



RUTHERFORD

# FORUM

195 COMPUTER NEWSLETTER

FORUM CENTRAL COMPUTER NEWSLETTER

Number 5 April 1978

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Electric Update Number 2

Published by: User Support Group  
Computing and Automation Division  
Rutherford Laboratory  
Chilton, Didcot, Oxon.  
OX11 0QX.

SECTION 1 195 GROUP REPRESENTATIVES MEETING (5/4/78).

The programme was as follows:

09.30 Introduction

09.35 General Meeting

Updated notes for the meeting are given here. Formal replies to questions of general interest are provided.

10.30 COFFEE

10.50 Time Allocations - C & A Policy

11.20 Two User Reports

illustrating uses and practices on the 195.

12.20 Parallel Category Meetings.

For discussions with Category Representatives.

LUNCH

13.50 Graphics Facilities - A review of the FR80

14.55 (Parallel Session) Remote Users' Meeting

15.00 (Parallel Session) Category Representatives Meeting.

15.30 FINISH

ATTENDANCE

C & A DIVISION

A W Burraston, E B Fossey, R M Freeman, J A Hambleton,  
P J Hemmings, A T Lea, D F Parker, D H Trew, A W Tucker,  
W Walkinshaw, S H Ward.

Category Representatives

J Barlow	BCRG
I Corbett	HEP
N J Diserens	Tech RL
K C Jeffery	NERC
B Martin	NP Theory

## Group Representatives and Others

G S Baxter	IGS
C J Bennett	UCL/ARPA
R Bentley	IOS Bidston
C Blamey	AWRE
D R S Boyd	CGA
R Butt	Admin RL
D Candlin	Edinburgh
R Carter	NERC Central Computing Group
J E Conboy	UCL Film Analysis
D Crennell	BCRG
P D Davis	Sheffield (Chem)
E Eisenhandler	QMC/RL
D Ezra	WA4/Manchester
F Gault	Durham/Theory
J Gerratt	Bristol
E Golton	Appleton Lab
M Grayson	Sheffield Univ (Chem)
P J Grant	Oxford Theoretical Chemistry
K Guettler	UCL Counter
B M Harris	RG0
J C Hart	HEP
J Hopkins	Daresbury
J Hutton	WA4/Data Handling
J Lang	ARD Culham
M D Lawden	Appleton Lab
C Leary	IOS Wormley
A P Lotts	Durham/Film Analysis
J B MacAllister	Oxford
F MacDonald	Birmingham FA
D M McGregor	ISC Newbury
B Mack	RG0
R Martin	ROE
R Maybury	HEP/DHG
A J Middleton	Tech RL
D J Munday	Cavendish Lab. Cambridge
P J Negus	Glasgow FA
B Pollock	Westfield
T Quirk	MSSL
D Scott	NERC/ITE
T P Shah	HEP
A J Skarnulis	Oxford Univ
K W Smith	Comp Section F/A
J Smyth	Forestry Commission
S W Treadwell	ARPA/UCL
N West	Oxford Film Analysis
J Young	AWRE

# NOTES FOR 195 REPRESENTATIVE'S MEETING 5 APRIL 1978

## 1. INTRODUCTION

There had been little change in the general situation over the previous 4 months, although with the imminent closure of the 1906A there had been a continual process of transfer of users to the 195's.

## 2. HARDWARE

### 2.1 General

The new 3830 Disk Control Unit has been purchased, and has now replaced the rented one which was installed in December.

The 3830's are to be modified in the near future to incorporate the string-switching feature, so that both Control Units can communicate with both banks of drives.

### 2.2 Performance

The performance of the 195's over the previous 4 months was satisfactory.

### 2.3 Shutdowns

The shutdown for air-conditioning maintenance on 22nd - 25th April went ahead as planned.

### 2.4 Maintenance

The maintenance dates and times for 1978, published in the last FORUM, still stand.

### 2.5 System Development

The system will continue to be required for System Development on Tuesdays and Thursdays from 17.30 to 19.00.

## 3. SYSTEM SOFTWARE

### 3.1 HASP and OS

There was to be a HASP Cold Start to introduce more workstations at the end of one of the Bank Holidays in May. This was later postponed until 12th June.

### 3.2 ELECTRIC

A second archive disk has now been introduced. This is known as Level 2, the original archive disk is Level 1 and the online file is Level 0. Archiving to Level 2 is achieved by adding the parameter setting LEVEL=2 to the ARCHIVE command; otherwise LEVEL defaults to 1. The ARCHIVE command with parameter LEVEL may also be used for moving files from one archive level to the other. The RESTORE command is unaltered, and always restores the file to Level 0.

