RUTHERFORD FORUM

195 COMPUTER NEWSLETTER

FORUM CENTRAL COMPUTER NEWSLETTER

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Contents

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Computing Division
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Programme for 195 Representatives Meeting

Wednesday 25 June 1980
Rutherford Laboratory Lecture Theatre.

09.45 COFFEE

10.00 Introduction

10.05 The Computing Division

F R A Hopgood (Head of Computing Division)

10.30 Operational Aspects of the Computing Service

H Hurst (Operations Group)

11.00 General Meeting

12.00 Parallel Category Meetings

LUNCH (The Lecture Theatre is adjacent to the Restaurant)

13.45 Networks used by the SRC

J W Burren (Network Development Group)

14.30 Facilities available through the ICF

P G Davey (Applications Group)

15.15 FINISH

ATTENDANCE

COMPUTING DIVISION

B J Davies, K P Duffey, R Hallowell, P J Hemmings, F R A Hopgood
R E Thomas, P C Thompson, D Trew, S H Ward.

Category Representatives

J Barlow	Film Analysis
J V Carey	RGO
N J Diserens	RL other Divisions
A E Grimm	NERC
G Howes	Appleton
M W Johnson	NBRU
P Lamb	MSSL
R Maybury	HEP
M O'Connell	SNS

Group Representatives and Others

R Barlow	Manchester
R Bentley	IOS Bidston
C Best	RL
C S Biddlecombe	Tech RL
C B Blamey	AWRE
I Bloodworth	Birmingham
B H Bracher	Tech RL
T Broome	SNS
D Candlin	Edinburgh
S Carter	Reading
E F Clayton	Imperial College Film Analysis
J E Conboy	UCL Film Analysis
E Dunford	Appleton
C W Fay	IMER Plymouth
G J Fayers	Imperial College Film Analysis
B Forsyth	RL
F Gault	Durham
J Gerratt	Bristol
W M Gibson	Bristol
W R Gibson	QMC
I P Grant	Oxford
M Grayson	Sheffield
P Green	IGS
L Grove	Oxford
P Hallowell	RL
B Harrison	RL

J Hart	HEP
F Hopper	NERC
G Howes	Appleton
G Hughes	Lancaster
J S Hutton	RL
J Johnson	MSSL/UCL
P Johnson	Liverpool
M L Kendall	Appleton
K Knowles	RL
B J Kent	Culham
C Leary	IOS Wormley
J B Macallister	Oxford
F MacDonald	Birmingham Film Analysis
J Manx	RL
D McGregor	ISC Newbury
D McKindy	ISC Newbury
A J Middleton	Tech RL
J V Morris	HEP Counters
P Moss	RL
G D Mountain	Queen Elizabeth College
D Munro	Surrey
A K Nandi	RL
P J Negus	Glasgow Film Analysis
P Norrington	Oxford
D Osborne	NERC
B P Page	NERC
E Plummer	Oxford
A J Redman	NERC
G Rumford	Liverpool
M Russell	RL
J Smyth	Forestry Commission
D Taylor	Daresbury
A P Van Eyken	EISCAT
H Watson	HEP Data Handling Group
B Welsh	UCL
K West	UCL
J B Whittaker	HEP Counters
F Wickens	HEP Counters
J B Young	AWRE

NOTES FOR CENTRAL COMPUTING REPRESENTATIVES' MEETING 25 JUNE 1980

1 INTRODUCTION

1.1 Reorganisation of the Computing Division

A new structure was introduced within the Computing Division at the beginning of April. There are now 6 groups under the Division Head, Professor F.R.A.Hopgood. The groups within the division, and their group leaders, are as follows:

Applications	Mr.P.G.Davey
Network Developments	Mr.J.Burren
Operations	Mr.H.Hurst
Resource and Data Management	Mr.J.E.Hailstone
Systems	Dr.R.Taylor
User Interface	Mr.R.E.Thomas

1.2 Open Days

The meeting was informed that the Rutherford and Appleton Laboratories were to hold a series of open days from 8th to 12th July. The central computer system would continue to run normally.

2 HARDWARE

2.1 Performance

There was a problem with the HASP spool area during May, which manifested itself by the occasional corruption of output. This resulted in two Cold Starts.

2.2 Shutdowns

One shutdown is planned, for air-conditioning maintenance, from Friday 5th September to Monday 8th September.

2.3 Maintenance

Maintenance is carried out on the 195's on selected Thursdays from 15.00 to 19.00. The dates for the remainder of 1980 are the same as published in the last Forum, and are as follows:

195/1 - July 10th, August 7th, September 4th, October 9th, November 6th, December 4th.

195/2 - June 19th, July 24th, August 21st, September 18th, October 23rd, November 20th, December 18th.

Maintenance arrangements for the 3032 are to be changed. In future maintenance will be carried out on Thursday mornings from 6am to 8am. The dates are as published in the last forum, namely

July 31st, August 28th, September 25th, October 30th, November 27th, December 25th.

The December date may be subject to change.

2.4 System Development

The system will continue to be required for System Development on Tuesday and Thursday evenings between 17.30 and 19.30. Quite a lot of development is achieved in virtual machines, without taking the full system. The type of development which is not suitable for virtual machines includes: activity which would affect the normal response of the system; activities in HASP which need access to real workstations, terminals, printers, etc..

