The book is in two distinct parts, the first part being concerned with the construction of net replacements (otherwise known as finite difference replacements) of parabolic equations and the second part with the numerical solution of such replacements. The parabolic equations dealt with include the heat conduction equation in one, two, and three space dimensions, and with cylindrical and spherical symmetry, the equation of longitudinal vibrations of a bar, and certain non-linear equations in one space variable.

In the first part, the net equations constructed are mainly for the heat conduction equation in one space dimension. This is a suitable model equation, and in fact twenty-two different schemes are examined and their conditions for stability determined. These schemes are mostly first order in time, but some second order schemes are also considered. The general conclusion, not surprisingly, is that the implicit schemes are better from the stability point of view, but the explicit schemes are easier to use. The accuracy of the schemes varies between $O(h)$ and $O(h^8)$, depending on the complexity and stability range of the schemes, where h is the mesh length in the space direction.

The second part deals with the practical numerical solution of the implicit net equations set up in the first part. The equations in one space dimension lead to a three point recurrence relation at each time step and the solution presents no real problem. Difficulty occurs however in the two and three dimensional cases. There, implicit methods require the solution of N^2 and N^3 linear equations respectively at each time step where $(N+1)h = 1$, and N is large. The author describes in detail a variety of methods for solving the sets of " elliptic " equations. These include variational methods such as the method of steepest descent and the method of conjugate gradients, and pure iterative methods employing overrelaxation, Chebyshev polynomials, and alternating direction methods respectively.

The reviewer feels that although the material covered in the second part is very comprehensive and clearly explained, it does not contain some of the recent developments in iterative methods of solution of elliptic equations which can be found in R. S. Varga's *Matrix Iterative Analysis* (Prentice-Hall, 1962). This, of course, is probably due to the fact that the present volume was first published in Russian in 1960.

Nevertheless, there is no doubting the merit of the present work or the industry and experience of the author. To the reader who wishes to obtain a solution on an electronic computer of a problem involving a parabolic equation. this volume is invaluable.

DOMORYAD, A. P., *Mathematical Games and Pastimes* (Pergamon Press; Macmillan, New York, 1964), xi+298 pp.

This is a translation by Halina Moss of a book originally published in Russia as a good-quality paper-back; copies from the first printing of 200,000 sold here for 4s.

Western readers will find little which is not already available to them—from Rouse Ball, or Kraitchik, for instance. This is yet another treatment of standard topics, rather than any glimpse of something rich and strange. Relatively to comparable works, the level of sophistication is a little higher in number theory (Euclid algorithm, Josephus problem), and a little lower in respect of geometry (patterns, dissections, curves, polyhedra).

The writing is simple and clear, and the translation reads smoothly. Some infelicities of crude transliteration must count as a blemish: a few diagrams have lost clarity by being altered, and some displayed algorithms by not being altered.

Worth a place in the lists—for individuals, or school libraries: but definitely not in the top ten.

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