

This indicates that the number of instruction interrupts occurring was 33117, of which 184 were due to compiling.

Of the 32 store blocks requested, 25 were actually accessed. The flow of control through the program on the particular run might well have left some parts of the store untouched.

Two magnetic tape decks were used with 1294 block transfers and 5 seconds waiting time.

The input amounted to 36 blocks, i.e. about 1000 cards or 1200 feet of paper tape.

The output stream 0 consisted of 403 lines of printing and output stream 15 consisted of 25 cards.

Warning Sequences on Documents

(i) Paper Tape

We have already seen that the sequence *** can introduce an end of document marker A, C or Z. Other letters are permissible, but are not signals for the end of document so much as markers to introduce different parts of a document. The letters are B, E, F, P and T.

B introduces binary information until the physical end of the tape.

E introduces binary information until the next ***A or ***C or ***Z on the tape.

F disengages the reader so that when it is re-engaged the tape in the reader is read as binary information to its physical end. This sequence corresponds to ***T and ***B combined so that only one document is read.

P causes the parity checking of 7-track tape to be suspended to the end of document.

T disengages the reader so that when it is re-engaged the same document can be continued. This allows tapes to be split to manageable size.

The end of document markers are *** followed by A, C or Z.

A causes all the document so far read to be erased.

C causes the current document to be ended, but introduces a new document on the same tape.

Z causes the current document to be ended and the reader to be disengaged.

(ii) Punched Cards

All warning sequences are introduced by a 7 and 8 punch in column 1. The punching of column 80 is interpreted exactly as with paper tape. The letters in order are:

A abandon previous card document.

B read binary cards to end of stack.

C end current document and read next document.

E read binary cards until next end of document marker

F disengage reader, and on re-engagement read binary cards to end of stack as part of same document.

P suppress parity check on non-binary cards.

T disengage reader, and on re-engaging continue reading cards for same document.

Z end document and disengage reader.

Reference

Preparing a Complete Program for Atlas I
(I.C.T. Limited)

August 1964.

(This document is the latest replacement of Chapter 10 of the Atlas Provisional Programming Manual (CS 348), and also replaces an earlier document entitled "Preparing a Complete Program" dated September 1963.)

(4) USE OF MAGNETIC TAPES

Ampex Tapes

A programmer wishing to use the Ampex tapes must make a request for reels to be made available to him either by telephone or by sending a Magnetic Tape Request Card (see below) to:

Magnetic Tape Librarian,
Atlas Computer Laboratory,
N.I.R.N.S.,
Chilton,
Didcot,
Berkshire.

Telephone: Abingdon 1900 Extension 6640

If the request is by telephone a Request Card must be sent later.

National Institute for Research in Nuclear Science ATLAS COMPUTER LABORATORY MAGNETIC TAPE REQUEST CARD	Tel: Abingdon 1900 Extension 6640
NAME: ADDRESS: JOB NO: Please supply _____ magnetic tapes titled:	DATE: TITLE

It is important that every request should bear a title. Also, requests for tapes should be made as far in advance as possible before a job is run, since some preliminary work has to be carried out to label and address each reel required.

Upon receipt of a request the Tape Librarian will allocate a tape number in the series N0000-N9999 and this number must be given in references to a particular reel in the TAPE or TAPE NEW section of the Job Description (see page 12).

The programmer will receive a Magnetic Tape Allocation Card giving the tape numbers that have been allocated. It is, of course, possible for the tapes to be titled during the running of a program by the TAPE NEW facility, but to simplify the control of tapes users are asked to employ the request procedure as the normal way of obtaining tapes for private use.

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE ATLAS COMPUTER LABORATORY MAGNETIC TAPE ALLOCATION CARD	
The following magnetic tapes have been allocated to you as requested:	
TAPE NUMBER	TITLE
_____	_____

In general the Operating Staff will use the tape numbers for finding and loading reels, but the title, whilst not absolutely necessary to the operators, will be used by the Supervisor as an additional check that the correct tape has been loaded.

When reels are no longer required by the customer and can be released, the Tape Librarian should be informed by a written note.

Periodically a list of tapes held by the customer will be sent out, and users are requested to release tapes no longer required.

In the event of difficulty in reading a user's tape the Operating Staff will if necessary arrange, in consultation with the user, for a special reading and copying operation; the user of Ampex tapes will be informed of the new tape number to be used in all subsequent operations.

I.B.M. Tapes

A small quantity of IBM tapes will be available for internal use by the Atlas Computer Laboratory, but it is not expected that these tapes will be made available to users wishing to take away reels from the Laboratory. If reels are required for subsequent off-line processing at another installation, the customer's organisation must supply the necessary reels.

to request a person occupying a machine for longer than these times to vacate it.

