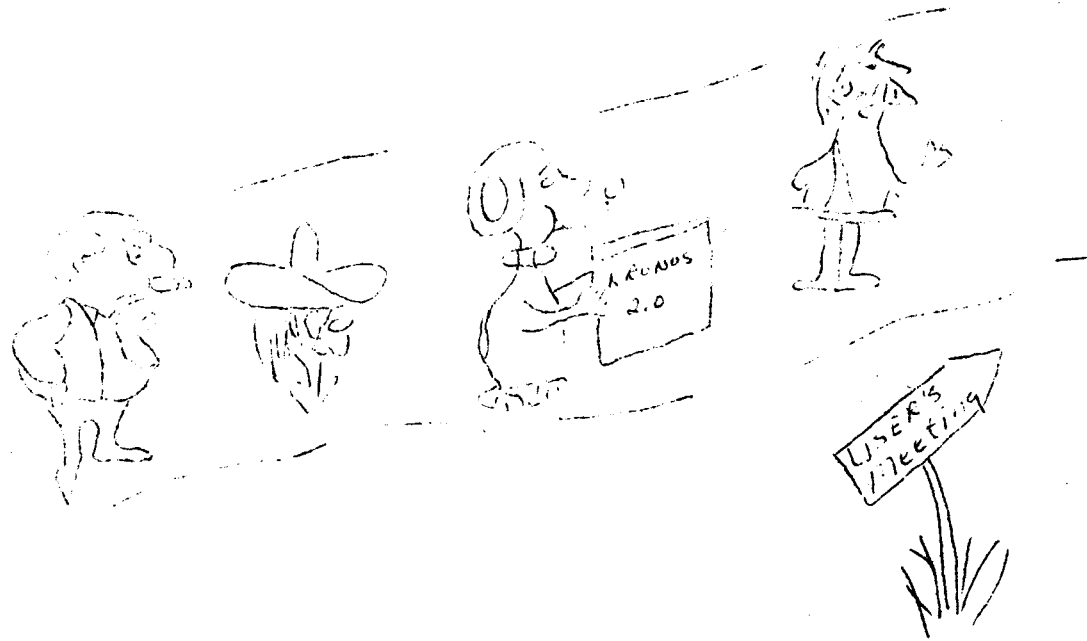# WHY KRONOS?

A USER'S MEETING
FRIDAY, AUGUST 11, 2⇒4 PM   302 MAIN ENG

UCC staff will be present to discuss the advantages &
disadvantages of MOMS & KRONOS and the reasons for the
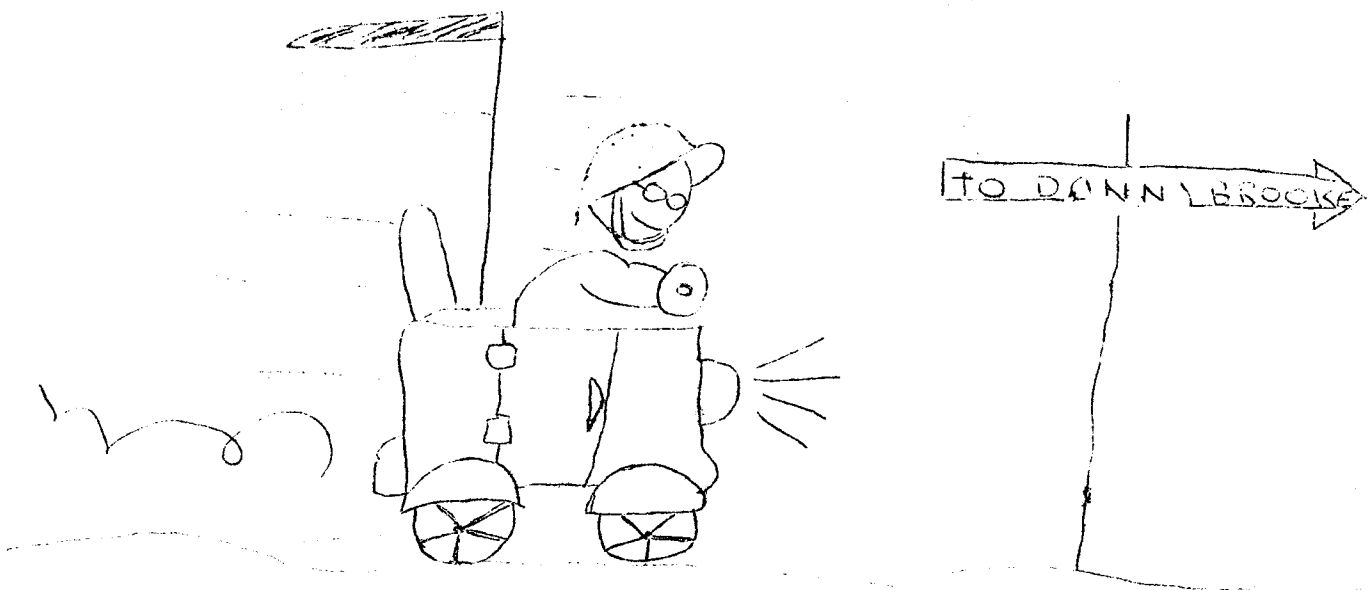contemplated change.

