constraints $b_i \leqq x_i \leqq u_i$ by the variable transformation $x_i = b_i + (u_i - b_i) \sin^2(y_i))$. There is a wealth of material; much neglected work done by engineer optimizers is included. It is not a text book. It has no problems and no small numerical examples. The authors have achieved their main aim, to synthesize and explain the vast amount of algorithmic material now extant in the optimization area.

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47 [2.35, 5].—DAVID M. YOUNG, *Iterative Solution of Large Linear Systems*, Academic Press, New York, 1971, xxiv + 570 pp., 24 cm. Price $25.00.

In his 1950 Harvard thesis, David Young laid a solid theoretical foundation for the successive overrelaxation (SOR) method. Overall, this method perhaps remains the most useful method for the solution of large sparse systems of algebraic equations and, in particular, those which arise in the numerical solution of elliptic partial differential equations. The main topic of the present book is the study of the rate of convergence of the SOR method, its many variants and various semi-iterative methods. Much of the material is already quite familiar from Richard Varga's well-known textbook *Matrix Iterative Analysis* (1962). However, in recent years David Young and his coworkers have systematically explored many important aspects of the theory. Of perhaps greatest general interest are some new results on the use of a combination of the symmetric successive overrelaxation (SSOR) method with semi-iteration. For the standard second-order finite difference approximation to Laplace's equation and the natural ordering, good values for acceleration parameters can be found which lead to an order-of-magnitude gain in the rate of convergence (i.e., $R \sim h^{-1/2}$) compared to that of the optimal SOR method (i.e., $R \sim h^{-1}$).

The use of a line version of SSOR is shown to give further gains. It appears that further study of these potentially very powerful methods applied to more general elliptic problems could be very profitable.

This book requires only a background corresponding to a standard undergraduate mathematics program. The book is self-contained and admirably clearly written. The theory is illustrated by well-chosen examples worked out in sufficient detail. The usefulness of the book is further enhanced by many exercises. It is a most welcome addition to both the textbook and handbook literature.

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48 [7].—L. N. KARMAZINA, *Tablitsy funktsiĭ Lezhandra ot mnimogo argumenta* (*Tables of Legendre functions of imaginary argument*), Akad. Nauk SSSR, Moscow, 1972, x + 391 pp., 27 cm. Price 3.86 rubles.