The Academic Computing Facility Newsletter
The Academic Computing Facility, New York University
Courant Institute of Mathematical Sciences
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For a directory of the Academic Computing Facility (ACF), see the last pages of this issue of the Newsletter.

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In This Issue

A Fall Preview of Computing Sites and Facilities

The ACF's plans for the fall semester include a substantial increase in VAX/VMS and VAX/UNIX facilities, a second IBM system running the VM/CMS operating system, a larger work area in the Education Building, with more public terminals accessing the ACF systems. Other plans include an interactive graphics system, a Macintosh microcomputer facility for use by faculty and students, and continued replacement of the remaining public terminals which do not yet support screen editing.

Supercomputing With The JVNC

The John von Neumann Center for Scientific Computing is a supercomputer center established at Princeton by a consortium of which NYU is a member. Supercomputers enable research that was previously impractical. JVNC facilities will start to become available in the fall of 1985. Faculty, students, and members of research projects at NYU may apply now for use of supercomputer time.

Campus-Wide Wiring for Local Area Network Is Planned

The growth of computing has also meant an increase in data communications, from computer to computer and from terminal to computer. Available channels are already being taxed. A University task force has planned a campus data communications network which will use a broadband cable design. Work to establish the new network is beginning now. The campus-wide network will also mean new opportunities for members of the NYU community to collaborate in the use of electronic aids in research and in the preparation of publications.

Coming Soon: An Upgrade of the CYBER's Operating System

An upgrade of NOS to Version 2.3 and, possibly, 2.4 is expected to occur sometime during the summer months. Improvements associated with the upgrade will include more informative error messages and support for full-screen operations with all terminals. Job management and file security improvements will include enhancements in the CLASS and CATLIST commands and the RECLAIM archiving facility. Several new features will serve as aids to CYBER users' account and resource management. If NOS Version 2.4 enhancements arrive in time for the upgrade, there will be added CDC support of file transfers to and from a substantially greater number of microcomputers than is currently possible with KERMIT.

An Update for UNIX Users

ACF4 underwent a hardware upgrade; a second VAX was converted to UNIX; and the actinf command enables users to obtain information on their resource usage.

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Applications Software on the ACF Systems: Recent Upgrades and Arrivals

There were upgrades to the spreadsheet program Graphic Outlook, the wordprocessing package WordMARC, and the database management system SIR. The relational database management system, INGRES, was installed recently, while statistical packages which are either newly available or recently upgraded include GENOVA, GLIM, MILS, and LINDEP. The NAG, MATLAB, and SLATEC libraries of mathematical and statistical routines have all been upgraded. VAX-11 LISP is now available, as well as VAX-11 C, and the addition of these two DEC compilers has necessitated some usage changes. An upgrade of VAX-11 FORTRAN was accompanied by some minor bugs. NCAR's support of local output devices has been extended, and a new version of the file transfer program KERMIT has alleviated problems encountered with VAX/VMS Version 3.

Some Notes for Microcomputer Users

The ACF Microcomputer Laboratory has acquired some new hardware and software for examination by faculty at NYU. The ACF now publishes a second newsletter for microcomputer users at NYU, and has set up an electronic bulletin board intended for information exchange among micro users in the NYU community. (See "A Fall Preview" and "User Services Notes" for other items of interest to micro users.)

Update on the ACF's New Database Service

An online listing of the databases presently available at NYU is accessible through the IBM WYLBUR help facility. Copies of the more popular databases are also being made available to CYBER and VAX/VMS users. Meetings with interested faculty continue.

User Services Notes: Talks, Tutorials, and Helpful Hints

Tutorials and lectures in the use of the CYBER and IBM WYLBUR systems will be offered during the summer months. Summer hours at several ACF sites have begun. The spring 1985 semester schedule included talks and tutorials for users of WYLBUR, VMS, UNIX, and the CYBER. Talks on special topics dealt with database management software, micro- and mainframe use, the ACF's microcomputer laboratory, and LOGO. WYLBUR users have a new means of reporting problems to consultants. Individual account holders on all systems are reminded of the ways in which they can report problems, should they occur, and seek help when it is needed.