INTRODUCING OUR NEW DIRECTOR

Professor Peter Patton is the new director of the University Computer Center.

Professor Patton received his Bachelor's degree in Engineering and Applied Physics from Harvard in 1957, a Master's degree in Mathematics from the University of Kansas in 1959 and the Dr. Ing. degree from the University of Stuttgart in 1966. He has worked in the aircraft industry and the computer industry as well as managing university computer centers at Kansas in 1957 and Stuttgart in 1964-1966. In 1967, he developed a regional computer center based around a CDC 6600 in Stuttgart to serve higher education in Southwest Germany.

Dr. Patton's research interests center around new applications of digital computers and also new computer architectures for advanced applications. He has published more than forty papers in the areas of computer design, software system design and applications of computers to the solution of problems arising in electrical, mechanical and aerospace engineering. He is a member of the Association for Computing Machinery, a senior member of the IEEE and the IEEE Computer Society and a fellow of the Institute for Mathematics and its Applications.

Dr. Patton makes his home in Shoreview. He and his wife, Naomi, have five children ages 4 through 14. His hobbies include stamp collecting, photography and sports car racing.

OPERATING SCHEDULE

	12:01 AM	3	4	6	8 AM	2PM	8	mid-night
Sunday								/////
Monday	/////							
Tuesday	/////							
Wednesday	/////							
Thursday	/////							
Friday	/////							
Saturday	/////////////							

▨ LAD only   ▨ LAD, EXP, and WB

Useful telephone numbers: Operations

    373-4876   Manager, Operations (Richard Folden)
    373-4995   LAD Shift Supervisor
    373-4596   EXP I/O operations
    373-3608   WB I/O operations
    373-4995   LAD tape librarian
    373-4995   LAD EBR operator
    373-4921   LAD User's Room
    373-2521   Keypunch Supervisor
    373-4994   Recorded message (lists completed jobs)

General Information

    373-4360   UCC office
    373-4599   Manager, User Services (Thea D. Hodge)
    373-4548   Account Clerk
    373-7744   Software Librarian

CONSULTING SCHEDULE

ExpEng
    10 AM - 4 PM
    7:30 - 9:30 PM   Monday through Thursday

    10 AM - 12 Noon
    1 PM - 4 PM   Friday

Lauderdale
    1:30 - 3:30 ──→ Monday through Friday
    7:30 - 9:30 ──→ Sunday through Thursday

ON STATISTICAL COMPUTING

During the past half-year a Subcommittee on Statistical Computation operating under the Computer Advisory Committee made an extensive study of computer statistical packages and systems available here and elsewhere. The subcommittee has recommended to the Computer Advisory Committee that UCC maintain the following packages   BMD

SPSS

OMNITAB

on the CDC 6600 and a package called ISIS on the CDC 6400. In addition, UCC has been asked to direct cooperative efforts on consultation and education for these packages at three local centers (West Bank, East Bank, and St. Paul campuses) and at other sites which use the 6600 or 6400.