Users are asked to inform the Head of the Data Preparation Section if they find that machinery is faulty, so that repairs can be carried out; programmers are urged to do this even if they move to another machine to carry out their own work.

Everyone using this machinery is particularly asked to ensure that the equipment is left clear of used cards or paper tape, and that unused cards are returned to the racks provided.

Care and Use of Paper Tape and Punched Cards

Users are reminded that paper tape and cards must be handled carefully. Anything sent through the post should be firmly packed and protected from being crushed. There are a number of commercial products available to ensure the safe transit of cards and paper tape, and those marketed by Punched Card Accessories Limited, Townsend House, Greycoat Place, London S.W.1 are recommended.

The following is a general guide to good practice:

(i) Paper Tape

- a. Keep all paper tape free from contact with dirty surfaces.
- b. Ensure that tapes are punched on equipment which has been correctly set. The requirements are given in the I.C.T. document "Specification of Dimensions for Punched Tapes" - CS 364.
- c. Use the paper tape specified for I.C.T. computers and made by Waterlow and Sons Limited, 85 London Wall, London E.C.2.. See I.C.T. document "Specification of Paper for Punched Tapes" - CS 363.
- d. Do not use oiled tape.
- e. If splices are necessary, they must be carefully made. The Atlas Computer Laboratory have found that the Daprotape Tape Splicer manufactured by Punched Card Accessories Limited produces a good splice and is efficient and accurate.
- f. Leave a 6" run-out at the beginning of the tape. On this run-out write a title which will enable the operators to identify the owner of the tape and the job to which it belongs.

(ii) Punched Cards

- a. Store cards away from heat and damp.

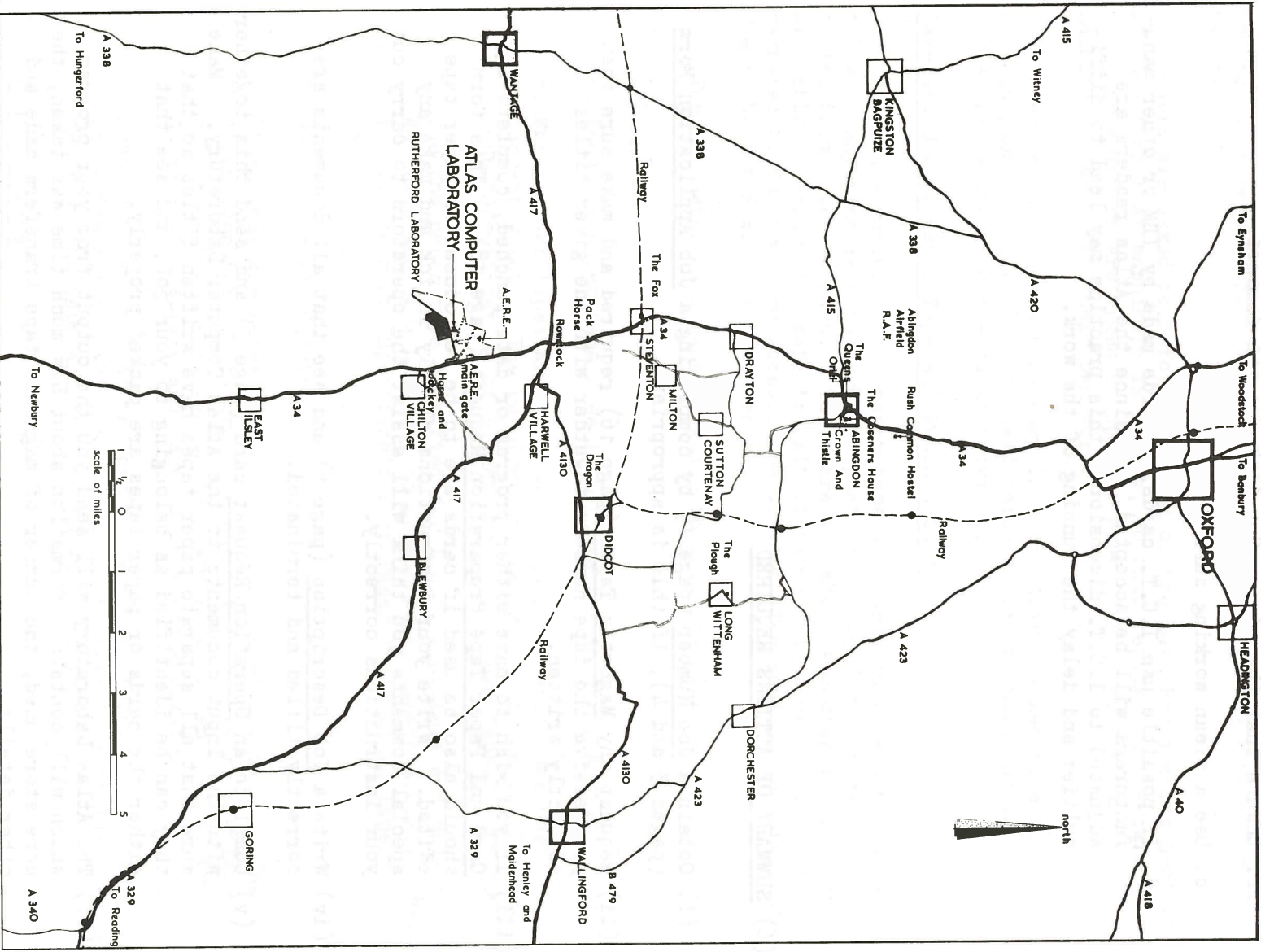
b. Ensure that the edges of a deck are not damaged.

c. Use a clean working surface.

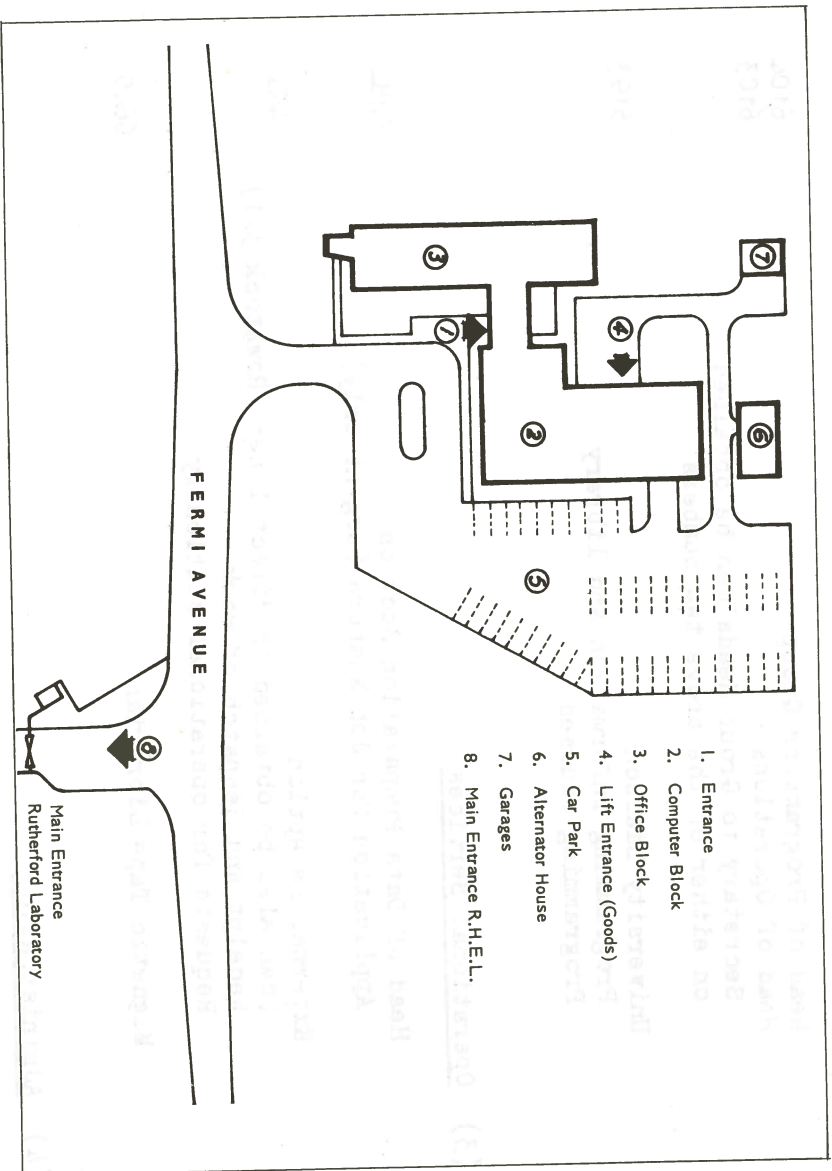
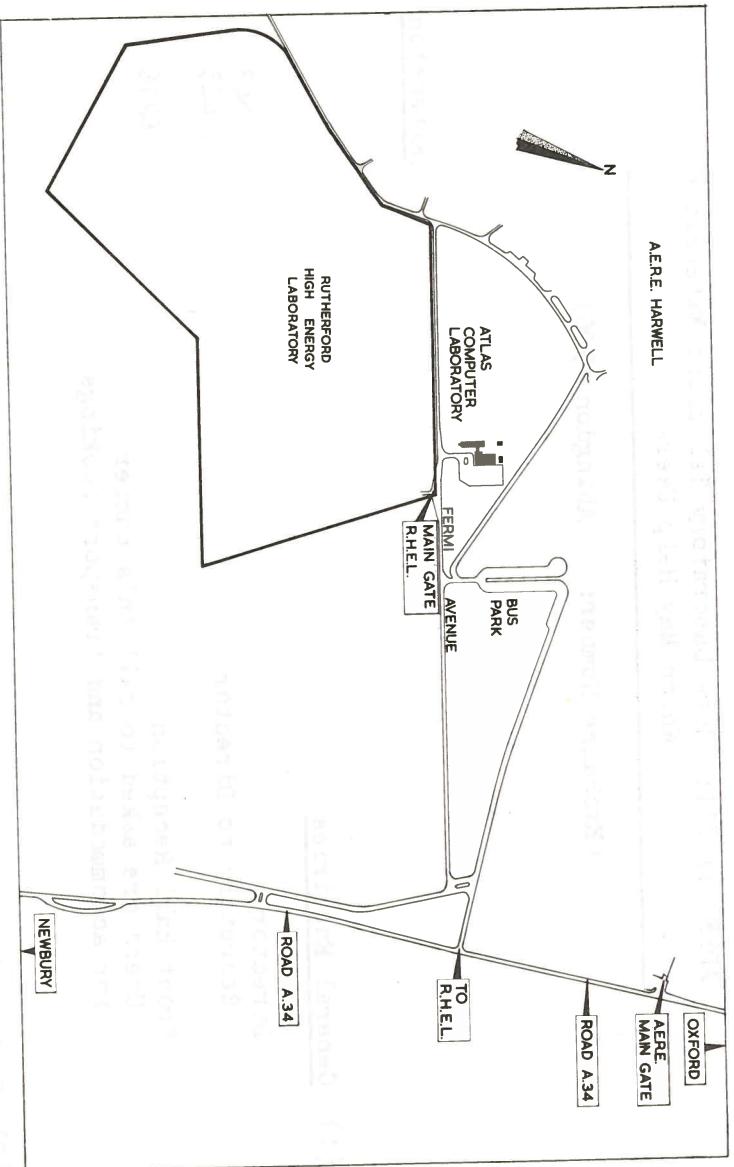
d. If possible use I.C.T. cards. Cards made by IBM or other manufacturers will be accepted, but since the Atlas readers are adjusted to I.C.T. dimensions, this practice may lead to difficulties and delay the running of the work.