3 SYSTEM SOFTWARE

3.1 Fortran

Release 2.3.0 of the Fortran H Extended Plus compiler was installed during April. The Fortran Library remained unchanged.

This version corrects several of the bugs listed in Forum 6 (December 1978), as follows:

1 Bad code is no longer generated for Logical*1 compare.

2P Complex arrays are no longer read incorrectly by the Partial Array Handler.

6 Assigning different values in two DATA statements is now flagged as an error.

9 A WRITE statement containing an array whose subscript is a statement function with one of the arguments as a counter in an implied DO no longer gives IFE580I compiler error.

12 There is no longer a problem with a variable being stored from an undefined register when executing END= code.

14P There is no longer a problem printing part of a COMPLEX*16 array using D Format.

23P Wrong data is no longer transmitted writing partial arrays.

3.2 PL/1 Optimizing Compiler

Release 3, Modification level 1, of the PL/1 Optimizing Compiler, Resident Library and Transient Library were installed as the production versions on 20th March.

3.3 MVT on the 3032

The Front End MVT software was installed as the production system on 17th June.

There is now only one batch initiator run on the Front End; this is for use by jobs which have to run on this machine, for example jobs using the PL/1 Optimizing Compiler, and ELSEND jobs.

The fact that both back end machines are now 195's releases extra power for batch work. We are aiming to use this extra power to provide better turnround for large core jobs without affecting turnround of normal short jobs. We are not yet in a position to make any firm commitment as to turnround and comments from users are welcome.

Many users will already have noticed from the reply to the HASP STATUS command that any jobs which do not specifically require the 3032 or the Front End software are automatically submitted with a NEEDS requirement of ANY BACK.

3.4 CMS

The CMS service is still undergoing development; there are at present about 80 registered users. The service is currently only available to those users who have access either to an IBM 3270-type terminal or to an ASCII terminal accessing the system via the PACX, which restricts access mainly to on-site users; there are currently 270 terminal interfaces into the PACX and the PACX has 14 ports into CMS (12 at 1200 bps and 2 at 300 bps). This will continue to be the case until RSCS (VNET) starts to becomes available later in the year, gradually allowing the workstations access to CMS over a period of time.

One course for potential CMS users has already been run and another is planned for August 6th/7th. Users on the Rutherford site who are already able to access CMS and who are interested in coming on a course should contact the Program Advisory Office.

3.5 ELECTRIC

ELECTRIC development is now frozen, except for the correction of errors. An update to the ELECTRIC manual is being distributed shortly; this contains information on the full OBEY and SORT facilities, which were installed in March.

3.6 T.D.M.S.

The procedure TDMSUSER at present requires more than 210K to run, and users are warned that it will fail if a job calling it is submitted at priority 12.

3.7 Graphics

Since the divisional reorganistion on April 1st a Graphics Section has existed with responsibilty for graphics software on all central system and ICF computers. A number of projects delayed by manpower constraints, including documentation of the graphics system and provision of routines to use the FR80's extensive text handling features, are now receiving attention.

4 WORKLOAD

Turnround guidelines are currently being met and most of the work, other than some priority 1 work, is being cleared at weekends.

An average of about 205 CPU hours each week is used by user jobs. In a typical week 1hr 50mins might be spent processing priority 12 jobs, 3hrs 50mins on priority 10, 27hrs 40mins on priority 8, 53hrs 40mins on priority 6, 54hours on priority 4, and the remainder on low priority.

5 DISKS

5.1 Permanent Disk Space

Permanent disk space continues to be in short supply. However, we still encourage users to continue its use to avoid SETUP requirements. Users should discuss their requirements with the Program Advisory Office.

5.2 Short-Lived Datasets

For short-lived datasets (FREEDISK and ATLAS) the situation is barely satisfactory. It is important that users' datasets on these disks do not exceed the 200 track (approximately 2.5

Mbytes) limit. We reserve the right to remove those that do. Equally if a multiplicity of small datasets occupies an unreasonable proportion of the space some remedial action is sometimes necessary.

5.3 Registered Datasets

With the long-lived datasets, which require registration, space is currently over-allocated and we need users to release space as soon as they are able. We reserve the right to transfer data to demountable disks when appropriate or to delete data whose authorisation has lapsed.

5.4 User Libraries

User Library space is in a more satisfactory state but the archiving problems mentioned elsewhere mean that some recoverable space is being occupied.

5.5 New Permanently-Mounted Disks

Approval has been granted to acquire more permanently-mounted disks. These will be divided among the MVT and VM/CMS systems in a manner yet to be determined. As such disks are not demountable only permanent disk space will be affected. It is intended to relieve the shortage of permanent disk space, to ease the restrictions on work space, and, by freeing 3330 spindles, to reduce the number of disk mounts required, which currently stands at about 1000 per week.

5.6 ELECTRIC Space

The situation with ELECTRIC space is generally satisfactory, except that a shortage of level 1 archive space means we normally have to allocate at level 2 and leave the user to distribute his files appropriately.

6 WORKSTATIONS AND TELECOMMUNICATIONS

6.1 General

For Central Computer users the main factor recently has been the growth of the X25 based network, mainly through additional Interactive Computing Facility GEC4070 multi-user minis, but also with the networking of the Imperial College GEC2050. The current program for networking GEC2050's is based on known requirements to access the Daresbury CRAY I from the workstations, the next in line to change over are Reading and Sussex.

