APPLICATION OF THE PRINCIPLES OF TIME-SHARING
IN THE DESIGN OF A MULTIPROGRAMME DIGITAL COMPUTER.

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STATEMENT

This thesis contains no material submitted for any other degree in any University. To the best of my knowledge, due credit has been given in the text for the authorship of all material published previously by some other person.

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SUMMARY

This thesis is the result of a study undertaken in conjunction with the design of the digital computer CIRRUS, at present under construction in the Electrical Engineering Department of the University of Adelaide. The purpose of this particular study was to investigate the possibility of incorporating in the CIRRUS design facilities to allow multiprogramme operation on a time-sharing basis.

It is believed that multiprogramme operation would be highly desirable for CIRRUS. The chief grounds for this belief are that the efficiency of peripheral units should be considerably improved and that general operating conditions should be more satisfactory. For truly effective multiprogramme operation, the computer should differ considerably from a conventional computer. The characteristics of a multiprogramme computer and the effect which a computer of this form might have on various aspects of digital computing are discussed.

The most appropriate form for a multiprogramme operating system for CIRRUS is derived and the system which the author proposes should be used with CIRRUS is described in detail.