In the section on ordinary differential equations (initial value problems only), the emphasis is on explicit Runge-Kutta methods. The discussion of stepsize control remains unsatisfactory; there is neither sufficient motivation nor a serious justification for the suggested control mechanism (due to Zonneveld). In the treatment of multistep methods, D-stability is not distinguished from relative stability.

There are a number of complete Fortran programs for various tasks; the use of library programs is not emphasized. On the whole, the author has succeeded in composing an instructive and balanced "Textbook for a Beginning Course in Numerical Analysis", which is not at all an easy task.

HANS J. STETTER

4[9.05].—WALTER E. BECK & RUDOLPH N. NAJAR, *A Lower Bound For Odd Triperfects—Computational Data*; a typed manuscript of 61 pages deposited in the UMT file.

The data contained in this manuscript constitute a tree, each node of which corresponds to a restriction on the canonical decomposition of an odd integer n such that $3 \mid n$ and $\sigma(n) = 3n$. The branching process is dependent on the determination of the prime factors of $\sigma(p^{2\alpha})$ where p is a prime factor of n and α runs through the set of natural numbers. In most cases the complete factorization of $\sigma(p^{2\alpha})$ is given. Roughly speaking, the nodes immediately "following" $p^{2\alpha}$ are those involving q where q is the greatest prime factor of $\sigma(p^{2\alpha})$. When a node (or case) is reached for which either $n > 10^{50}$ or $3^t \parallel n$ while $3^{t+2} \mid \sigma(n)$, an obvious contradiction, the tree is truncated. Since the nodes considered exhaust the logical possibilities and since it is easy to show (see [2]) that $n > 10^{108}$ if $(6, n) = 1$ and $\sigma(n) = 3n$, the finiteness of the tree generated establishes a lower bound of 10^{50} for the set of odd triperfect numbers. This set may, of course, be empty since no odd multiperfect numbers (integers n such that $\sigma(n)/n$ is an integer greater than 2) have, as yet, been found. A list of more than 200 even multiperfect numbers, including the six known triperfect numbers, may be found in [1]. The present paper is very well organized and the details are easy to follow. Mathematicians doing research on perfect or amicable numbers will find this manuscript a valuable source of data on the factors of $\sigma(p^{2\alpha})$.

PETER HAGIS, JR.

Department of Mathematics
Temple University
Philadelphia, Pennsylvania 19122

1. ALAN L. BROWN, "Multiperfect numbers—cousins of the perfect numbers—No. 1," *Recreational Mathematics Magazine*, Jan.—Feb. 1964, Issue No. 14, pp. 31–39.

2. WALTER E. BECK & RUDOLPH M. NAJAR, "A lower bound for odd triperfects," *Math. Comp.*, v. 38, 1982, pp. 249–251.