Space for both archive levels is now controlled online. Users are credited immediately with the number of blocks which will be released by archiving, and vice versa for restoring. The ARCHIVE or RESTORE command will produce a fault if the relevant block allocation is exceeded. Users may examine their archive block accounts with the command ROOM TYPE=ARCH. Requests for increased block allocations should be made to the Program Advisory Office.

Archiving from Level 0 or Level 1 to Level 2 only takes place on Saturday night, but files waiting to go from Level 0 to Level 2 are moved to Level 1 during the week, pending the move to Level 2 at the weekend. This temporary space on Level 1 is not taken from the user's Level 1 allocation. Archiving to Level 1 and restoring from either level take place every night. Restoring from Level 1 only also takes place four times a day, on weekdays only, while ELECTRIC is online, at 10.00, 12.30, 15.00 and 19.30. Consequently files which may be required at fairly short notice should be archived to Level 1, and files for which an overnight restore is sufficient, to Level 2.

The level 0 directory entry for a file which has been archived contains a) the owner's identifier, b) a pointer to the file on the archive disk, c) the total number of blocks comprising text and edit parts and d) the two character Status Indicator. The second character of the Status Indicator is 1 or 2, indicating on which level the file exists. The first character has one of the following values:

- A - Archived
- D - Waiting to be deleted
- M - Waiting to be moved from one archive level to the other
- R - Waiting to be restored to Level 0

Because the directory entry for archived files now contains information on the size of the file, the retention date has been removed from the directory entry. Users trying to delete an archived file whose retention date has not yet passed are not now informed that this is so, and the file is marked with a D for deletion. When the archive/restore program runs

overnight the retention date is taken into account, and the file not deleted, but marked with an A again; the user is not informed of this.

The new edit command \$Q (QUIT) can be used instead of \$\$%ACTION=NO, and has the same meaning, that is, to wipe out all the editing performed in the current operation. This only applies to modifying text or edit files, and appending to edit files.

There is now a queue for LOGIN when there are already 50 users logged in. The maximum queue size is 8, and users may log-out from the queue with the LOGOUT command.

A new check-type, CH=DS, is available for use with \$P. This is for planting data-set names where the name consists of several qualifiers separated by dots. If the \$P has CH=DS specified, then the value of the planted parameter must not be enclosed within quotes. Each of the qualifying names must be alphanumeric, and begin with a letter.

A new device type, DEV=12, is available and has the same characteristics as DEV=3, but with 100 characters per line and 60 lines per page. This is specifically for the range of Tektronix graphics displays which have the modification incorporated to allow twice normal output density.

Some commands can now be abbreviated to single letters; the full list of user commands is as follows:

APPEND	- AP	FIND	- F	RENAME	- RE
ARCHIVE	- AR	LIST	- LI	RESET	- RESE
CANCEL	- CANC	LOGIN	- L	RESTORE	- RES
CHANGE	- CH	LOGOUT	- LOGO	ROOM	- R
CLEAR	- CLEA	MAIL	- MA	SCRATCH	- SC
COPY	- CO	MESSAGE	- M	SETDIRE	- SE
CREDIRE	- CR	MODIFY	- MOD	STATUS	- STAT
DELETE	- DELE	PARM	- P	STOP	- S
ENTER	- EN	PRINT	- PR	TAPE	- TA
EXAMINE	- EXA	PUNCH	- PU	TYPE	- T
EXECUTE	- E	RATION	- RATI	USERS	- U
NULL	- NULL				

### 3.3 Compilers

The new Fortran G1 Compiler has not yet been installed.

### 3.4 MAST

Each terminal connected via MAST to ELECTRIC or some other destination is allocated a slot identified by its terminal address. The majority of terminals have fixed addresses and

ELECTRIC is able to keep tables of device characteristics and default ROUTE values. Some terminals - those connecting via dialup or via the NCP - do not have fixed addresses and that is why users of such terminals have to supply DEV and ROUTE when logging in to ELECTRIC.

Except for a few special cases, terminal addresses are confined to the range 0 to 255. Growth over the last few years has almost exhausted the supply of addresses but further terminals continue to be added to the system.

The following steps are being taken. In the short term, unused terminals are being detached and the slots reissued. In the medium term, steps can be made to extend the range of terminal addresses. However that step could cause an extra overhead on the system which will be reduced in the long term by introducing hardware contention units with many terminals contending for a pool of slots.

### 3.5 I.D.M.S.

The introduction of the Tape and Disk Management System is running according to plan, and the Local Library was introduced on 25th April, after the air-conditioning shutdown. The change should be transparent to all users except those accessing foreign tapes, for which it is now essential to specify the UNIT parameter on the SETUP card, i.e.

```
/*SETUP VOLID,UNIT,LABEL
```

### 4. DISKS

Users should note that datasets are deleted from FREEDISK and ATLAS under the following circumstances:

i) The dataset is illegally named, or the month name used in the dataset name is neither the current nor the preceding month.

ii) The dataset has been unused for more than 15 days (that is, the Last Use Date is more than 15 days beforehand).

iii) The dataset has not been opened (that is, there is no Last Use Date).

Please note, however, that there is a bug in date-stamping which causes the second and subsequent datasets of a concatenation not to have their Last Use Date updated; this has occasionally led to datasets being deleted when they have, in fact, been recently used.

## 5. WORKLOAD

The workload is being contained, and we are continuing to meet all objectives.

## 6. WORKSTATIONS AND TELECOMMUNICATIONS

A wide range of activities require some comment at this time. A terminal switching system (TSS) has reached implementation stage and now 16 terminals on the Rutherford site can choose to select any one of 16 ports on various computers (360/195, PRIME400, DN82 for ICF use). This system is in process of expansion to cover 48 terminals to 48 ports.

A remote unit is being supplied by the Post Office to slave the call and speak facilities of private data wires from the Telecommunications area of building R26 to the main operations area. This will greatly improve contact for 'out of hours' users.

Work going ahead by the Telecommunications Group includes provision of the main site 'traffic light' system at workstations and the design and implementation of paper-jam detectors for Tally printers.

New installations have been attached to the 360/195 at Exeter (GEC2050 replacing the ICL 7020 connected to the 1906A) and the Transport and Road Research Laboratory at Crowthorne. Core store upgrades are pending for Oxford and University College London to enable increased ELECTRIC terminal provision. Other work imminent in this area is a re-siting of facilities at Southampton. New GEC2050's have been purchased for Cambridge University (installation due March 1978), DESY Hamburg (April/May 1978) and RL Finance and Admin Division (March 1978).

Versions of the Mark 7 bootstrap loader cassette are being distributed. This gives the facility of issuing SIGNON information from the card reader as previously, and also from the main console. With the card reader the format of the /\*SIGNON card is as before but to input from the console, depress the sense key and type in your remote number followed by a space and then the software version name, which MUST be in upper case characters, viz:

23 N3P2

followed by carriage return and line feed.

Some new facilities available in some software systems are



.CLEAR PRn

where n is the printer number in your system. This is mainly of value in multiple printer systems when one printer becomes so faulty as to be unusable, but has a print job assigned to it by HASP. To clear that job from the printer issue the commands to HASP -

\$PRMmm.PRn	Stop Remote Printer n
\$ERMmm.PRn	Reset Remote Printer n

This can be followed by RESET/START on the GEC 2050 as previously, or by the command

.CLEAR PRn

which will effectively release the buffers, provide the necessary interrupt to HASP to obey the HASP commands, and return the job to the print queue.

.ALL any message you wish

This can be entered on some systems when the link to the 360/195 goes down (or the 360/195!) to provide supplementary information if available for terminal users. When the link goes down, an automatic restart is entered giving the message

PROGRAM RESTARTED

At this time, before COMMUNICATION ESTABLISHED appears, the .ALL message can be entered at the main console.

Subsequently a terminal user, on inputting, will receive the response (for example)

REMOTE MACHINE NOT RESPONDING TO GEC2050  
SYSTEM DEVELOPMENT PERIOD ON 360/195 UNTIL 1900

A newsheet will be issued in due course indicating which facilities are available in which versions, and the default version for various workstations indicated.

## 7. SHORT ITEMS

### 7.1 Card Punches in R1

An audit of these punches was carried out in January. Two are to be replaced, the remainder are to be brought up to standard.

## 7.2 SMOG

A reprint of Graphics Usernote 10 is being prepared, and has been modified to include descriptions of routines for producing graphs with chains of similar symbols, and to improve control over the size and shape of all DRPLOT graphs and histograms.

## 7.3 CIGAR

Catalogued procedures are being written to allow the user to easily print separate sections of CIGAR.

## 7.4 Remote\_23\_Printers

A notice was distributed to Group Representatives in R1 regarding the problems encountered with the Remote 23 line printers. It is reproduced as Section 4 of this Forum.

## 7.5 Staff\_Changes

Alan Bryden, who for some time has been working on the GEC4070 developments within C&A Division, has joined Atlas Computing Division.

Margaret Curtis is currently on 6 months leave of absence. She has been responsible in the past for most of the work on the COPPER system, including the ++H commands.

Andrew Lea, formerly head of User Support Group, left the laboratory at the end of April; Bart Fossey is now head of the combined User and Grant Support Groups.

## 7.6 Copying\_FR80\_Output

Users are warned that the FR80 must not be used to duplicate film, etc., as this is a very expensive method. The first copy only may be produced on the FR80, and the user must get it duplicated at his own expense. We can introduce users to a copying service if required.

## 7.7 CERN\_Library

We have received a copy of the CERN Library in Load Module form. It is at present held in the library SYS1.CERN360. Routines may be obtained from it on auto-call by specifying CERNLIB='SYS1.CERN360' on the EXEC statement. These modules are at present untested, and users should inform P.A.O. of any problems that occur. The procedure LISTLIB did not at first work with this library, but has now been changed.

## 7.8 I/O Count

The number of I/O's for disk and tape is now printed in the HASP Log for every job.

## 7.9 Program Advisory Services

From 8th May we shall only be manning one P.A.O.. It will be situated in the user area in R1. The telephone extension will be 6111, and the ++U terminal will be sited in that office.

## 7.10 Magnetic Tapes

Users sending Magnetic Tapes to the Tape Librarian for use on the 195's should include the following details:

- a) Owner's name.
- b) Address for return of tape.
- c) Account number and personal identifier.
- d) Tape density.

## 7.11 MORTRAN

A preprocessor for FORTRAN, called MORTRAN2, is now available on the 360/195. It was written by L. J. Shustek at SLAC, where it has been used for a number of physics data analysis programs.

A User's Guide is available from Brian Bracher (Building R1) or Chris Osland (Building R27). There is also a user's note in the ELECTRIC file DDMAINDR.MORTRAN.USERNOTE.

## 7.12 Data Editing System

In October 1977 approval was given for the purchase of a GEC 4000 series machine in order to provide some additional capacity for ELECTRIC functions at RL.

The hardware for this system (commonly referred to as the Data Editing System) is being delivered during the second half of March 1978 and it is intended that a prototype service be offered to central site users beginning in July 1978. Network developments, especially those within OS4000, are expected to be sufficiently far advanced to allow the system to be available to users via GEC 2050 workstations sometime during the Autumn of 1978.

In summary, the functions to be provided may be said to be broadly equivalent to those available at an ELECTRIC terminal, with the exception of stored edits.

### 7.13 ALERT\_Files

We have established an ELECTRIC directory DOC=ALERT which will contain a set of files. For example, DOC=ALERT.RHELIB contains a list of current problems associated with routines in the Rutherford Library. We shall eventually establish several such files. The current set can be seen by - TYPE DOC=ALERT.

### 7.14 User\_Course

Two further courses in the above series have been arranged on the following dates: 27th to 30th June 1978; and 5th to 8th September 1978.

Applications are invited for places on such courses, which are held in the Cosener's House, Abingdon. The number of participants on each course is restricted to about 18. Applications should be sent to Peter Hemmings stating name, address, telephone number, group, ID/ACCT, date of first use of the 195, previous computing systems used.

### 7.15 ULIB.ATLAS74

The User Library ULIB.ATLAS74 is no longer available for public use. It is possible to restore members from archive into this library but once this had been done they must be moved immediately into a current library, and not used from ATLAS74. We reserve the right to delete members from this library at any time, without reference to the owner.

### 7.16 Cambridge\_Editor

A new version of the procedure EDIT, which corresponds with RL-77-136 (Rutherford/Warwick/Cambridge Editor User's Guide), has been installed. It contains a single step, not two like its predecessor, and currently uses 160K, although this will shortly be reduced.

### 7.17 Procedures\_CLIST\_and\_CONVERT

New procedures CLIST and CONVERT, which are very much faster and more flexible than their predecessors, have been installed. The new procedures run in 100K, not 72K and 50K as before. Details of the new facilities will be circulated with the next update to CIGAR.

### 7.18 Procedures\_using\_the Loader

Catalogued Procedures have been set up for FORTRAN, COBOL and PL/1 compile, link and go jobs, which use the Loader instead of the Linkage Editor. They are described in Section 5 of this Forum.

## QUESTIONS RAISED AT THE 195 GROUP REPRESENTATIVES MEETING

Q1. Could a message be issued at login indicating when the next ELECTRIC restore will take place?

A1. The program to restore files from the level 1 archive disk runs at 10.00, 12.30, 15.00 and 19.30 from Monday to Friday as well as the usual overnight run every night. To find out when this job was last run, the command STAT JOB=ELARKIVE may be used. (T G Pett)

Q2. Is there plenty of room in level 1 archive?

A2. Space on the online pack is very short, but there is plenty of space on both level 1 and level 2 archive.

Q3. How much response to 'light harassment' approach when circulating lists of unused files?

A3. It is the users' responsibility to look after his data with appropriate backup etc. C & A Division cannot accept a commitment to keep data on public disks indefinitely because online data should earn its keep. Therefore we rely on information from the users to guide us on which data to continue, which to discard. It also saves having to make arbitrary deletions. We assume that users who ignore the questionnaires are content when such deletions are made. (P J Hemmings)

Q5. Would some of the problems be alleviated if attempt to access an archived file automatically restored?

A5. Yes, but it would create other problems. For instance, trying to type a file can be a quick way of finding out if it is archived although you may not wish to restore it. Even if the facility was restricted to \$A, it would only catch the first one. (T G Pett)

Q9. If a keyword is typed incorrectly in PARM command, is it possible to change it without losing all parameters with NULL command?

Q10. On login through a contender can the device and route be returned to the terminal?

A9/10. The ELECTRIC version 3/5 allows an erroneously named parameter to be cancelled by reassigning it with a null value. It also extends the login response to give the route and device characteristics of the terminal. (T G Pett)

Q11. Could creation date be checked if more than 15 days, then delete (instead of Last Use Date)?

A11. Quite a few data sets are created which never have data written into them - some taking up large areas of space. FREEDISK continues to be short of space and we have to take all reasonable steps to recover as much space as we can. In certain cases this is done by reducing the size of the data set if it is considerably overallocated. In others the data

set is moved elsewhere. The last two moves are done after consultation with the user. (P J Hemmings)

Q12. Will the next user course clear the backlog?

A12. Yes, except for a few who were unable to attend the April course. Applications are currently being invited for two more courses. The dates are 27/30 June and 5/8 September. (P J Hemmings)

Q13. Would it be possible to devolve some USG work to local representatives by giving them extra training?

A13. Almost all the information in RL-76-032, "The Role of the Nuclear Physics Computer Representative" is still valid. Much of the information is equally applicable to non-HEP groups also. The document lists several ways in which local representatives can help. User Support Group are willing to meet any representative needing training. (P J Hemmings)

Q14. Could MUGWUMP files be scratched from an ID other than the owner's ID?

A14. It looks as though the easiest way to do this would be to give the required access to any ID which is a partner to the owner's main directory. This might also be extended to accessing archived files. Both these features are incorporated in ELECTRIC version 3/5. (T G Pett)

Q15. Is I/O likely to be used on job card as an accounting parameter (like time-chop)?

A15. No, but I/O count will probably be used as one factor of an accounting algorithm. (G H Adamson)

Q16. Can library members be deleted from archive?

A16. No, they are kept on tape and it is not possible to remove data from the middle of a tape. (G H Adamson)

Q18. Is the default member restored to a library the latest that was archived?

A18. The default member to be restored is the latest that was archived, but due to an unfortunate choice of options setting up the ELECTRIC retrieve job, this default was not invoked. This has now been corrected. (G H Adamson)

Q19. Can the archive program preferentially archive only the large modules from a library?

A19. It is not clear that small unused modules are better candidates than large unused modules for being kept unarchived. If these small modules are of general interest, surely they should be kept in a public place and their descriptions published. (G H Adamson)

Q20. Is there any way in which users can tell where their tapes are located, ie whether they are in the local, home or archive tape libraries?

A20. Until a more powerful facility is released later on, users may ascertain the location of one or more tapes by submitting a batch job as follows:

```
//jobname JOB job-parameters
```

```
// EXEC TDMSLIST
```

```
tape 1, tape 2, tape 3, ....., tape n,
```

with as many request statements as desired. Note that each statement is terminated by a comma.

ELECTRIC users may submit a job from the jobfile as follows:

```
EXEC JOB=TDMSLIST,TAPE=tape
```

```
or EXEC JOB=TDMSLIST,TAPE='tape 1, tape 2,...'
```

```
or EXEC JOB=TDMSLIST,LIST=filename
```

where filename is a file containing a series of request statements. (S J Tunstall)

Q28. Do all GEC 2050 printers have paper-jam detectors?

A28. The MDS printers originally provided under the GEC 2050 purchase by Rutherford Laboratory, were equipped at the request of RL with paper-jam detectors. The actual manufacturers have never fitted this equipment, nor agreed that it was necessary. This latter fact also applies to the Data Products printers currently supplied by GEC and in this case, GEC have preferred to follow the manufacturer's line:- "Paper Jams are best avoided by correct operational procedures rather than putting the printer offline when one occurs".

(C Balderson)

Q29. ++H on remote 64 console not available.

A29. There is increasing pressure on the pool of MAST numbers. Where a workstation has other terminals in the vicinity, we do not now issue MAST numbers for the console which is then reserved for controlling the workstation.

eg. \$DJ123 gives similar information to

```
++H STAT JOB=123
```

(C Balderson).

Q30. Are there any plans for linking the CERN workstation into the CERN Network?

Q31. Will the 195 and 168 be linked directly?

A30/31. Some experiments have been carried out with Daresbury Laboratory to study the feasibility of connecting workstation facilities to more than one HOST. So far these experiments are encouraging and some collaborative experiments with CERN are now being sought. (C Balderson)

Q32. With the .CLEAR PR1 command why not make this submit the \$ERnn.PR1 command?

A32. A long-standing principle with the GEC2050 software has been not to incorporate command language messages from other systems such as HASP, ELECTRIC etc against any remote possibility of a change of structure or withdrawal of a facility which might invalidate the entire software. Clearly this argument has some but not necessarily over-riding validity. Since this particular facility (.CLEAR PR1) is

intended for use only in rarely achieved disastrous situations, and is of no value whatever unless an alternative printer is available to print the 'cleared' job, it is not felt to be a sufficiently good case for going beyond the above principle. In the event of a printer becoming entirely unusable but to which a print output is assigned by HASP, and there is an alternate printer available - and your software supports the command, the recommended command sequence is:

```
$PRMnn.PRj 'Stop Printer' command to HASP
$ERMnn.PRj 'Reset Printer' command to HASP
.CLEAR PRj  Command to GEC2050 program to release buffers
              associated with printer and return print job
              to queue. (C Balderson).
```

## SECTION 2            FCC & RLCAC COMPUTING COMMITTEES

### The Facility Committee for Computing

The FCC held a meeting on 8 February at which the following CPU time allocations for 1978/9 were approved:

ASR	600 hrs
ENGINEERING	650 hrs
NUCLEAR PHYSICS	6600 hrs
SCIENCE	1810 hrs

These times are 195 equivalent CPU hours and cover both the Rutherford and Daresbury machines. The meeting then considered the "Five year forward look" proposals covering money, manpower and CPU time from 1979 to 1984. The four boards have predicted their CPU time requirements by 1983/4 will be:

ASR	700 hrs
ENGINEERING	1250 hrs
NUCLEAR PHYSICS	6600 hrs
SCIENCE	2560 hrs

Compared to the allocations for 1978/9 the growth areas clearly are in the Engineering and Science Board areas.



Other items discussed at this meeting included:

- i) a revised financial policy for the purchase and running of remote workstations.
- ii) the Computer Board's proposed 10 year provision strategy.
- iii) a further report from the CB/RC Networks Unit, this one concentrating particularly on the cost and manpower requirements the SRC might be called upon to provide as its part of a more general CB/RC network.
- iv) SRC's plans to move towards integrating its various networks.

This meeting was the last to be chaired by Professor Sir Hermann Bondi. He is now leaving the committee. The next chairman will be Professor R J Elliot from Oxford (Theoretical Physics Dept).

#### Rutherford Laboratory Computer Advisory Committee

At its meeting on 20 December 1977 the committee mainly discussed workstation matters in one form or another, partly to advise the Director on items which subsequently came before the FCC eg workstation purchase policy. Of the remainder some notable points were:

- i) RLCAC recommended installing a remote workstation at Exeter.
- ii) they also recommended studies should be made on the feasibility of installing workstations at Surrey, and a second one at Manchester (direct to the 195's).
- iii) discussions were continuing on the provision of an enhanced RJE station at UCL based on a GEC 4070.

Most of the jobs sending output from the 195 to the FR80 use the HASP spool mechanism. This is done by specifying SYSOUT=(G,,camera) in the JCL for graphics, or SYSOUT=(M,,format) for text on microfiche.

At various times during the day the DESPOOL program copies the spooled output to tape. Each camera and format requires a separate tape.

Under certain circumstances users write their own FR80 output tape and have to make special arrangements with the FR80 operator to have it processed on the FR80 with a particular camera. The two commonest reasons for not using the spool are if the amount of output exceeds 10 Mbytes maximum (1.0 Mbytes by default) or if the tape is to be preserved. The normal camera schedule described later on applies to spooled output. Private FR80 tapes are processed after any spooled output for a given camera.

### Turnround

The time taken between job submissions and the user receiving his FR80 output depends on many factors, particularly if the output has to be sent via post or a courier service. (See the table opposite).

When the FR80 is staffed for two or three shifts per day then it is possible to provide the regular service described below. On occasions however, it is only possible to staff the FR80 for one shift and only a reduced service can be offered. When that happens, mounting the special cameras may be delayed up to 24 hours. Under the present arrangements the FR80 is manned for one shift only for about two days every three weeks or when forced by leave or sickness. The FR80 does no processing on Saturdays or Sundays.

The normal service is now described for each camera but it is not a guarantee. The schedule is designed to give an acceptable turnround bearing in mind that each camera change takes approximately 15 to 20 minutes and wastes materials in setting up the camera, particularly for hardcopy and microfiche.

Any operational problems should be directed in the first instance to R Brandwood (extn 6671) or the FR80 operator (extn 239). If you need any advice on film making or other special applications, contact P M Nelson (extn 498).

There is:	Affected by
Time to submit the Job	(a) Machine Availability (b) RJE Availability (c) Postal Service
Time in Job Queue and Execution	(a) Job Class (b) Job Priority (c) TDMS/Setup requirements
Time to clear printed output until a revised version of HASP allows the step to be omitted	(a) RJE Availability (b) Special Forms (c) Print Priority
Time to Despool	Regular times are (approx): Mon-Fri 0800, 1200, evening Sunday 2345 Other times according to workload, usually once during evening (night)
Time in Camera Queue	FR80 schedule (see below)
Chemical Processing Time	
Sorting for Distribution	
Awaiting collection by Post or Courier	
Delivery time	(FR80 output is sent by 2nd class post)
Sorting at the Remote Site	

### Hardcopy

Work despoiled at 0800 will be processed later on the same morning. It should be available for collection after lunchtime. Some of it may catch the lunchtime courier for R1. It should catch the Oxford courier and the afternoon post.

Work despoiled at 1200 will normally be processed in the afternoon. It should catch the R1 courier but not the Oxford courier. It will catch the afternoon post.

Work despoiled during the evening will normally be processed

the following morning and catch the lunchtime courier and the afternoon post. However, when the workload justifies it, the camera may be mounted the same night in which case the work will be available for distribution the following morning.

### Microfiche

Work despoiled at 0800 will normally be processed in the morning and be available for collection from the central computer by midday. It will catch the lunchtime courier for R1, the afternoon courier for Oxford and the afternoon post.

Work despoiled at 1200 will normally be processed during the afternoon except Thursdays and will be available for collection by 1600. It will not catch the afternoon courier to R1, nor will it be posted the same day.

Microfiche despoiled during the evening will be processed that night and be ready for collection the following morning. It will catch the early courier for R1 and be posted during the morning.

### BW35 and PR16

These cameras are normally mounted during the evening/night only. Therefore a job should be submitted with sufficient priority to ensure catching the evening despool (typically around 1930). In particular jobs submitted at priority 6 or below are likely to lose a night in the camera queue.

### BW16

This camera is only mounted on Tuesday night and Thursday night. The critical times are therefore the Tuesday evening and Thursday evening despool but note that the 195 is usually unavailable between 1730 and 1900 those evenings. Note that PR16 is available more often than BW16 which should only be used for debugging work eventually requiring colour 16mm.

### Colour

This camera is mounted once per week during Wednesday evening/night. The critical time is the Wednesday midday despool. Colour processing is operationally more involved and the work will not be ready for distribution until Thursday

afternoon. If the amount of work is large ie. more than 2000 frames of 16mm or more than 500 frames of 35 mm, the final processing has to be contracted out, requiring 7 - 10 days. Hence it is important to debug colour films using black and white film before involving the lengthy expensive colour processing.

#### Use of Private Tapes with the FR80

Users writing a substantial amount of output to the FR80 may need to use a private tape to avoid overloading the spool. Another reason for using a private tape is if the FR80 output is to be preserved, although generally it is much cheaper to have film or microfiche copied using standard services than to process it on the FR80. Details of the system for using private tapes are available from RL PA0.

It is not necessarily true that a large quantity of FR80 output means more FR80 processing time - it depends on the commands being generated. Work may be accommodated within the normal camera schedule along with the despoiled output if the operators have reason to think it will use little FR80 time. Other work will be processed when time is available.

#### SECTION 4 USE AND MISUSE OF LINEPRINTERS

Several users in R1 were experiencing problems with the self-service lineprinters on remote 23. Such problems as paper jamming, overprinting, faulty stacking etc. were cited.

We decided to institute an operator check of user behaviour on this workstation. This has been carried out for 6 weeks from 5 December 1977 to 14 January 1978. During those 6 weeks some 3.5 million lines of output were printed on the two (remote 23) printers. This clearly indicates heavy use, especially taking into account the Christmas shutdown in between.

During those 6 weeks only the following problems occurred:

(i) a user failing to re-engage the printers after removing output;

(ii) paper not stacking correctly due to static build-up (the earth between printer and stacker had become disconnected);

- (iii) jamming and subsequent overprinting (cause unknown);
- (iv) printer ribbon jamming (due to faulty ribbon motor);
- (v) contact with 360 being lost occasionally.

In our experience this is a reasonable performance for these printers bearing in mind the heavy load they carried. Certainly the very few problems observed of paper jamming, overprinting and output lost would seem to indicate that provided users carry out the correct procedures for removing output then all is well. Thus we would ask you to ensure that those who use these printers acquaint themselves with the correct procedure to use them. Experience has shown this pays great dividends in minimising inconvenience to everybody.

If any member of your group requires instruction in how to use the printers please approach the Operations Staff in R1. Equally if there are problems with the printers please bring it to the attention of the Operators immediately, or if it occurs out of manned hours please leave clear instructions for the operators as to what has gone wrong.

We believe that with the cooperation of all, users observing the correct procedures, ourselves reacting quickly to reported faults, an acceptable self-service system can operate.

If you have any comments or queries concerning this problem please do not hesitate to contact Doug House.

## SECTION 5 CATALOGUED PROCEDURES BASED ON THE LOADER

### Introduction

A set of procedures has been set up on the 360/195 to simplify job execution for certain types of jobs by the use of single step monitors. By invoking a monitor program to call a compiler and then the loader within a single step, certain types of jobs (see below) can be processed more efficiently. This should also assist in improving system throughput by reducing overheads involved with each job (i.e. less I/O allocation is required for the single step).

### Restrictions

No Link Edit control cards are allowed (this implies no "OVERLAY" or "INCLUDE" statements can be specified).

Complete programs only can be processed with the exception that routines may be included from the auto-call libraries.

### Usage

The monitor procedures should only be used for jobs that have a very short "G" step or where the core requirement for the "G" step is approximately equal to the amount required for the compile step and simple link edit is used.

### PROCEDURES

<u>Proc_Name</u>	<u>Compiler</u>	<u>Max_Comp_Error</u> <u>Allowed</u>	<u>Region</u>	<u>Entry_Point</u>
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FGX	Fortran G1	4	120K	MAIN
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<u>Parameters</u>	<u>Description</u>	<u>Default</u>
CPRINT	Compiler Output	YES
LPRINT	Loader Output	YES
SYSLIB	Auto-Call Library	SYS1.FORTLIB
FORTLIB	Auto-Call Library	SYS1.FORTLIB
RHELIB	Auto-Call Library	SYS1.RHELIB
CERNLIB	Auto-Call Library	SYS1.CERNLIB
CPARM	Compiler Parameters	None
LPARM	Loader Parameters	None
GPARM	Program Parameters	None

<u>Proc_Name</u>	<u>Compiler</u>	<u>Max_Comp_Error</u> <u>Allowed</u>	<u>Region</u>	<u>Entry_Point</u>
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FHX	Fortran H Ext Plus	8	210K	MAIN
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<u>Parameters</u>	<u>Description</u>	<u>Default</u>
CPRINT	Compiler Output	YES
LPRINT	Loader Output	YES
SYSLIB	Auto-Call Library	SYS1.FORTLIB
FORTLIB	Auto-Call Library	SYS1.FORTLIB
RHELIB	Auto-Call Library	SYS1.RHELIB
CERNLIB	Auto-Call Library	SYS1.CERNLIB
CPARM	Compiler Parameters	None
LPARM	Loader Parameters	None
GPARM	Program Parameters	None

<u>Proc_Name</u>	<u>Compiler</u>	<u>Max_Comp_Error Allowed</u>	<u>Region</u>	<u>Entry_Point</u>
PFX	PL/1	4	160K	IHENTRY

<u>Parameters</u>	<u>Description</u>	<u>Default</u>
CPRINT	Compiler Output	YES
LPRINT	Loader Output	YES
CPARM	Compiler Parameters	None
LPARM	Loader Parameters	None
GPARM	Program Parameters	None

<u>Proc_Name</u>	<u>Compiler</u>	<u>Max_Comp_Error Allowed</u>	<u>Region</u>	<u>Entry_Point</u>
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CFX	COBOL F	4	160K	-
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<u>Parameters</u>	<u>Description</u>	<u>Default</u>
CPRINT	Compiler Output	YES
LPRINT	Loader Output	YES
CPARM	Compiler Parameters	None
LPARM	Loader Parameters	None
GPARM	Program Parameters	None

### Note

Source Code is input on DDname \$PROGRAM not SYSIN so use  
 //\$PROGRAM DD \*

Data (Default) is input on \$DATA so use //\$DATA DD \*

The loader print output is written on DDname SYSLOUT and is controlled by parameter LPRINT. The single step is named X so all //G. ddcards must be changed accordingly. Since the procedures only contain a single step, no step name need be given at all. Auto-call libraries are as defined in the FHL, FGL, PFL, CFL procedures.

Parameters may be passed to the compiler, loader and your program by means of the CPARM, LPARM and GPARM parameters respectively.

Messages from the monitor are prefixed by FHX, FGX etc for the relevant procedures. Also note that REGION must be specified as REGION= not REGION.step=. The "Max Comp Error Allowed" indicates the highest compilation error code that is permitted to allow the loader to be called.