When a workstation is networked it loses the specific terminal addresses in MAST, and such addresses are then taken from a Network 'Pool' of numbers. This means that messages of the ++nnn variety are only useful if sent to a known logged-in user, having checked the address with a USER command, i.e. a terminal on a networked workstation can pick up a different MAST address each time a connection to ELECTRIC is made. Users of workstations connected via Daresbury will also find it necessary to set the DEV parameter at login.

A new Workstation User's Manual is in the course of production. The principle on which it is based is that of producing only those sections which are applicable to the particular workstation. It may be possible to have this manual accessible online through CMS in the future.

Because of the complicated arrangements possible with multiple circuits being driven over Post Office lines these days, it has become necessary to have a very detailed diagram for each line showing all the various circuits and their terminations. These are useful in operational diagnosis of faults and in understanding the implications of taking a line out of service, whether temporarily for a 'voice' call or for longer periods through a fault condition. Representatives may be (many already have been) asked for assistance in production of these diagrams, specifically on checking that RL records are correct, and for changes in existing information. Such help is much appreciated.

6.2 Reorganisation of Dial-Up Services onto PACX

The Datel dial-up services are being reorganised to route them through the Asynchronous Communication Exchange (the PACX). This is connected to all major service computers run by the Computing Division; it allows selection of a specified service and is otherwise transparent to data.

A service via PACX at 75 bps transmitted from the terminal and 1200 bps received by the terminal is now available on Abingdon (0235) 831891. This service is currently maintained in parallel with the existing 1200 bps services and will eventually replace them. It is hoped to phase out the existing services by the end of July and at least 1 week's advance notice of this withdrawal will be given.

The 110/300 bps services are being replaced by a service via the PACX on Abingdon (0235) 834531. This is being operated in parallel with all existing services except ELECTRIC dial-up (for which there is no overlap period) and will eventually replace them. Again, it is hoped to phase out the existing services by the end of July.

Documentation is available from the Telecommunications Receptionist on 0235-834486/834251 or internal extension 6389 or via MAST terminal ++C. All users of dial-up services should read PACX user notes, the latest version of which resides on the various services as follows:

SERVICE	FILE
ELECTRIC	JOB=PACX
Prime	NEWS>PACX
4070	NEWS.PACX

Users should read carefully the latest PACX user note (number 13), with regard to the use of the Break key, which disconnects the user from the PACX.

6.3 Memorex 1270 Fault

There were problems with one of the Memorex 1270's which seriously affected users at some workstations for 3 to 4 weeks.

6.4 HASP Commands on Workstation Consoles

The $DJn-m command, used to display all jobs associated with a workstation, has been removed from the system after its continued use when users were asked to refrain from using it due to the overheads caused in HASP. At the same time the scope of the $DJnnnn and the $DJjobname commands were extended so that they now locate jobs wherever they are in the system rather than only when the output is routed to the issuing workstation, as was originally the case.

7 LIBRARIES AND PACKAGES

7.1 NAG Library (Mark 7)

The implementation of this library is almost complete, and should be in service about the end of July. When that happens the name of the load module libraries will be changed (SYS1.NAGLIB is always the current load module library). Any user who has an immediate need for a Mark 7 routine can obtain information on how to access it from the Program Advisory Office.

A library of object modules has been prepared and will be put into CMS.

7.2 Rutherford Program Library

Some subroutines appear to be no longer required and will be withdrawn from this library at the end of September 1980 unless a continued need is expressed. These are: MAG7 (RW/1); MT7090 (RW/2); CONVER (RW/3); PAPD (RW/4-6); NCH5 (RW/7-9).

7.3 Routine JOBNAM (SY/23)

A problem has been found with this routine such that when calling JOBNAM with an argument that is in COMMON, care should be taken that the end of the COMMON area is at least 48 bytes from the address of the variable used as the argument. If this restriction is not satisfied JOBNAM will not return the required character string. For instance,

```
REAL*8 JOBNM
COMMON JOBNM
CALL JOBNAM(JOBNM)
```

will not produce the jobname in JOBNM (JOBNM will be unset). It is hoped that a fix for this will be produced and in the meantime the solution is to change the COMMON statement to

```
COMMON JOBNM,BLANK(10)
```

8 SHORT ITEMS

8.1 Output Routing from Daresbury

Daresbury Computer Notice 102 (January 1980) announced some changes to the output routing facilities for jobs run on the computers at Daresbury. Users who run jobs at Daresbury and route their output to workstations connected to the Rutherford system should consult this notice. Users having difficulty obtaining their output in this way should contact User Support at Daresbury (telephone 0925-65000, extension 348 or 351).

8.2 CIGAR Manual

Some copies of CIGAR issued since 4/2/80 were found to have collation errors in sections D1, D2 and D3. Replacement pages are available from Mrs. Scholes (ELECTRIC identifier JV).

8.3 Program Advisory Office

The Program Advisory Office moved from Building R1 to room F24 in the Atlas Centre at the end of March. The existing telephone number (6111) was retained and the advisor can be still be

contacted via the ++U terminal and the US messbox.

Due to a fault in the telephone system the Ansafone service has been unavailable for some weeks. We hope that this will be corrected shortly.

