(c) they stopped using the system directly themselves and introduced a 'human interface' which translated their requests into a form suitable for the system and translated the results back into a form suitable for direct human consumption.

3. The technical language. A factor which we have not explored systematically but which appears to influence a user's acceptance of a computer system, is the degree to which the general characteristics of his job have prepared him for the kind of activity necessary in computer use. Mathematicians, scientists, engineers, and others who have jobs which involve the formal manipulations of numerals and precise logical operations have little difficulty in recognising the need in computer use to, for example, unambiguously define terms, enter only accepted symbols in data fields, ensure complete statements are made, etc. To people whose jobs required different skills, e.g. the skills to understand and direct human behaviour, the blind logic of the computer can seem unreasonable and can be a considerable barrier to the achievement of good user-computer interaction.

4. Conclusions
The six factors discussed in this article represent our first attempt to list the variables which appear to underlie the differences in behaviour we found amongst naive computer users. Further investigations, particularly of user groups we have not considered, e.g. the public, may reveal others.

The one general conclusion that consideration of these factors leads us to is that task factors tend to define the sophistication of the service the user requires whilst the job/role factors define the effort he will be able and willing to provide to use the system. There is no guarantee that the sophistication needed and the effort that will be provided will be in balance, and the problem of a senior manager wanting to personally operate a complex model of his company is probably the best example of a mismatch caused by a clash of these factors.

In this article it has only been possible to describe these factors and discuss why they are important. So that useful design guidelines may result from this research it is hoped that future work will develop this framework in two ways:

1. An analysis of other user groups to examine where they stand on the factors enumerated and whether other factors are required to explain their behaviour. This analysis will necessitate the development of precise ways of measuring the factors described.

2. An exploration of the kinds of system, system interfaces, system aids, training schemes, etc. which will best serve each kind of user. Ultimately we would like, for example, to be able to give detailed answers to questions of the form, "What kind of computer dialogue will be needed for an intermittent user with a complex, unstructured task who is of high status and has no technical familiarity with the computer?"

Acknowledgements
The survey discussed in this paper was partly supported by a grant from the Social Science Research Council. The author wishes to acknowledge his great debt in developing and conducting this research programme to his co-workers, Leslie Damodaran and Tom Stewart.

References


New ANS FORTRAN Standard

The committee which has been revising the American National Standard FORTRAN has finally approved a draft proposed Standard. This draft is expected to be passed for further processing by the X3 Committee of ANSI during February and, if so, it will be open for public review from 1 March 1976 to 30 June 1976. The draft is to be published as a SIGPLAN notice and orders may be made direct to the ACM. A limited number of copies will be available from the Secretary of the BCS FORTRAN Study Group:

Alan Clarke, Computer Department, Rothamsted Experimental Station, Harpenden, Hertfordshire AL5 2JQ.

Volume 19 Number 1 7