Robotics Symposium to be Held At NYU

The NYU/CIMS Symposium on Factory Automation and Robotics will be held September 9-11 at NYU.

Databases, Online and Off

A recent meeting of National Online presented an interesting array of commercially available databases. They could be characterized partly as to the amount or kind of detail which they offered and whether they are distributed as on- or off-line databases.

Information and Directory for The Academic Computing Facility

Selected facilities and telephone numbers, in brief, followed by a more detailed directory of facilities and services.

Special contributions to this issue of the Newsletter were made by the following members of the ACF staff and associates (in alphabetical order): H. Bernstein, G. Chapman, E. Franceschini, E. Friedman, N. Gaussewitz, M. Goldstein, E. Hochberg, B. Holland, M. McCarthy, B. Russell, G. Sharrard, D. Sullivan, S. Thibor, and J. Turrutellas.

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A Fall Preview of Sites and Facilities

The ACF plans to enhance its facilities for the fall term starting in September 1985. Here are some of the expansions and additions which are being planned.

Increases in VAX resources for VMS and UNIX. There will be two additional VAX 8600's. They will be running VMS operating systems, with interconnections via the ACF's VAXcluster. The 8600 is Digital Equipment Corporation's new top-of-the-line VAX. Each 8600 has approximately four times the capacity of a VAX 11/780. (The VAX 11/780 was DEC's top-of-the-line VAX a year or so ago.) Currently, a number of the VAXes at NYU -- ACF1, ACF2, and ACF5, for example -- are 11/780's. Also in the fall semester, one or two of these will be upgraded to VAX 11/785's. Three more VAXes will become UNIX machines in the fall, and one or two of these will be 785's. Since a 785 has nearly 1.5 the capacity of a 780, the result will be a nice increase in UNIX resources, as well. The MICOM Port Selector will also be expanded to accommodate these new systems.

Additional IBM running a different system. In addition to the ACF's current IBM WYLBUR system, there will be another IBM 4341 which, however, will be running VM/CMS. The VM/CMS operating system will allow truly interactive access to the IBM. (WYLBUR interaction is in "batch" mode.) Accounts on the VM/CMS system will be offered to faculty only.

Expansion of Education Building site. More space is being made available to the ACF in the Education Building, where the ACF plans to expand computing facilities in the fall semester. The ACF's Education Building site is on the second floor of the Education Building, 35 West Fourth Street. It is a comparatively new site, having been opened during the Fall 1984 Semester. Currently, there are about twenty-eight Qume terminals at the Education Building site. The Qume terminals are VT100-emulators. They are connected to the MICOM, and so can be used to access the CYBER, VAX/VMS, VAX/UNIX, IBM, and any other system on the NYU Computer System Selecter or "switch". ACF users at the Ed Building also have access to two self-service cluster printers. With the soon-to-be added space, the Ed Building site will have the potential for 120 workstations. Not all of these will be for ACF use, however, as the ACF will continue to share space with the Computer Science Department's microcomputer facility.

Some other plans: Computer graphics, microcomputers, and more full-screen terminals. An Evans & Sutherland PS330 interactive graphics system is also being planned by the ACF. If negotiations and arrangements continue to go well, we hope to have it in use by some time in the fall semester. It will be available to faculty and graduate students. One kind of application will be by members of the Biology and Chemistry departments, who will be using the system for the interactive modeling of structures from single crystal X-ray diffraction. Calculations of this sort have more typically been accomplished in "batch", rather than interactively. With an interactive graphics system, computer graphics can be used as both input and output -- in addition to more traditional alphanumeric text. There will also be a new AED color graphics terminal, a Tektronix 4105 Color Display Terminal and a Tektronix 4695 Color Copier.

