```
    begin
    P := PP;
    PP := NULL;
    end statement B;
  comment statement C;
  if RPNTR(P) > P then
    begin
    TEMP := P;
    comment insert VISIT(P) code here if a symmetric order
          traversal is desired;
    P := RPNTR(P);
    RPNTR(TEMP) := LPNTR(TEMP);
    LPNTR(TEMP) := PP;
    PP := TEMP;
    end statement C;
  comment statement D;
  if P = NULL then
    begin
    P := PP;
    PP := NULL;
    end statement D;
  comment statement E;
  if RPNTR(P) ≤ P do
    begin
    TEMP := P;
    comment insert VISIT(P) code here if a postorder
          traversal is desired;
    RPNTR(TEMP) := PP;
    PP := TEMP;
    end statement E;
  comment check for termination;
  if P = PP then DONE := true;
  end iterative walk loop;
end TRAVERSE;
```


References

KNUTH, D. E. (1968). *The Art of Computer Programming, Volume 1/Fundamental Algorithms*, Addison-Wesley Publishing Company, Reading, Massachusetts.

PERLIS, A. J., and THORNTON, C. (1960). Symbol manipulation of threaded lists, *CACM*, Vol. 3, pp. 195-204.

Book reviews

Signals, Systems and the Computer, by P. M. Chirlian, 1973; 628 pages. (*Intertext*, £8·50.)

The objective of this book appears to be as a text accompanying a lecture course on signals and systems for electrical engineering students. Inclusion of the words 'and the computer' in the title is, for the most part, justified by the inclusion of various FORTRAN 1V program listings. Whilst these are well explained the programming technique is not particularly impressive. For instance in calculating polynomials the author is unaware of such simple strategems as nested multiplication. However this insistence on 'computers' does not detract from the book, neither does it appear to add. In Chapter 1 the reader is gently led through the solution of simultaneous linear algebraic equations by Gaussian elimination and this is illustrated by a simple DC loop analysis example. For the next three chapters the author devotes much effort to giving the reader a thorough grounding in Fourier and Laplace transforms and in the basic principle of state space analysis. These sections of the book are treated clearly and in themselves would make valuable reading to those who now find a need for a more certain background in these topics.

After developing the three analysis techniques each of the following chapters in the book treat some specific interest and to a large extent may be read separately. For the most part the remaining chapters suffer from a scarcity of worked examples. In them however several mathematical interpretations of practical measures, such as the effective bandwidth of a signal, are treated. The topics covered are linear continuous time systems, discrete time systems, system stability, statistical processes, signal transmission and distributed systems. In all cases an adequate treatment is given which introduces the fundamentals of each topic. Appendices on orthogonal functions, functions of a complex variable and matrices are provided.

C. A. MERCER (Southampton)

Studies in Numerical Analysis, edited by B. K. P. Scaife, 1974; 333 pages. (*Academic Press Inc*, £5·00.)

This book contains nineteen papers contributed to honour the occasion of the eightieth birthday of the late Professor Cornelius Lanczos. Its title is somewhat misleading as not all the papers are concerned with numerical analysis—three of the articles are biographical in nature whilst the longest single contribution is a review paper on conservation laws in general relativity. Although some of the papers relate to developments of research with which Lanczos was originally closely associated—an article on canonical polynomials in the Lanczos tau method is an example—the papers more often mirror the wide range of Lanczos' interests, rather than being directly related to any of his work.

As there is no particular connection between any of the papers, chapter titles will best indicate the range of topics covered. These are: Table-making at the National Bureau of Standards; vignette of a cultural episode; the physicist as poet; conservation laws in Einstein's general theory of relativity; an elementary procedure for the evaluation of electric networks; canonical polynomials in the Lanczos tau method; rational approximations from Chebyshev series; accuracy of computed eigensystems and invariant subspaces; buckling of a beam under axial compression with elastic support; the frequency approach to numerical analysis; detouring around computational roadblocks—a tale of two integrals; the hypercircle method; lower bounds for the Dirichlet integral; the Koenig-Hadamard theorem again; significance arithmetic—on the algebra of binary strings; practical algorithms for finding the type of a polynomial; the edge-function method in elastostatics; generalised Lobatto quadrature formulae for contour integrals; spline functions and differential equations—first order equations.

The book's contributors are distinguished and its price is reasonable. The diversity of topics covered is likely however to limit the number of articles of direct interest to any particular reader, making it most suitable for libraries. The book is prefaced by a brief sketch of Lanczos' career and a list of his publications.

E. L. ALBASINY (Teddington)