(6) SUMMARY OF ACTIONS REQUIRED

- (i) Obtain a Job Number (page 1) by completing a Job Application Form (pages 3 and 4), if this is appropriate.
- (ii) Request any Magnetic Tapes (page 16) required and make sure that you receive the tape numbers together with the given titles correctly written.
- (iii) If you wish to have either program or data punched, complete a Card and Paper Tape Preparation Request (page 18). This form should also be used if cards are to be reproduced or paper tape edited. Write your instructions clearly in ink and make any special comments you think will assist the operators to carry out your instructions correctly.
- (iv) Write a Job Description (page 6) and see that all documents are correctly titled and terminated.
- (v) Complete an Operation Request card (page 5) and send this together with the input documents to the Atlas Computer Laboratory. Make sure that all separate paper tapes have written titles so that they can be identified as belonging to your job, and see that either the cards or paper tapes are packed properly.
- (vi) The Atlas Laboratory will send you the output from your program which will contain information about how much time was taken, the core store used, the number of magnetic tape transfers made and other details.
- (vii) If you have any difficulties, consult the Atlas Laboratory. The list of telephone extensions given in Appendix III will help you.



APPENDIX I: Map showing situation of the Laboratory



APPENDIX II: Approach to Laboratory and plan of building

APPENDIX III: Some Laboratory Telephone Extensions
Which May Help Users

(Exchange Number: Abingdon 1900)

Extension

(1) General Enquiries

Director 547
Secretary to Director 423
Front Hall Reception 6296
Users are asked to call this number
for accommodation and transport bookings

(2) Technical Enquiries

Head of Programming Group 6104
Head of Operations 6103
Secretary to Group Heads can be obtained
on either of the above two numbers
University Liaison 6193
Programming information and library
Programming courses

(3) Operational Services

Head of Data Preparation Section 6284
Application for Job Numbers (urgent only)
External Reception 429
(can also be obtained on direct line: Rowstock 321)
Receipt and despatch of work
Requests for operational stationery
Magnetic Tape Librarian 6640

(4) Administration

Laboratory Administrative Officer 6106