Also in the fall, we hope to open a small microcomputer facility with Macintosh's. This new facility will be for both students and faculty. It will be housed in the Education Building, where additional space is being made available to the ACF. We feel that use of the new Macintosh Lab can be integrated readily into the syllabi of a wide variety of courses, and look forward to seeing NYU faculty employing this new microcomputer facility with their classes as the fall semester progresses.

Finally, over the summer, the ACF plans to "retire" as many as possible of the ADM3a's in its public sites, and replace them with terminals that support screen editing on our systems.
Supercomputing With the JVNC

Over the past few years, the Academic Computing Facility has helped faculty and research personnel at NYU to gain remote access to "supercomputers" throughout the country. Recently, new opportunities for supercomputer use have begun to open. The word supercomputer seems to change in meaning as computing technology advances. Currently, a "supercomputer" might be as many as 200 times as powerful as one of the ACF's DEC VAX 11/780's. In a few years, machines 8000 times as powerful as that same VAX are anticipated. This increase in computing power means that research areas formerly considered to be beyond the limits of practicality are now worth pursuing, because the necessary computer resources can be obtained.

Both the National Science Foundation and the Department of Energy have made their largest machines available without charge to those with appropriate research interests. It has become clear that access to these machines can be important in many scientific areas. In order to allow many more scientists and engineers to make optimal use of supercomputers, the National Science Foundation has recently funded some new facilities. NYU is a member of a consortium of twelve institutions funded to establish a supercomputer center in Princeton, New Jersey.

The Consortium for Scientific Computing, Inc., is a non-profit corporation formed by the University of Arizona; Brown University; the University of Colorado; Harvard University; the Institute for Advanced Study; Massachusetts Institute of Technology; New York University; the University of Pennsylvania; Pennsylvania State University; Princeton University; the University of Rochester; and Rutgers University. The purpose of the consortium is to address supercomputing needs, as characterized by the National Science Foundation. The Consortium has been funded to establish the John von Neumann Center for Scientific Computing (JVNC). About two-thirds of the cost of the JVNC is being borne by the National Science Foundation, while the remainder is funded by the State of New Jersey, members of the Consortium, and industrial partners.

The JVNC should start operation in the fall of 1985 with one CDC CYBER 205, and eventually expand to include an ETA 10. This means that, by 1989, the JVNC will be providing computing power which is approximately 40 to 50 times that of a Cray-I. New York University, like most members of the Consortium, will have very high-speed communications links to the JVNC. The National Science Foundation also plans to provide high-speed communications cross-links among its centers, so that the path from NYU to the JVNC will be a useful bridge in reaching many other NSF-related facilities.

There are two ways in which members of the NYU community can obtain time on the JVNC supercomputers. First, as a member of the Consortium, NYU has access to a small block of time, which, in turn, can be distributed to faculty and students for use in research. The Academic Computing Facility is responsible for allocating time from this block. In addition, about two-thirds of the JVNC computing time will be provided to research projects, on the basis of peer review, by a National Allocation Committee. NYU researchers are encouraged to submit proposals for the use of computing time from this second block.

To request time (up to twenty hours) from the block allocated by the ACF, submit form ACF770 (Request for Individual Computer Account Number). Be sure to note JVNC in the box marked other in Section 3b. The project description which you include on that form must contain an estimate of the supercomputer time which you will require, both per month and in toto. Copies of ACF770 are available in Room 305 Warren Weaver Hall. In order to obtain time from the second, larger, category of computing time, one submits a proposal to the ACF, via a form titled Supercomputer Time Request, which will be forwarded to the National Allocation Committee. Copies of this form are also available in Room 305. For further information, contact Herbert Bernstein at 460-7269.

-Herbert J. Bernstein.
Campus-Wide Wiring for Local Area Network is Planned

The University's Data Task Force has submitted its plan for the design and implementation of a data communications network for the Washington Square Campus. Work on the campus-wide network for data communications is slated to begin early in the 1985-1986 academic year, and some preliminary work may well begin during the coming summer months.

The Data Task Force is composed of faculty, administrators, and technical staff representing major suppliers and users of data communications within the University. The group was formed in order to study ways in which current and anticipated needs for data communications could be met.