In addition, a subroutine library of over 250 Fortran routines will be obtained from International Mathematical and Statistical Libraries,Inc. in the near future. The subcommittee will continue to operate under the joint chairmanship of Prof. John Neter and Prof. Raymond Collier and will monitor changes in and additions to the above packages, will evaluate other packages of interest, will review the effectiveness of these packages, and will investigate the future path of statistical computation at the University

Further announcements will indicate when UCC has implemented these recommendations. UMST, the currently UCC supported statistical library, will not be immediately dropped. However, no new programming and documentation efforts will be alloted to UMST. If the subcommittee so recommends, certain UMST routines may be added to the BMD system in a BMD compatible format.

BMD SHORT COURSE

There will be a short course in August introducing BMD. This is one of the statistical packages that UCC will be maintaining.

There is no _fee_ or _registration_. You need have no computer experience, just a working knowledge of the statistics.

| August 14-18 (M-F) |
| 3-4 PM |
| Room 203 Main Eng |

The first lecture Aug 14 will be a general introduction explaining the new trends in the statistical packages at the UCC

FROM SSRFC

SPSS Short Course

A one-week short course on SPSS (Statistical Package for the Social Sciences will be offered by the Social Science Research Facilities Center (SSRFC) from Monday, July 31st through Friday, August 4th, between 4:00 and 5:00 PM. The course will be held in Room 125 Blegen Hall on the West Bank.

A number of the manuals, SPSS, by N.H.Nie et al. are available in the Sociology section of the West Bank Bookstore. The manuals are desirable but not necessary for the course.

The course is free and there is no registration necessary. Those desiring more information on the course should call the SSRFC at 373-5599.

A Note to SPSS Users

Two versions of SPSS are now available, one which handles 500 variables, and another which handles 100 variables at one time. It is strongly recommended that you use the 100 variable version whenever possible, because it requires significantly less computer memory than the larger version. The small version is known as SPSS100 and it requires 20K less than SPSS; thus, the minimum required field length for SPSS100 is 50000_8 rather than 70000_8 as the larger version requires.

The two versions are accessed by similar control cards:

SPSS100	SPSS
******************	******************
ATTACH(SPSS,SPSS100)	ATTACH(SPSS,SPSS)
SPSS.	SPSS.

Please use the smaller version whenever possible! Use of it combined with a reduced field length request on your job cards will improve job throughput and turnaround.

The documentation for the latest version of SPSS has been printed and will shortly be available from SSFRC. A departmental charge of somewhat less than $1.00 will be made because of the document's length.

Version 2.3 of SPSS has the following new capabilities in addition to those of SPSS Version 2.2:

(1) Short field length edition (SPSS100)

(2) New procedures - FASTMARG, T-TEST, and SCATTERGRAM

(3) Additional capabilities for FACTOR ANALYSIS, BREAKDOWN and several other processes.

A POSSIBLE SOFTWARE CHANGE

UCC is considering changing the standard Fortran function
provided for the RUN, FUN, MNF, FTN, and FT3 compilers to make all
execution errors fatal instead of non-fatal. In particular,
execution errors numbers 2 through 49 would then be fatal (see
Appendix K of the RUN/FUN Manual or Appendix G of the FTN/FT3
Manual). Note that individual errors could still be changed to
non-fatal by programmer use of the subroutine SYSTEMC (see
Appendix J of RUN/FUN or Appendix G of FTN/FT3). Users who have
comments on this change should send them (in writing) to Amy
Koepke, 227 Experimental Engineering.

FOR DISK PACK USERS

UCC pack UCC004 was made available for use on July 13th. Pack
UCC003 is now completely filled. We are also starting to purge
those files on the UCC packs which have illegal (as of July 1)
account numbers.

ANOTHER MEDIUM SPEED REMOTE TERMINAL

is now operative.   The terminal is in Room 17 Agricultural
Engineering on the St. Paul campus. A keypunch and limited work
space are also available.

