mathematics, climate, and environment, however, books written in the same spirit are difficult to find. Among the climate-related books, M. Ghil and S. Childress' "Topics in Geophysical Fluid Dynamics: