EDINBURGH REGIONAL COMPUTING CENTRE

Minutes of meeting of the Program Library, Sub-Committee held on Wednesday 31st January, 1968, at 3.30p.m. in the William Robertson Building.

PRESENT:
Professor D.J. Finney (in the Chair)
Professor P. Vandome
Mr. D.N. Allum
Mr. R.E. Day
Dr. J. Fulton
Dr. F.R. Himsworth
Mr. D. Kershaw
Mr. D. T. Muxworthy

1. MINUTES OF PREVIOUS MEETING.
There were objections to the naming of individual committee members. It was decided that the minutes should be kept in the restricted part of the Centre library.

2. THE PRESENT PROGRAM LIBRARY
The committee considered programs in various sections of 'Atlas Autocode Library Routine Listings' (paper B from the meeting of 12.12.67) and referred to the relevant program abstracts. It was felt that the Sub-Committee should specify priorities and comment on techniques but should not attempt to evaluate programs.

Interpolation
Routine aitken is a poor implementation of a good method.

Function optimisation
It was decided to concentrate on Davidon of gradient methods and Simplex b of direct search methods. Extensions of Davidon (a) for constrained problems and (b) to fit a quadratic surface in the region of the optimum would be desirable.

Matrix operations
It was felt to be better to have several specialised routines to deal with various types of matrix rather than to have one big general routine. Fast, crude routines should be available for appropriate jobs. The Centre would prepare a document, if possible for the next meeting, giving detailed comparisons of the applicability of current matrix routines. The committee was interested in points such as how sparse a matrix had to be before the sparse matrix routines could be used with advantage. A need was felt for a generalised inverse (in the sense of Penrose) routine, for complex matrix routines (low priority) and for an inversion routine which, optionally, would give high accuracy and indications of accuracy achieved.

Random number generators
Random k has been tested extensively by both Statistics Department and E.R.C.C. and has not been shown to give wrong results.

Sorting
Routine shellsort, or extensions thereof, was recommended for general use.

Plotting
Graph 2 should be extended to cope with unequal x-intervals.

Special functions
Needs were expressed for Bessel functions, a binomial distribution routine, inverse routines for Student's t, F and chi-squared and a double length logarithm routine. Routine nor should preferably be accurate to 11 decimal places instead of 8.

Linear Programming
For the time being users would be referred to the standard KDF9 L.P. package.

3. DATE OF NEXT MEETING.
It was agreed to hold the next meeting on Wednesday 28th February 1968 at 3.30 p.m.

(signed D J. Finney 29 [sic] Feb 1968)