The terminal is open from 8 AM to 5 PM.   See Professor R. Vance
Morey, Room 204 AgEng for assistance.

LIBRARY CHANGES & ADDITIONS

6/20/72 MXLNEQ   An error in the library version during the
                  period 4/24/72 to 6/20/72 was corrected. If M, the
                  number of sets of equations, had the value of 0
                  (inversion only) or -0 (determinants only) and N, the
                  number of equations, was small (2,3, etc.), the routine
                  gave the wrong answer if any row interchanges occured
                  during solution.

CDC 6600 USE FOR JUNE

44,485 jobs were run

      41% from ExpEng
      29% from Lauderdale
      13% from West Bank
      13% from all other remote terminals
       4% maintenance

average times

on input queue	12.7 minutes
at control point	6.2 minutes
on output queue	5.0 minutes
printing	1.7 minutes

SORRY !!!

The short course on simulation languages announced for this summer has been canceled due to lack of interest.

REFERENCE MANUALS

The MNF Reference manual is available at the Engineering bookstore at a price of $3.40 each.

The UMST Reference manual is out-of-print and will not be reprinted. Reference copies are available in the User Rooms at ExpEng and Lauderdale and in the UCC library.

don't forget the users

meeting !!

A REPORT ON ERRORS IN THE MNF FORTRAN COMPILER

The following errors have been found in MNF and will be corrected when the next version goes up at the end of 1st Summer Session, July 23, unless problems occur.

1. A variable with the name of an intrinsic function will no longer be given the type of the function: e.g. the variable CMPLX will not be given type COMPLEX automatically.

2. The statement following a non-recognizable statement will no longer be lost.

3. Using a FORMAT statement as the dependent statement of a logical IF will now be diagnosed as an error; e.g.
       IF(A.LT.1.0) FORMAT(2X,5G20.10)

4. Sense switches set by control cards prior to compilation will be preserved and will be available during execution.

5. The name of an assign variable as printed during the trace of an assign statement will now be correct.

6. Attempts to use an ECS variable in an ENCODE or DECODE statement will now be diagnosed.

7. A possible machine error will not occur when an ASSIGN statement has no name; e.g.
       ASSIGN 5 TO

8. Problem with a parenthesized expression involving an implied DO index in output lists corrected; e.g.
       PRINT 5,((I - 1)*X,I=1,4)

9. Correct an MNF mode exit on an illegal dimension involving an intrinsic function name; e.g.
       DIMENSION ABS(0)

10. A CALL of a statement function will now be diagnosed; e.g.
       A(X,Y) = X ** Y -X
       CALL A (1.0,2.0)

11. An attempt to put the current function name in COMMON will now be diagnosed; e.g.
       FUNCTION JOE (A)
       COMMON JOE

12. Correct MNF mode exits on bad BUFFER IN or BUFFER OUT statements; e.g. BUFFER IN (1,1)(1.0,2.0)

13. Correct an MNF mode exit that occured when trying to process an FTN debug statment; e.g.
```
      C$    FUNCS
```

14. User libraries will no longer be returned after loading.

15. Correct an MNF mode exit in processing a DATA statement if the first address in a subscript list is too large; e.g.
```
      DATA A(100000)/1.0/
```

16. Correct problems with use of a blank common variable as the index of an implied DO in a DATA statement; e.g.
```
      COMMON I
      DATA(A(I),I=1,5)/5*1.0/
```

17. Correct a problem with loading a program having more than 15 actual files declared.

18. Fix a "possible machine error" message which occurs when a statement function is the first card in the deck; e.g.
```
      SF(A,B) =A*B/(A + B)
```

19. Correct the loading of replication tables (used only by FTN for data or by COMPASS).

20. Fix MNF so that the statement after an ENTRY statement will be executed if it follows execution of the statement prior to the ENTRY statement; e.g.
```
      A = B
      ENTRY SAM
      B = C
      D = A + B
```
B = C will be executed if it is reached after A = B.