Rapidly growing need for data communications. At NYU -- as at universities around the country -- the need for data- and video-communications has grown rapidly in the past five to ten years or so, and is expected to show another, quite sizeable, increase within the next ten years. As a result, current means for supporting data communications are already greatly stressed and are likely to become seriously outmoded in the near future.

The term data communications refers to the reception and transmission of information (or data) from one device to another, and the communication channels -- often, networks of them -- through which the information is passed. The data communications of greatest concern to the University Task Force are those connecting terminals to computers and computers to computers. These are the kinds of connections which make it possible for individuals to log on to NYU's mainframes and minicomputers from terminals or microcomputers in their offices; to upload and download files to and from their microcomputers; to communicate easily from one microcomputer to another in offices around campus; to exchange memos via electronic mail -- or, for that matter, drafts of papers-in-preparation; to access electronic bulletin boards where information can be shared with other individuals in their fields. They also facilitate the establishment of on-campus workstations by departments, and are critical to the distribution of public sites giving access to the ACF's computing resources.

The Campus network will use broadband cable design. In the design of its new local area network, NYU will be adopting a comparatively new technology associated with broadband cable. Broadband cable resembles the cable which is used for television transmission, except that, with broadband, some of the channels are devoted to transmitting data rather than video information. Like the wiring used for cable television, the network will be continuous in the sense that there will be a trunk to which every point will be connected and through which every point can communicate with every other point. A number of other universities are also turning to broadband cable local area networks as an economical and farsighted way of meeting current data communications needs and of laying the groundwork for meeting future needs quickly and inexpensively.

Design changes dictated by changes in communications patterns and types. In the past, most data-communications have been between terminals and computer centers. As a result, university campuses have tended to be wired in a "star" or spoke-like pattern, in which wires connecting terminals and other workstations scattered over the campus would all converge on one central site where the mainframes or minicomputers were located. In recent years, however, new kinds of computer applications have rendered the traditional way of wiring campuses considerably less suitable. For example, microcomputer-to-computer and computer-to-computer communication have become increasingly important, and connections must be such that any two devices or points in a "constellation" can communicate. Thus the move to a cable-based, local area network.

Local Area Network (LAN) will mean new opportunities for members of the NYU community. The adoption of this new technology will mean that virtually the entire Washington Square Campus can be wired in such a way that new connections can be made very quickly, as needed. This, plus the modest

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incremental cost per connection will facilitate the establishment of communications among workstations in faculty offices. One benefit will be to enhance collaboration -- via electronic wordprocessing and mail facilities, for example -- on scholarly papers, proposals, and reports. Such facilities make it possible for coauthors to exchange and revise drafts quickly and efficiently. Communicating workstations also open an opportunity for authors and clerical staff to work together more effectively -- with the author editing at his or her workstation a draft which the typist has entered in a computer file, or a typist working on a draft which the author has entered, correcting typos and formatting the document to produce a "clean copy".

A second benefit is that personal computer users in offices around campus will be able to communicate with other on-campus micro users and with the ACP's mainframes and minis via the network, rather than by dial-up. This will mean that telephone lines in University offices can be devoted to voice communication, and that there will be less pressure exerted on the voice communication facilities by the growing demand for data communications.

A third set of benefits has to do with the economical and efficient sharing and management of the University's equipment and resources. With the kind of system of "universal" interconnection which is being planned, it will be easier to share computer equipment and resources. Some examples of the kinds of shared facilities which will become easier under the new system are large data repositories; special high-capacity, publication-quality printers; and pools of telephone equipment for making data connections to colleagues at other universities and to online databases from sources outside the University. With the LAN, access to the NYU libraries' online catalog systems will be possible from the same terminals that are used to access the computer center facilities. At New York University, academic and administrative computing are done on different sets of computer systems run by different computing centers. For University personnel who must use both administrative and academic computing systems -- department chairmen, for example -- the new network will also mean being able to access both systems conveniently.

