8128), 495 become periodic with period 2 (amicable pair), and 54 lead into one of the two Poulet cycles.

For a review of Paxson's related tables see *Math. Comp.*, v. 26, 1972, UMT **38**, pp. 807-809.

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45 [10].—P. A. MORRIS, *Characteristic Polynomials of Trees on up to* 14 *Nodes*, University of the West Indies, St. Augustine, Trinidad, West Indies, December 1973. Ms of 8 pp. + 57 computer sheets deposited in the UMT file.

Herein are listed the coefficients of the characteristic polynomials of the adjacency matrices of all trees with 13 or fewer nodes.

The list was generated in two ways to provide a check on the calculations, which were performed on a 1 CL 1902A and an IBM 1620, respectively. The first method employs a theorem of Collatz and Singowitz [1], which asserts that if $\phi(T) = \sum_{k=0}^{n} (-1)^k a_k \lambda^{n-k}$ is the characteristic polynomial of a tree T on n nodes, then $a_{2k+1} = 0$ and a_{2k} equals the number of ways of finding k mutually nonadjacent edges in T. The second method uses a known decomposition theorem [2], which states that if u is a node of valency 1 connected to a node v, $T - uv$ is the tree (together with the isolated node u) formed by deleting the edge uv, and $T - u - v$ is the forest formed by deleting nodes u and v and their incident edges, then $\phi(T) = \phi(T - uv) - \phi(T - u - v)$.

A further check of the accuracy of the list was made by comparison with the corresponding data in the table of Mowshowitz [3], which includes all trees on 10 or fewer nodes.

AUTHOR'S SUMMARY

1. L. COLLATZ & U. SINGOWITZ, "Spektren endlichen Graphen," *Abh. Math. Sem. Univ. Hamburg*, v. 21, 1957, pp. 63-77.

2. F. HARARY, C. KING, A. MOWSHOWITZ & R. C. READ, "Cospectral graphs and digraphs," *Bull. London Math. Soc.*, v. 3, 1971, pp. 321-328.

3. A. MOWSHOWITZ, "The characteristic polynomial of a graph," *J. Combinatorial Theory Ser. B*, v. 12, 1972, pp. 177-193.

46 [12].—LOUIS D. GREY, *A Course in* APL/360 *with Applications*, Addison-Wesley Publishing Co., Inc., Reading, Mass., 1973, xviii + 332 pp., 24 cm. Price $7.50 (paperbound).

If this paper-back book were used merely as a reference manual for APL programmers, it would serve a useful function since it is well organized, comprehensive and well documented. But the text is far more than a work of reference. It is an excellent vehicle for teaching this most elegant and succinct language, one which is considered by some to be a serious competitor with