21. Remove an incorrect pack instruction generated when processing the constant 0.0E0.

22. Correct a problem with parenthesized logical expressions in a logical IF statement; e.g.
```
      IF((A.LT.B).OR.B.LT.C.OR.C.GT.D.) GO TO 5
```
was not being compiled correctly.

SUGGESTION BOX

You've kept us busy with those little boxes! We will try to make our answers as complete and as honest as possible, but if you feel we miss the point of your question, please try again.

Q. Why aren't the bugs in MNF better publicized?

A. See the list of 'discovered, to be fixed' MNF bugs elsewhere in this newsletter. If you find other errors, please tell me. We can't fix them if we don't know about them.
                    James Mundstock
                    335D ExpEng

Q. Why not get LISP for the timesharing system?

A. We are investigating the possibility of putting our regular LISP or an interactive LISP or both on the MERITSS system.

Q. What are the summer consulting hours? The operating hours?

A. Consulting hours are posted during the first week of each quarter (Summer Session included). Our operating schedule remains the same throughout the year. See the schedule on page 1 of this newsletter.

Q. My job deck was stolen.........

A. This is a very painful problem and all we can offer is sympathy and a few suggestions:

   1) pick up your jobs promptly
   2) report the loss immediately. The deck may be 'strayed', not stolen.
   3) keep a backup deck if your cards cannot be easily reproduced.

Q. Two suggestions: 1) put a copy of the BMD manual in the User's Room and 2) modify the BMD manuals to conform to the programs.

A. 1) BMD manuals will be placed at the major stations
   2) A BMD system will be supplied which corresponds closely to the manuals. A supplement will be written to describe local differences, primarily control cards and program additions.

Q. Why does printer paper cost 2 cents per page? That seems expensive.....

A. If you compare our charge to that of other sites, academic and commercial (5 cents and more per page) then our charge is not high.

If you compare our cost to getting copies made in the library
and elsewhere (5-6 cents per page) and if you price books
by the page (2 - 10 cents per page) then our price is not high.

And if you get down to particulars, our paper is high-quality
paper made to strict specifications on weight, perforation
feed holes, numbering, lines, etc. To the basic cost add
delivery charges and other moving and handling charges.
In the cost of printing add storage costs, ribbon costs,
internal handling costs, printer maintenance, etc.

Specifically, it recently cost 28 cents of computer time to
print 121 pages from the INFO file. $2.70 for this 'book'
of highly valuable information is very reasonable. Granted
that on other computer runs, you may get 121 pages of
'garbage', but thats another problem.

Q. On Fortran jobs the required CM is printed in the dayfile.
Why not do this for all jobs, for example SPSS?

A. In the past, SPSS has been maintained by SSRFC as a leased
system from Northwestern University and they have modified
the package as little as possible. Phil Voxland (SSRFC)
has asked Northwestern for this improvement however. An
effort may be made to make SPSS more efficient and pre-
sumably a CM requirement printout could be added. We'll
keep this in mind for other packages and programs.

Q. On the other side of the railroad tracks at Lauderdale there
are hills, fields, swamps, etc. which could be developed into
a small park for computer users.......

A. The suggestion is fascinating.   Anyone want to volunteer?

Q. Would it be possible to alter the 841 disk system so that the
user can estimate the additional space required by a job
before it executes?

A. The U of M disk pack system software was designed and developed
by UCC. At the time we did this the anticipated use of the
system was somewhat different than it currently is. We did
not expect the UCC owned packs to be as popular as they are.
As a result, the grown rate of files has been faster than we
could provide drives. This has aggravated problems because
of full disk packs. We intend to keep sufficent reserve
pack space in the form of UCC owned packs to minimize your
difficulties.

We could develop a utility program (or Fortran callable sub-
routine) which would do as you suggest but, because of the
dynamic allocation of free pack space, there is no guarantee
that the availability of RBs at the start of a job will mean
that free RBs will exist during the job. Some other job may
use them in the meantime.

Q. Would it be possible to have a tally of total time used on an account printed out on the dayfile? e.g. '2.5 minutes remain in your account."