Another attractive aspect of the broadband cable network that is being planned is that it could be shared by other services. Plans are already under way to use the network for video transmission. Other ways in which the cable network could be shared with additional services are only quite tentatively under consideration, but they do help to illustrate the adaptability of the technology and design of the LAN. One example would be in the implementation of security systems around campus. Energy management offers another example: the LAN could be used for the transmission of information for control, by central energy management systems, of air conditioning and heat.

Further information, if needed, can be obtained from Ed Franceschini (460-7291).

As we go to press...

An Additional Opportunity to Obtain Supercomputer Time

The National Science Foundation has announced that supercomputer time is available at the Production Supercomputer Facility (PSF) of Cornell University's Center for Theory and Simulation in Science and Engineering. The equipment consists at present of some Floating Point Systems Processors, interfaced to an IBM 3081. If you have large scale scientific computations and could benefit from this facility, please contact Herbert Bernstein, at 460-7269. He will supply you with the form on which your proposal for PSF time must be submitted, and further information, if needed.

(Note: Supercomputer time is also available with the JVNC. For more on this, see the article on Page 4 of this Newsletter.)
Coming Soon: An Upgrade of the CYBER's Operating System

The CYBER's operating system, NOS, is currently scheduled to be upgraded sometime during the summer months, when CYBER usage is comparatively light. NOS will be upgraded to Version 2.3 and, if it arrives in time, to Version 2.4. The upgrade is expected to cause few if any inconveniences to CYBER users, but it will introduce some improvements. Here are some of the enhancements which the upgrade will bring. (A more detailed treatment will be placed online on the CYBER by the last week in June. Watch the online CYBER News for an announcement of its availability.)

Interactive "Environment": Improved Messages and Enhanced Screen Support

More "user-friendly" error messages. Error messages generated by the operating system, and the corresponding documentation, are being rewritten so as to be more easily understood. For example, messages will now refer to "commands", rather than "control cards" or "statements". Distinctions will be made among INCORRECT, ILLEGAL, and INVALID commands.

Full-screen support for all terminals. All terminal types will receive full screen support. As a result, it will be possible for interactive CCL procedures to operate in screen mode on all terminals connected to the CYBER. Currently, for example, the NOS HELP facility can operate in screen mode only on a few types of terminals -- most notably at NYU, the Zenith Z29 and CDC 721 "Vikings" terminals. Under NOS 2.3, full-screen HELP will be available to any user who has placed his or her terminal in screen mode. Users who design their own interactive CCL procedures will find that screen formatting will be easier to accomplish. Finally, at present, many users of the CYBER's Full Screen Editor, FSE, are using terminals which they must define as VT100's in order to obtain a useful mapping of FSE's function and keypad keys. Under NOS 2.3, these individuals may find that they will be able to define their terminals as they really are -- with the result that the labels on their keypad and function keys will map to what they actually do in FSE.

Aids in Job Management, File Security

CLASS command extended in scope. It will be possible to use the CLASS command to change the service class of any non-interactive job belonging to a user, whether the job is in the input queue or waiting to execute. The service class of an interactive job, other than your own, cannot be changed.

Another new file-security feature for the CATLIST command. Under NOS 2.3, permanent files will have a new attribute: their visibility to another user who may be perusing your catalog. Visibility refers to whether or not a file will be included in a list of files obtained by another user who might have typed CATLIST, UN=yourusername. Currently, a file would be visible to any user to whom you had PERMITted it -- or to any user, if you have made it publicly readable (SPRIV). Under NOS 2.3, by default, a file will be invisible, unless you specifically make it visible to another user. The change was introduced in order to discourage possibly mischievous browsing.

User-designed banner pages for output. Another convenient feature of NOS 2.3 will be the BLOCKL command. With BLOCKL, you will be able to create one or more banner pages for each item of batch output. You can design your banner pages to make your output more identifiable, or to add information to it -- an "action" memo or some task identifier, for example, or simply your name.

