INTRODUCING THE ACF

The Academic Computing Facility (ACF) is a newly created organization. It was formed as part of a plan for providing improved computer services for research and instruction. Before September 1980, both academic and administrative computing were directed by one organization, the University Computing Center (UCC). Under the new plan, the UCC continues to direct administrative computing, while academic computing is directed by the ACF.

What's New About the ACF Facilities

The computing facilities offered to the University have been changed and expanded under the new ACF, and further additions are expected to occur in the coming years. One very important difference is that the principal computer system of the ACF is a new CDC CYBER 170-720. Associated with the new CYBER is a major expansion of the interactive computing facilities offered to the academic community. In addition, a new DEC VAX 11/780 system is now available, primarily for faculty and researchers. The IBM
facility, operated by the UCC, continues to provide computing resources for use by faculty and students.

These and other changes bring some important benefits to academic computing, both now and in the coming years. For example, the CYBER configuration not only has a large capacity for interactive computing but also offers the potential for further expansion of interactive facilities. Both the CYBER and the VAX systems have good interactive debugging features. The VAX is especially amenable to text-processing and manuscript preparation, and has some features which might particularly benefit people with no previous computer or programming experience: for example, its software and command language are somewhat more user-oriented, and it has some especially flexible text-processing capabilities.

Comparisons of the ACF systems with respect to different sets of uses are planned for subsequent issues of the Newsletter. However, for the present, some other important new features of the computing facilities now offered to the academic community should be mentioned. The new student site at 14 Washington Place not only greatly extends the training on interactive devices which can now be offered to students but also affords them the convenience of self-service cluster printers.

Another positive result of the new emphasis on interactive work -- and of the configuring of terminals and printers in a network of clusters -- is that users need rely less and less on keypunches. For both students and faculty, this will result in quite a saving in time and frustration, since keypunches, card readers, and associated devices are prone to mechanical failure and tedious repair delays. In addition to the ACF terminal sites at 14 Washington Place, LC-14 Tisch Hall, and 317 Warren Weaver Hall (the Warren Weaver facilities are for faculty and researchers only), clusters of terminals are being set up around the University so as to be especially available to particular schools and departments. A terminal cluster on one of the lower levels of Bobst Library is also in the planning stage.

Aside from those already mentioned, some other new facilities have been added to the Tisch Hall site. A new remote job entry station -- including a card reader and high speed printer -- has been established for the CYBER in LC-8 Tisch Hall. WIDJET, a new system which permits the editing and submission of files from terminals, has been established on the IBM system for student use. The installation of the WIDJET system, and the associated terminals, is part of the move toward decreased reliance upon card punches and readers.
The ACF Staff

While we haven't the space to introduce our staff individually in this issue, we will give a brief overview of the ACF staff and their various functions.

ACF User Services include computer advisors, who aid students and classes in their course-related computation, and consultants. The consultants and, to a certain extent, the advisors differ in their areas of expertise. Help is provided with the use of the operating systems, with many of the programming languages available on the ACF systems, and with numerical, statistical, and graphics applications, as well. Documentation is another ACF user service, and includes the preparation of writeups intended to facilitate the use of ACF software. Other members of our staff have functions that may be less familiar to most users. Our systems programmers are experts in the various ACF operating systems, in data communications, and so on. Our technical staff sees to the installation and maintenance of terminal and communications equipment. Finally, our operations personnel are responsible for the day-to-day operation of the ACF equipment and facilities.

Some Usage Statistics

Through the beginning of the Spring term, there were approximately 6000 students -- some 3000 each semester -- using the ACF systems on computer accounts issued by course section (computer class accounts). About 500 faculty, researchers, and graduate researchers used the computer on individually issued accounts. Half of the student class accounts issued were for the use of interactive facilities, while the remaining students submitted jobs from Graduate Business Administration (through a DEC20); from the midtown School of Continuing Education (through a PDP 11/34); from WIDJET in Tisch Hall (through the IBM series 1); and via remote job entry terminals in Tisch.

* * *
HARDWARE CONFIGURATIONS: The CDC CYBER System

The ACF provides CYBER, IBM, and VAX accounts. In this issue of the Newsletter, we sketch the basic hardware configuration of the ACF's CYBER system. Comparable descriptions of the IBM and VAX hardware will be included in future issues.

The ACF CYBER Configuration

The CYBER configuration is the ACF's principal computing resource, and is centered on a CYBER 170 computer system, Model 720. The 170-720 system consists of a large, general purpose computer and its associated peripheral components, all Control Data Corporation (CDC) products. We will describe the 170-720 system in somewhat more detail below. The entire ACF CYBER configuration, however, includes additional subsystems and devices for storage, communication, and input and output, as shown in the following list.

- A CYBER-170 Model 720 Computer System consisting of two Central Processors (CPUs) with compare/move units, 14 Peripheral Processors (PPs), 24 I/O channels, and 198K 60-bit words of Central Memory (CM).

- A Mass Storage Subsystem consisting of three 7155 Mass Storage Controllers, four 844-41 Disk Drives with a capacity of 237 million characters per unit, and one 885-12 Disk Drive with a capacity of 1.384 billion characters.

- A Communication Subsystem consisting of two 2551 Network Processing Units with a total of 140 communication lines.

- A Unit Record station consisting of one 405 card reader (1200 cards per minute), and one 580-16 line printer (1600 lines per minute).

- A Magnetic Tape Subsystem consisting of two 7021 tape controllers, four 679-3 nine-track tape drives (recording densities of 1600 cpi Phase Encoded (PE) and 6250 cpi Group Coded Recording (GCR)).

(Text continues on page 6.)
ACF CYBER 170 Model 720

NOTES:

Central Processor-1 has the same components and functions as Central Processor-0.

Peripheral Processor Subsystem-1 currently adds 4 peripheral processors to the 10 in Peripheral Processor Subsystem-0. All peripheral processors may access all I/O channels.

Solid contours denote a functional unit.

Broken contours indicate optional equipment not included in current ACF CYBER configuration.
Overview of the ACF 720 System

A schematic of the CYBER 720 computer system is displayed on the opposite page. That drawing, as well as much of the following description, are adapted from the CDC Hardware Reference Manual (Publication No. 60456100).

In the schematic, our Model 720 computer system's two serial central processors (CPs) are identified as CP-0 and CP-1. Each CP contains an arithmetic unit, an instruction control section, and an optional compare/move unit. Also shown are our two peripheral processor subsystems, which have a total of 14 peripheral processors (PPs), ten in PPS-0 and four in PPS-1. The CPs communicate with each peripheral processor subsystem (PPS) through central memory (CM), which is controlled by central memory control (CMC) and includes one central storage unit (CSU).

The figure also shows an extended core storage component (ECS). The ECS is an optional component which is not included in our current CYBER 720 system. It would provide additional memory capabilities, short access time, and fast transfer rates to and from CM. Communication between the CPs and the ECS would go through CM.

The PPS-0 performs all I/O operations and uses an instruction set separate from that of the CP to execute independent programs in each of 10 PPs. The PPs have individual memories and communicate with each other and any of 12 I/O channels.

PPS-1 represents an optional expansion of the basic Model 720 system, from ten PPs to fourteen. The 10- to 14-PP option expands the number of I/O channels from 12 to 24.

* * *

* * *
FOR DIAL-IN USERS OF THE ACF CYBER 720

The modem and terminal which you use to dial in to the ACF CYBER 720 probably have switches which enable their use on a variety of computer systems. While some dial-up equipment will have more switches than others, nearly all terminals and modems will require some adjustment before telecommunication with a particular computer system can be established.

Here is a list of the most common switches and the values to which each ought to be set when dialing up the ACF CYBER 720.

Auto New Line................. On
Character Set.................. ASCII or APL*
Duplex.......................... Full
Internal Echo................... No
Number of Data Bits........... 8
Parity......................... None or Inhibit
Speed.......................... According to ACF number dialed**
Stop Bits...................... 1 or 2

NOTES:

* If you intend to use the APL character set, prompt the system, immediately after dialing in, with the following sequence:

   <Carriage-Return>
   }<Carriage-Return>

With ASCII, striking the return key twice will initiate log-in. Further instructions are given in the CDC IAF Reference Manual, pages 2-5.

** Dial 598-7001 or 460-7381 for 110 to 300 bps. Use 598-7005 or 460-7385 for 600 and 1200 bps.

There are currently sixteen dial-up lines to the CYBER. Since the switchboards are sometimes heavily loaded, you may occasionally encounter "busy" signals.

* * *
CHANGE IN IBM OPERATING SYSTEM

During the Spring semester break, the IBM operating system was converted from OS/MVT release 21.8A to MVS/JES2 release 3.8D. This new operating system provides increased disk, tape, and CPU resources and facilitates the day-to-day operation and maintenance of the ACF IBM system. Users are affected by the operating system change in a variety of ways. For academic users of the IBM, the most important changes occur in Job Control Language (JCL) and in WYLBUR.

On the whole, the conversion from MVT to MVS resulted in few changes in JCL. However, JCL for some applications involving disk or tape access methods have been changed, as have some job class conventions. Further details on these changes are provided in the "Conversion Guide", available from the consultants in Tisch Hall, Room LC-11. IBM users are urged to obtain a copy of this guide and read it as soon as possible so as to avoid errors. Additional information is posted on the bulletin boards in the Tisch Hall site. Users should consult these boards regularly for further announcements of system updates.

In connection with the MVS conversion, a new upgraded MVS version of WYLBUR (OBS/WYLBUR) was installed. While this version is similar to the old MVT WYLBUR, there are a variety of new features with which WYLBUR users should become familiar. One of these is an on-line help facility which allows users to access information about any particular command. In addition to this on-line facility and the MVS "Conversion Guide" mentioned above, an OBS/WYLBUR manual can be purchased in Room 504 Warren Weaver Hall from 9-4:30 Monday through Friday. For further information concerning the IBM system conversion, see the consultants in Tisch Hall, Room LC-11 or LC-7, or call the consultants at 598-7851.

* * *
HOW TO SAVE COMPUTER TIME
Some Hints for Class Account Users

The computer resources available to each student are limited. The exact amount allocated to a student's account is determined by his or her department. Excess and waste in students' use of computer resources can cause budgeting difficulties for their departments.

Here are some guidelines to help students avoid waste of their computer account allocations. These hints may also interest faculty and researchers concerned with using their computer resources as efficiently as possible.

- Don't stay logged in unnecessarily. Connect time is charged to your account.
- Printing output costs more than having it displayed at the terminal. Use the printers only when you want to have a hard copy of your output or program.
- Computer games are fun, but they cost money which, in turn, is reflected in charges to your account. Don't play computer games unless you can afford them.
- Quick fixes, and random, trial and error programming, may cost you computer dollars. If your program is not working properly, think first, rather than wildly trying the first thing that occurs to you. Each bomb consumes computer resources.
- Do your projects ahead of time. Last minute programming encourages panic, which will result in increased errors, poor fixes, and waste of computer time and money. (And a few hours prior to deadline is a bad time to run out of computer money.)
- Do your program development before you arrive at the terminal. Your programming will be more elegant, efficient, and economical.

* * *
The following rates for the more commonly used ACF computer resources are presented for interest, and to provide general guidelines as to what the charges for your particular computer use might be. Use of certain resources unique to one system or another will incur additional charges, and all rates are subject to change at any time to reflect cost. Details of the formulae by which charges are computed have been sent to each department's office. If further information is required, contact the ACF Accounts Office, 305 Warren Weaver Hall, 460-7394.

<table>
<thead>
<tr>
<th>Item</th>
<th>CYBER</th>
<th>VAX</th>
<th>IBM</th>
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</thead>
<tbody>
<tr>
<td><strong>Execution Resources</strong></td>
<td></td>
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</tr>
<tr>
<td>CPU</td>
<td>$100.00/hr</td>
<td>$50.00/hr</td>
<td>$150.00/hr</td>
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<td></td>
<td>(.0277/sec)</td>
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<td>(.0416/sec)</td>
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<tr>
<td>Memory</td>
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<td>.007/KB min</td>
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<tr>
<td>Disc I/O</td>
<td>.14/KPRU</td>
<td>.10/K units</td>
<td>1.20/KEXCP</td>
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<td>Tape I/O</td>
<td>.014/KPRU</td>
<td>.10/K units</td>
<td>1.75/KEXCP</td>
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<td>2.40/KEXCP</td>
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<td>Disc Storage</td>
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<td>Tape Mount</td>
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<tr>
<td>Labelled</td>
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<td>Unlabelled</td>
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<td><strong>Time-sharing Resources</strong></td>
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<td>Connect time</td>
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<td>Character Input</td>
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<td>Character Output</td>
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<td><strong>Paper/Card I/O</strong></td>
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<tr>
<td>Cards Read</td>
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<tr>
<td>Main Site</td>
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<td>$.45/1000</td>
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<tr>
<td>RJE (Tisch)</td>
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<td>.45/1000</td>
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<tr>
<td>Lines Printed</td>
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<tr>
<td>Main Site</td>
<td>.40/1000 lines</td>
<td>.02/page</td>
<td>.45/1000 lines</td>
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<td></td>
<td>plus .01/page</td>
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<tr>
<td>Cards Punched</td>
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<td>.45/1000 cards</td>
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* * *
### SUMMARY OF ACF SYSTEM ACCESS

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<tr>
<th>System</th>
<th>Access Mode</th>
<th>Location</th>
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<tbody>
<tr>
<td>CDC/CYBER 170-720</td>
<td>Batch</td>
<td>311 WWH</td>
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<tr>
<td>Faculty and Researchers</td>
<td>Interactive (12 Terminals)</td>
<td>317 WWH</td>
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<td>Interactive (16 Ports)</td>
<td>Dial-Up</td>
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<td>Students</td>
<td>Batch</td>
<td>LC-8 TH</td>
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<td>Interactive (10 Terminals)</td>
<td>LC-14 TH</td>
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<td>IBM System</td>
<td>Batch</td>
<td>LC-8 TH</td>
</tr>
<tr>
<td>Faculty and Researchers</td>
<td>Wylbur (10 Terminals)</td>
<td>LC-14 TH</td>
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<td>Wylbur (25 Ports)</td>
<td>Dial-Up</td>
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<td>Batch</td>
<td>LC-8 TH</td>
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<td>Widjet (30 Terminals)</td>
<td>LC-8 TH</td>
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<td>DEC VAX 11/780</td>
<td>Interactive (4 Terminals)</td>
<td>317 WWH</td>
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<td>Faculty and Researchers</td>
<td>Interactive (8 Ports)</td>
<td>Dial-Up</td>
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<td>Interactive (5 Terminals)</td>
<td>LC-14 TH</td>
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<tr>
<td>Students</td>
<td>Interactive (6 Terminals)</td>
<td>14 WPL</td>
</tr>
</tbody>
</table>

### INFORMATION AND DIRECTORY

**Accounts** 305 WWH, Mon - Fri, 9 a.m. to 5 p.m., 460-7394

**Administration and general information**

305 WWH, Mon - Fri, 9 a.m. to 5 p.m., 460-7427

**Dial-up numbers** (Return key begins log-in on CYBER and VAX; shift-P on IBM.)

<table>
<thead>
<tr>
<th>System</th>
<th>Access Mode</th>
<th>Location</th>
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<tbody>
<tr>
<td>CYBER</td>
<td>110 to 300 bps</td>
<td>IBM 598-7001</td>
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<td>460-7381</td>
<td>475-2801</td>
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<td></td>
<td>110 TO 1200 bps</td>
<td>598-7005</td>
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<td></td>
<td>460-7385</td>
<td>460-7134,5</td>
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<td></td>
<td>VAX from 598 exchange:</td>
<td>X4141 1200 bps X4145</td>
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<td></td>
<td>300 bps</td>
<td>473-7235</td>
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<tr>
<td></td>
<td>all others:</td>
<td>473-7642</td>
</tr>
</tbody>
</table>

**Documentation**

ACF/NYU Newsletter is mailed to holders of individual accounts on the CYBER, IBM, or VAX. Inquiries: Estelle Hochberg, 306 WWH.

Bookstore (N.Y.U.), 23 Washington Place, stocks commercially published software manuals. Inquire at Information Desk,

(Continued on Page 12)
lower level. Computer tapes are sold at stationery counter.
CYBER Quick Guides: Use "obtain(writeup=qindex)" for information.

Limited supplies of ACF guides and manuals are also distributed from
14 WPL, Operators' Desk, Mon - Fri, 9 a.m. to 10 p.m., Sat 9 a.m.
to 6 p.m.; TH Room LC-11, Mon - Sat, 10 a.m. to 5:30, 598-7851.

On-line HELP utilities (CYBER, VAX): Type "help", strike return key.

On-line News bulletins are important sources of information on systems
and operations, training sessions, new documentation, user
and programming hints, and so on.

CYBER News: Use "obtain(writeup=news)" for time-sharing or batch.
Replaced weekly.

IBM News: Updated as needed. Batch, use "// exec ibmnews".

Wylbur, type "u wyl.pb.pub.ibmnews(current)" then "list".

VAX Mail: Type "mail"; strike return key to list each message; type
"help" for further instructions; type "exit" to quit.

Reference copies of manuals: 14 WPL, TH Room LC-7, WWH Room 317.

Equipment problems at 14 WPL Site manager
    at TH " " Room LC-7
    at WWH Operations personnel, Room 312, or 460-7414
ACF terminals at other locations: 460-7414

System Status CYBER, VAX: 460-7285 (recorded message)

Tape Requests: Tape Purchase:
    CYBER, VAX 460-7155 NYU Bookstore, Stationery Counter
    IBM 598-3743

Terminal problems (ACF equipment only): see Equipment

User Services
Student Advisement
    CYBER: 14 WPL 460-7140 CYBER, IBM: TH Room LC-7
    598-2993

Consultants
    CYBER: TH Room LC-11 598-7851 IBM: TH Room LC-11 598-7851
    WWH Room 307 598-3970
    460-7398

Hours for consultants and student advisors are posted at 14 WPL,
WHH outside Room 305, and TH Rooms LC-7 and LC-11.

User Work Areas Mon - Fri 9 a.m. to midnight, Sat 9 a.m. to 4:45 p.m.
(Note: WWH facilities are for faculty and researchers only.)

    CYBER: Interactive terminals, self-service printers
        14 WPL, TH Room LC-14, WWH Room 317
        Card readers TH Room LC-8, WWH Room 312
        Keypunches TH Room LC-8, WWH Room 309, 310
        Output folders (high speed printers)
            TH Room LC-7, WWH Room 312

    VAX: Interactive terminals, self-service printers
        14 WPL, TH Room LC-14, WWH Room 317
        Output folders (main printer) WWH Room 312

    IBM: Interactive terminals
        Wylbur TH Room LC-14 Widjet TH Room LC-7
        Card reader TH Room LC-8
        Keypunches TH Room LC-8 Output folders TH Room LC-7