A. Currently the account files are updated once a day for the previous day. A real-time accounting such as you suggest would require a complete redesign of our accounting system and would be prohibitively expensive. There are also indications that real-time updating could add as much as one second CP time to your job. A high overhead, when many jobs run one second or less. However, if we go to the KRONOS system, we will study this approach since we will then have to change our accounting programs anyway.

Q. Why not, in the newsletter, give the distribution of times, not just averages?

A. This would, of course, give more information but would add more overhead to the daily and monthly accounting. We may do this on a sampling basis (a few days only).

Q. Why not upgrade the 6600 to 400,000B words of memory?

A. The possibility of getting 32K more of memory (not 64K) for the 6600 has been considered for the summer of 1973 or 1974, but
1) the cost is high $320,000
2) installation is difficult and time-consuming and would require 2-4 weeks of complete down time
3) our early serial number may rule out such an addition

Q. On magnetic tape it is often nice to have several end files at the end of data. A natural way to do this
           CBF,NULL,TAPE,2.
As I understand it this does not do what is intended, it puts only one EOF on the tape and does not give a dayfile message that clearly says only one EOF.

A. The answer hinges on the definition of the NULL file. Our infallible User's Manual defines this as "always treated as an empty file". Therefore, as with any copy, if the EOI is read before the specified number of files have been copied, the operation terminates. What we need are write end-of-record and write end-of-file control cards (which KRONOS has).

Q. I can never remember if its RENAME,OLD=NEW or RENAME,NEW=OLD. since each seems logical, why not make both acceptable?

A. This problem is even more acute if we convert to KRONOS since MOMS has the OLD=NEW sequence on RENAME and KRONOS has the NEW=OLD sequence. Yes, we do plan to allow both as long as one file name is defined and one is not defined.

Q.   Is there such a thing as "staff priority"?

A.   Yes, there is a P3 priority which only certain staff members
     and occasionally other users are allowed to use, for example,
     people here between airplane flights. Other users require
     senior staff (director, assistant directors) permission to
     use this priority. We feel faster turnaround is justified
     for staff members trying to correct errors in existing library
     programs and in developing new programs because these efforts
     tend to benefit all users.

Q.   About rates: Why not establish an "overnight" category where
     jobs submitted before 4 PM would be run at the operator's
     convenience, but before morning, at a reduced rate? Why not
     charge jobs that remain on "input" for a long time, say for
     over two hours, at a progressively reduced rate? Fast turn-
     around is a 'product' and if people don't get it they should
     not have to pay for it.

A.   These require redesign of our accounting and charging systems.
     They may be possible if we convert to KRONOS.

Q.   Before you are committed to KRONOS you should publish a
     description of the differences between KRONOS and MOMS. Also
     schedule a series of open meetings to discuss these differences.
     Include the fact that KRONOS will not work properly for a few
     months. Your attitude should be "these facts really justify
     the switch", not "well nobody has presented a really good
     reason not to switch and our grad students would like a new
     system to play with".

A.   See the announcement elsewhere about the KRONOS meeting. Be
     assured that most of us dread a systems change as much as you
     do and on no account is the change being contemplated "for
     grad students...to play with". Current problems --- small
     systems staff, two systems to maintain (MOMS on the 6600,
     KRONOS on the 6400), and oncoming developments, interactive
     graphics and information retrieval, both of which may require
     both computers --- have led us to consider having KRONOS on
     both computers.

Q.   The display on the user terminal at Lauderdale is inadequate.
     Why only the B and H displays? Why not allow the users to
     see any of the displays that the operators can see? What's
     the big secret? The ability to display the dayfile was
     protected by a password. This is silly. I feel that the
     various displays are interesting and should be accessable.

A.   We feel that a) few users are expert enough to benefit from
     all of these displays, b) many users would misunderstand
     these displays because of system complexity, and place too
     great a demand on systems and operations people for explan-
     ations,   c) these displays make it too easy for anyone to

acquire other users private information, passwords, tape names, how much time they're using, etc.

Q. Why not have the user's scope at Lauderdale indicate when a job is printing?

A. We're working on this. Those LAD jobs currently being printed will be indicated by an asterisk (*) following the name.