8.4 Newsletter Distribution

A number of workstations, mainly ICF multi-user minicomputers, have recently been included in the distribution system for RL Computer Newsletters; the distribution system allows for a number of copies of each issue to be printed at the workstation. Workstation Representatives who have in the past regularly received copies of newsletters may find that their requirement for multiple copies has changed, and Representatives at workstations recently included may not be receiving the correct number. If this is so they should inform either PAO or J.Brown (extension 6609) of their revised estimate. Workstation Representatives are reminded that it is their responsibility to ensure that newsletters are prominently displayed for other users to see, or are distributed to relevent users. If any users find that their workstation does not have a Representative they should contact either PAO or J.Brown.

8.5 Condition Codes Produced by the Linkage Editor

The catalogued procedures which involve the linkage editor do so in a way that is specific to the Rutherford system. The IBM linkage editor (PGM=IEWL) is front-ended by a Rutherford program (LGIEWL), which initiates any library cleanups that are necessary following the creation of a load module. A bug in LGIEWL which caused the wrong condition code to be returned after an abend has now been fixed.

8.6 Archiving of Library Members

User Library members with a last use date in 1979 are not automatically archived when the library is cleaned up, neither is it possible for the user to archive these members himself. This problem is being investigated.

8.7 SRC Working Party on Databases

The SRC has set up a working party to report on the needs of its users for databases, database management systems, information retrieval and any related facilities such as long-term archival storage of data. The aims are to:

i) Identify individuals and user communities.

ii) Establish which particular features of data storage and retrieval they need.

iii) Visit sites already using database management systems with a view to selecting one (or possibly several) systems for central support.

iv) Produce a report containing a summary of the users' current and projected needs for data storage and access, together with recommendations of suitable database management systems, funding and likely manpower requirements.

Members of the working party have been distributing a questionnaire to their colleagues in an attempt to collect this information. However there may be scientists not yet known to us who are contemplating SRC sponsored research which will need a database management system. Interested persons should contact Mrs. J. O. Lay of the Computing Division; those questionnaires completed by 30th July will be included in the final report.

8.8 List of Workstations

There are some errors in the list of workstations and remote numbers published in section 8 of the last Forum (number 8) as follows:

Cardiff MUM	should be number 86 not 76
Manchester (EWS)	should be number 93 not 94
Warwick MUM	should be number 94 not 93
ICF Prime 750 B	shares remote 37 with Prime A - it is not Remote 50

In addition the Nottingham MUM, which was Remote 84, is no longer connected, and the University College (physics) workstation, Remote 14, is now a networked workstation.

8.9 Benchmarks

We intend to update our set of batch benchmarks so that they reflect more closely the current job profile. This benchmark will be used as an aid in measuring our own system, and any possible replacements. The criteria for selection are:

i) Job is completely available in source form, and does not rely on other library items for which source may not be obtainable.

ii) Job is either completely self-contained (i.e. it sets up its own data on disk or tape as necessary), or could be made so by the provision of a short pre-processing run to create

suitable datasets.

iii) Job is in FORTRAN or some other high-level language, and keeps any dependency on 195 dialects to a minimum.

iv) Job is of reasonable length in terms of CPU time used (i.e. 30 seconds or more).

If anyone has such a job that they would allow us to use in this way, would they get in touch with either J. Brown or R. E. Thomas.

8.10 Magnetic Tapes

Magnetic tapes are available from the tape librarian and are being issued, but some groups with heavy requirements who normally obtain their tapes from us will be charged for them.

8.11 Manuals

A proposed policy with regard to manuals is to classify them according to the following list:

(a) standard manuals issued from stock to all users;

(b) standard manuals issued from stock for use at workstations or by groups of users to be held corporately;

(c) manuals issued from stock to individual users upon request;

(d) manuals issued from stock upon request for corporate use;

(e) manuals obtained by special order from outside suppliers for issue to individuals or groups where the cost is borne by Computer Division;

(f) manuals obtained by special order from outside suppliers by Computing Division on the user's behalf, and for which the cost must be borne by the user;

(g) manuals which the users must obtain by themselves (Computing Division may be able to give the names and addresses of the suppliers).

A list of manuals and their class will be published later in the year. All the manuals in classes (a) to (f) are available for reference in the Computer Library in the Atlas Centre.

9 Matters Which Have Arisen Since the Meeting

9.1 GINO-F

Release 2.6 of the GINO-F graphics package was installed as the production version on 11th July. No changes to existing user programs are required. New features are character and string rotation and a greatly enlarged set of viewing routines. A few sets of the pages (amendment no. 5) to update the existing User Manual (Issue 2) are available from David Greenaway, Extension 6121. Any problems encountered with this release should be reported to the Program Advisory Office.

9.2 $DN Command at Workstations

Following recent problems with HASP RJE handling it became apparent that the $DN command could have a serious impact on the performance of the IBM system. In some instances the $DN,0 command resulted in the machine becoming inactive for about ten minutes. It was therefore decided to restrict the use of the command at remote workstations.

On 3rd July the following modifications were made to HASP:

i) The command $DN,0 was withdrawn.

ii) Any other valid $DN command would only produce a maximum of 20 replies. Experience showed that this limit was causing inconvenience to users, so it was raised to 100. If the problem recurs the limit may have to be reduced again.

QUESTIONS RAISED AT THE 195 GROUP REPRESENTATIVES MEETING

A1. What is the policy to influence the strategy with regard to an incipient fault in the 3032?

Q1. With the installation of the second 195 in 1977 we were able not only to continue using IBM's OS/MVT/HASP software, but also to enjoy a dual system such that in almost all circumstances of equipment failure we had the ability to run an acceptable system on the remaining 195. We were aware that OS/MVT would become outdated by 'VM' systems, and the introduction of the IBM 3032 as a Front-End with its virtual concept offers a way to bridge the gap to current software - whilst IBM's CMS (Conversational Monitor System) will help to solve the demand for interactive access. However, when, within the next 2/3 months, virtual networking software is introduced to attach remote facilities exclusively via VM/VNET, it would be quite uneconomical - even impractical - to keep an MVT/HASP system in any state of stand-alone compatibility with VM/MVT/VNET. This situation will remain until the 195's are replaced and use of MVT ceases - or until a second 'virtual-type' machine, capable of running VM, is acquired. All indications point to the excellent reliability of the IBM 3032 CPU and memory, whilst two sets of 'channels', each of which it is intended will, in the event of failure of one, be able to support a 'degraded' system, will complete the 'fall-back' precautions. (H Hurst)

Q2. There has been a fairly large amount of down time ever since the Memorex fault. Are you now happy with the Memorex and system in general?

A2. The Memorex fault during June which was the cause of multiple breaks and prolonged loss of remote access was eventually clearly identified and there is no chance of that particular fault recurring. Apart from too-frequent problems from power supplies a few months ago, the Memorex 1270 Communications Adapters have given excellent availability during the past 6/7 years. The manager of the field engineers concerned is well aware of our concern and assures me that there is no reason why the 1270 should, in any way, deteriorate. although as he points out, we are now using the Adapters to the utmost limit of their specification. (H Hurst)

Q4. Should there be a Rutherford Laboratory Computing Newsletter? Perhaps an extension of Rapid Response or one like that produced at CERN or SLAC.

A4. We will consider three possibilities: (1) Wider scope of Rapid Response (2) Produce FORUM more often (3) Produce a separate newsletter. (R E Thomas)

Q5. Is it possible to use the previous version of the Fortran Compiler?

A5. The previous version of the Fortran H Ext+ Compiler is available. PAO will supply details of how to access it. Users must inform PAO if they suspect errors in the current version of

the compiler. (D Parker)

Q6. Are we looking at the question of getting Fortran Compiler with enhanced optimisation for 3032 (Program product)?
A6. I presume you mean 'Fortran H Extended Optimisation Enhancement', an Installed User Program distributed "as is" by IBM. It doesn't generate code specially suitable for the 3032, just very good code for almost all 360-370-303X machines, except that it makes no attempt to suit the 195, for example by separating (by other instructions) the loading of general registers from their use by the floating-point instructions. Fortran H Extended Plus does do this, hence is very good for the 360/195. However we intend to get it for a month's free trial and would welcome programs (and their data) to test it. (R Taylor)

Q7. We have heard that the 3032 is only just capable of doing only what it does at the moment - is it likely that the CMS service will be restricted?
A7. Our aim is to provide a front-end service for 100 users of CMS on the 3032. The fact that the 3032 can only just support the current ELECTRIC load does not necessarily imply that the CMS service will be restricted. The real problem is that we are running two separate and distinct front-end systems. (T G Pett)

Q8. Why is JCL still needed with CMS?
A8. JCL is only required for jobs submitted to the MVT batch machines. The intention is to provide EXEC's which will automatically generate the most commonly used sequences of JCL cards. (T G Pett)

Q9a. The number of ELECTRIC users should not be reduced.
Q9b. It would seem more sensible to have a quick response to ELECTRIC in the afternoon with fewer people doing what they want and finishing.
A9. Users should be getting as good a performance on the 3032 as on the 195. If this is not so, it is probable that there is some fault in the system and attempts will be made to rectify this. (T G Pett)

Q10a. User was logged out because the copy queue was too long.
Q10b. It seems that after queueing to log in you are immediately logged out.
A10. Timeouts can be caused by Gandalf PACX or networked workstations. ELECTRIC timeouts are 2 minutes for the first command after logging-in and 10 minutes thereafter but only when there are users in the login queue. (T G Pett)

Q11. Will files be moved to CMS from ELECTRIC automatically?
A11. Users will have to move their own files. However obey files and exec files to assist the user may be provided, if the demand is sufficient. (R M Freeman)

Q12. What is the lifetime of ELECTRIC?
A12. We currently have no deadline for the termination of the ELECTRIC services. It is clearly reducing the effectiveness of the front end system by having two independent methods of access. At some time in the future there will be a need to define a termination date in order that we continue to run an effective front-end system. I do not anticipate that date being earlier than December 1981. (F R A Hopgood)

Q13. What is being done to correct the bugs in ELECTRIC? Are maintenance releases scheduled? What sort of priority do they get?
A13. Bugs in ELECTRIC are corrected as soon as possible. The priority depends on the severity of the problem and, obviously the speed with which a fault can be diagnosed, corrected and tested. The current production version on the 3032 has no known bugs. (T G Pett)

Q15. Are Graphics users notes being reproduced?
A15. Yes and the following users notes are available from PAO.

1. Contouring
3. Displaying Complex Three-Dimensional Objects
4. Drawing Map Projections
5. Shading in Areas
6. Drawing Three Dimensional Histograms
8. The Enhanced Block Character Font
9. Curve Fitting
10. Extra Facilities for the 360 (includes DRPLOT and Windowing)

(C D Osland)

Q16. There is documentation available from RL about extensive FR80 character set available through SMOG. Can it be accessed via FLIST - particularly Greek Characters?
A16. FLIST is unsuitable for producing output in mixed fonts: the only possibility is to 'paste-up' output from different runs. Work is in hand to extend the SMOG package to use the FR80 text output facilities. New facilities will be announced as they become available. (C D Osland)

Q17. Are there any plans to put graphics on to CMS?
A17. The SMOG, MUGWUMP and GINO-F packages will be made available under CMS. VM will be modified to allow graphics output to be sent to ASCII terminals. A facility similar to MUGWUMP (and almost identical to DES GVIEW system) will also be provided. This work is scheduled for completion this year. (C D Osland)

Q18. When did GINO start being supported at RL?
A18. It started about three and a half years ago. (C D Osland)

Q19. Are there any plans to get a mathematical typesetting for FR80?
A19. We do not have the manpower to develop such a system at present. There is no commercial system that can be 'dropped

into' the IBM and FR80 complex at RL without effort. We are improving the SMOG/IMPACT facilities for using the text output facilities on the FR80. (C D Osland)

Q20. Is there going to be an online version of GINO for the 3032?
A20. See A17. Online graphics output from programs running under CMS will be subject to the same controls as other programs if a control system is installed. It is not yet known how difficult or easy graphics input will be under VM. (C D Osland)

Q21a. What form is the new workstation manual going to take? What will the general user get?
A21a. The new workstation manual will be in the form of a 'General' section giving information on central aspects of the of the RL workstation system with reference to the SRC Network and associated services. Methods of access will be described and 'useful' names and numbers indicated. Sections will be provided on telecommunications links with details of specific equipment used for the link. Diagrams of communications links will be included to indicate how facilities are shared and who is responsible for the various circuits. Further sections will deal with the specific hardware and software of a workstation where these are provided by Rutherford Laboratory. The general principle is that of being able to select for handcopy sections appropriate to a particular workstation from a filebase on CMS. It is hoped that this filebase will be available online.
(C Balderson)

Q21b. Will it be necessary to be a CMS user to get a copy of the workstation manual?
A21b. Yes. Access to the manual will be through CMS. Whilst it is possible that mechanisms for access to CMS filestore from MVT might be developed in the future, this is not currently possible.
(C Balderson)

Q22. Please distinguish how to report: (a) particular faults (b) reaction to the overall service.
A22. All telecommunications problems, or any problem which can be thought to have communications symptoms should be reported to the Network Centre to which your line is immediately attached. In the case indicated this is the Daresbury Laboratory. Where there are grounds for believing the problem to be further along the link, this should be pursued by the Network Centre staff who should keep the fault originator informed. Where problems are persistent or recurring, further help should be obtained through Dr Ian Smith at Daresbury or Cyril Balderson at RL.
(C Balderson)

Q23. Who is now responsible for software on Network 2050?
A23 Responsibility for new developments to 2050 software (of which there will be very few) rests with the Network Development Group (J Burren). Queries about 2050 software should go to Telecomms Group (M Jane). (J W Burren)

Questions

Q24. Benchmarks - surely tape jobs are a large part of the typical workload?
A24. We would like offers of possible benchmark programs from anywhere. However we must be able to run the programs on other machines, and so must have access to the data. If tape jobs cannot be set up artificially, we must get a copy of a suitable tape. (R E Thomas)

Q25. You say datasets on FREEDISK/ATLAS must not exceed 200 tracks. This implies that datasets on other disks can. Is this so?
A25. Supply and demand of space on FREEDISK and ATLAS does not allow datasets greater then 200 tracks in size. (Any created will be summarily deleted). Space can be found for larger datasets by arrangement with the Program Advisory Office. The Program Adviser will normally decide whether a dataset can be accommodated on permanent disks or whether demountable disks should be used. In all cases the lifetime is limited and with large datasets in particular they should be deleted or copied to tape when frequency of use falls. See CIGAR C6.4.
(P J Hemmings)

Q26. Has there been a distinct change in policy regarding charging for tapes and must a bid for tapes be made in the proposals for the equipment?
A26. The decision to charge Divisions for magnetic tapes where the annual total of issue to them, less re-usable tapes returned to the library, exceeds 100, is certainly a change in policy. The change is partly to protect the Computing Division budget and partly to alert Division Heads to the heavy use (and costs) of magnetic tapes so that users will be encouraged to exercise economy in such use (ie. return unrequired tapes to the library and utilise unused space on tapes where appropriate). Only Divisions involved (using more than 100 tapes) will be advised of issues at year-end. An accounting adjustment will follow their agreement. In the case of experiments requiring multiple magnetic tapes, I see no reason why their costs should not be part of the financial aspect of such proposals. (H Hurst)

Q28. When will CERN users be able to access ARPA?
A28. CERN users cannot use ARPANET because the Post Office have not given permission for this use. There is no technical difficulty. Since the ARPA link is to be continued for at least a further three years it would seem worthwhile to ask the Post Office again whether they will give permission for CERN users. Unfortunately it is not just a question for the British Post Office but involves the Swiss PTT. However, we will ask again.
(J W Burren)

Q29. How can one send some special characters to MIT over the ARPA link?
A29. There are problems with sending some special characters through the network, because parts of the network react to these characters for control purposes. There are usually ways of

forcing these characters through to their destination. Peter Girard at Rutherford or Paul Kummer at Daresbury should be consulted about any problems. (J W Burren)

Q30. When will the network monitor machine be operational?
A30. This is really a question for Daresbury since the monitor machine is their problem. Since the hardware for the project has only just been approved, this will not arrive until early next year. However, Daresbury do have access to similar hardware for program development so we would hope that some parts of the monitor system will be ready when the hardware arrives.
(J W Burren)

Q31. How much of the data transmitted by the network is generated by the X25 protocol and is there any way the user can optimise this?
A31. There is a 3-byte overhead per packet for X25, plus an 11-byte overhead if Binary Synchonous line level protocol is used or a 5-byte overhead if HDLC is used. There is nothing the user can do to optimise this. (J W Burren)

Q32. What about a connection of the SRC network to the University network?
A32. This is a large question, really beyond the scope of a short answer. There are really two issues, connection of SRCnet to the National Computing Centres (ULCC, UMRCC, Cambridge etc) which themselves have associated networks and connection of SRCnet to individual 'campus' network. Both these possibilities are under investigation but are some way off in the future (ie certainly not within one year, unlikely in two). Connection to CERNnet is also under investigation. (J W Burren)

Q33. How can the 256-byte packet drive the workstation printers and terminals? Is there any formal plan to increase the 256-byte buffer on X25?
A33. The 256-byte packet does not affect the overall throughput of the workstation but does mean that that the fastest individual devices cannot be run at full speed. The most obvious device is the 600 lpm printer and the problem here is aggravated by the fact that 2 full 132 column lines cannot be carried in a single packet. There are two possible solutions: (a) increase the maximum packet-size (b) allow more packets in the pipeline for fast devices. We will be investigating both the possibilities in the near future.
At present there is no plan to increase the maximum packet size to be larger than 256 bytes. This limit was set so that the SRC network would be compatible with the Post Office PSS network. Since it now seems unlikely that SRC will make very large use of PSS (mainly because the tariffs are not favourable to the type of bulk data traffic that flows in SRCnet) this decision could be re-examined. (J W Burren)

Q34. Is there any prospect of improving what happens after a short break to the network, eg terminal numbers being reassigned?

A34. This should only happen if the connection between the user's terminal and the workstation breaks and the user has to remake this connection. In some circumstances the user's original call has not been closed and the new connection may be made to a different port on the workstation. This circumstance usually only arises when something like a 'Gandalph' system is in use. There are facilities in ELECTRIC (the TRAN command, see FORUM 6) which help users to deal with this problem. (J W Burren)

Q35. When communicating via GANDALF is there any way one can get information about problems?
A35. See answer to Q50. In addition, work is starting on providing an improved Network Status and Broadcast facility which will detect systems failures and supply suitable messages for interpretation. This will also provide for 'operator updates' and broadcasts. (C Balderson)

Q36. What operating system do you use on the GEC switching machines?
A36. The program that runs the GEC switching does not use an operating system except for timer services. This is mainly because it runs without using any peripheral equipment (such as disk drives). (J W Burren)

Q37. What are the differences between an enhanced workstation and an ICF machine?
A37. There is no difference in the operating system or software provided. Enhanced workstations tend to have more store (512K) and have magnetic tape. The Data Editing Machine is also intended to be similar except that the user must be prevented from using time facilities. (P E Bryant)

Q38. New SORT package has some restrictions on the use of tapes for work areas. User always has to ask if there is enough space available.
A38. The SORT package does not support the use of magnetic tape for work areas. As for the previous version of the SORT package use should be made of the work disks (procedures SORT3/SORT6 do this) and if insufficient space is available use should be made of the 200 Mbyte scratch setup pack USDSK2 (ref CIGAR C6.4.2). The new SORT package is far more efficient in its use of disk space than the old version and only very large sorts will require use of USDSK2. SORT will accept input from magnetic tape and output to magnetic tape as well as disk (the restriction is only for work areas). (D Parker)

Q39. Is it possible to alter the line limit for job transfer to CERN?
A39. The limitations on the RL-CERN Job Transfer system are as follows:

1. Jobs run at RL, printed at CERN - 25000 lines (set by JCL parameter)
2. Jobs run at CERN, printed at RL - about 13000 lines.

Priority 12 selected for best turnaround allows only time to generate this number of lines using the reformatting utility program. Alternatives are under consideration, a change might be effected before this appears.
3. Card output (File Transfer) RL to CERN - 9999 cards, limited by HASP.
4. Card output (File Transfer) CERN to RL - unlimited if 9999 cards specified (this switches off the check).
(C Balderson)

Q40. Is the Laboratory likely to support Fortran 77?
A40. If a suitable compiler becomes available and there is sufficient demand for it then we will supply it. In assessing suitability we have to take into account such factors as reliability, support for error correction, quality of compiler code and cash. (A R Mayhook)

Q41. How are the PDP11's connected to the ICF network?
A41. They are not connected nor are there any plans to connect them. (P G Davey)

Q42. Given the limitations of the 3032 what sort of jobs should have NEEDS 3032 cards?
A42. Only those jobs which must use the 3032 should do so (eg Elsend, PL/I). If users persistently force jobs to run in the 3032 to get 'cheap' time the algorithms may be changed to make it unattractive. (R M Freeman)

Q43. When will we be able to get job status information on CMS?
A43. A status virtual machine is being developed to monitor the progress of a job along the complex path from CMS to MVT and back again. (Job retrieval is also under development). Users will be able to interrogate the STATUS machine for information much like that that HASP currently provides. A subset of these functions will be available in the very near future. (R M Freeman)

Q44. Is TDMS frozen? Will there be a program interface? Is there any tape protection? The comments field cannot be used.
A44. Yes, at the moment TDMS is frozen. A program interface is planned for the future but as yet no time scale for the provision of this facility is available. Tape protection is available via the SETPASSWORD command. A bug has been located in the handling of comments and this will be fixed as soon as possible.
(S J Tunstall)

Q45. Could 'Absent' be made more informative eg CERN/DESY?
A45. 'Absent' means that the tape is not currently in the Atlas Centre Tape Library. Once a tape has been removed we have no method of determining accurately its current location.
(G A Lambert)

Q46. Weekend access to library was promised. What are the official times of updates?
Q47. Could there perhaps be 'psuedo-tapes' in the local library

to allow for a user bringing in a tape at the weekends?
A46/47. Updates of TDMS at the weekends are done at 1800 hrs Saturdays and Sundays. However the operators have available to them the facilities for inclusion of tapes in the local library 'on request', but this can only be done for single urgently needed tapes of genuine visitors needing rapid access.
(G A Lambert)

Q48. Will VNET require changes to PDP11/70 software which currently runs through to HASP?
A48. The move to the use of VNET on the 3032 will not require any changes to workstation software. VNET has already been tested at Rutherford using a 2050 workstation with standard software. (J W Burren)

Q49. Gandalf does not seem to support 9600 baud working (passed on from 3rd party) - is this true?
A49. The Gandalf PACX can support 9600 bps lines. In order to run at >1200 bps on Memorex 1270 TCUs, clocking hardware is required; this is available and four lines at 4800 bps will shortly be installed. Users should however be made aware of the fact that problems may be encountered when using T4010s and T4012s at speeds above 2400 bps when drawing short vectors.
(B J Day)

Q50. How can we obtain Status information from a terminal?
A50. A limited service is being provided through the GEC2050 networked workstation in R26, via PACX. Two ports will be available at 2400 bits/sec under PACX CLASS 64. A further connection at 300 bits/sec (service 63) will enable dial-up access to the SRC Network via PACX. This will enable queries to the Network Status machine (!!NETSTAT) whether to confirm feelings that all may not be well, or to get a latest estimate of return of service. (C Balderson)

Q51. Why is the COBOL compiler out of date by 6 years?
A51. Because Admin programs are written in the pre-ANSI Cobol which is accepted only by these old compilers. Admin can write new programs in ANSI Cobol, for which compilers are up-to-date and maintained by IBM, or in PL/1 which is also up-to-date and maintained and which Computing Division staff actually use, unlike Cobol. Only Admin can decide whether they have the resources to re-write existing programs. (R Taylor)

Q52. Intelligent terminals can be programmed to respond to prompts from a host computer. Can the ELECTRIC obey facility be used to generate prompts for input?
A52. Yes; the following sequence of commands in an OBEY file could be used to give a prompt after every line:-

```
&READ S0:NEXT
[S0]
&SKIP -2
```

(T G Pett)

SECTION 2 WHAT TO DO WITH UNKNOWN TAPES

Analysis of a Tape of unknown Density/Parity

The tape would be run first on a 7 track drive using the XTAPE utility (see Program Library Manual UT/3) with the OPT=X parameter set. This would attempt to read the tape at 556/800 bpi, even and odd parity and report on lineprinter whether the tape was readable at any density/parity supported by the seven track units. If it was readable XTAPE reports the density and parity of the tape.

If the tape cannot be read at seven track then try reading it on a dual 800/1600bpi tape unit (9 track), again with XTAPE. XTAPE should indicate whether the tape can be read at 800 or 1600 bpi.

If the tape cannot be read at 800 or 1600 bpi then try running it on a 6250 bpi tape unit, again using XTAPE.

If XTAPE still fails the most likely cause is that the tape cannot be read on our tape units. It would of course have been worthwhile getting the tape cleaned by the Tape Librarian prior to the above runs.

The Operator can make use of the DEBI program to try and analyse the tape, although I personally find XTAPE to be of more use. TPANAL can also be used though it will not automatically change density/parity at 7 track and so more runs may be needed.

The maximum number of runs required by XTAPE should be 3 (worst case) and no program available here (to our knowledge) can take less runs.

Use of XTAPE from ELECTRIC:-

```
E  JB=XTAPE,TAPE=.....,UNIT=TAPE7,LABEL=NL
          (OPT=X is a default)
```

SECTION 3 PROCESSING OUTPUT TO THE FR80

This is an updated version of the article published in FORUM 5, Section 3.

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 below).

The FR80 is staffed on 2 shifts only, that is during the day and evenings, with occasional additional operating during the night when the workload demands it. The FR80 does no processing on Saturdays or Sundays. Jobs submitted at priority 6 or below are likely to be run overnight and are not likely to be despooled until 0800 the next morning.

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 B Jeeves (extn 6284) 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 Sevice
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 0800 and 1200 except Thursday (0800 and 1100) and during the evening/night. Additional despoolings may occur for certain individual cameras during the day, particularly hardcopy, at the FR80 operator's discretion.
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 1st class post)
Sorting at the Remote Site	

Hardcopy

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

FR80 Schedules