RECLAIM facility is enhanced. There have been some important improvements in the archiving facility RECLAIM. It is now possible to "dump" local as well as permanent files, and to dump to and from a mass storage file. Other improvements include a new option which allows you to load over an existing permanent file, and the ability to dump or load files without maintaining a RECLAIM database. You will be able to select files for exclusion from processing, and specify the sequence in which you wish...
files to be dumped, and will obtain diagnostic information when a file has not been found and/or processed. Finally, much unnecessary manipulation and repositioning of the dump tape has been eliminated.

Account and Resource Management

Terminal I/O count upon logoff. The message that you receive upon logging off will now include a count of the total characters of input and output associated with the current terminal session. This change may be helpful to those users who need to keep careful track of their accounts and the computing resources allocated to them, and who wish to track the way in which they are using their accounts.

Permanent File Charge/Project. Each permanent file will now have a Charge and a Project number associated with it. By default, they will be the same as those which you employed when logging in to the session in which the file was created. However, you will now have the option of changing it, should you wish some other number to be debited for that file’s disk storage. To do so, you use the CP parameter on the CHANGE command. A number of commands, including CATLIST, will report the charge and project numbers associated with permanent files.

A /CHARGE directive in SUBMIT files. Under NOS 2.3, it will be possible to use the directive /CHARGE in place of the CHARGE statement. This will mean that users of deferred batch (or "SUBMIT") files will not have to edit their files each time a charge or project number is changed. It will be especially convenient for individuals who work under several projects. (SUBMIT files are files containing a sequence of CCL commands, programs, and so on; they have been structured as "batch" jobs and are submitted via the SUBMIT command to the CYBER’s batch queue.)

NOS 2.4 Enhancements

As mentioned earlier, the upgrade may also include new features associated with Version 2.4 of NOS. Possibly the most interesting of these will be added support by CDC for file transfers to and from microcomputers. NOS 2.4 will bring support for XMODEM, the microcomputer file transfer protocol. While file transfer is currently possible via KERMIT, the protocol supported at NYU, this new support by CDC of XMODEM will enable downloading and uploading to and from a substantially greater variety of micros, most notably the Macintosh. Another new feature of NOS 2.4, Customized User Environments (CUE’s) will allow our Systems Staff to more easily modify the system commands available to groups of accounts. Thus, for example, it will be possible to create, for a class or project, accounts which are restricted only to the use of one compiler or which can be used only for statistical analyses with preselected packages, and so on. □

- Estelle Hochberg, from information supplied by Bill Russell. Technical review, Bill Russell.

An Update for UNIX Users

Editor’s Note: UNIX users should also see "A Fall Preview" (Page 3) for some upcoming changes and additions to UNIX facilities at NYU.

During the Spring Semester, ACF2, a DEC VAX 11/780 was converted from the VMS operating system to 4.2 BSD UNIX. This change was made primarily to support the further development of ADA here at New York University. ACF2 is now the second ACF VAX running a UNIX system, ACF4 being the first.

ACF4 has been upgraded from a VAX 11/780 to a VAX 11/785, a faster central processor (CPU). Future upgrades should make a noticeable improvement in this machine’s performance. ACF4 is currently the major undergraduate UNIX machine, and runs the 4.2 BSD “flavor” of the UNIX operating system.

Users of the VAX/UNIX machines can now obtain accounting information for the current month-to-date by using the actinf command. Actinf uses the same data and algorithms that the accounting program does. The actinf database is updated each night, so running the program twice in the same day will produce the same answer. A real-time accounting system is envisioned for the future. More information on actinf can be obtained by using the command man actinf. □

- David Sullivan.
Applications Software on the ACF Systems: 
Upgrades, Recent Arrivals, and Usage Notes

During the spring semester, there were upgrades to a number of the applications software programs on the ACF systems. In addition, several packages were made available to ACF users for the first time. Software updates and additions have resulted in a few changes in the recommended use of these and other packages.

Spreadsheet Programs and Wordprocessors

The spreadsheet program Graphic Outlook, which is currently available on ACF3, is soon to be placed on ACF5. A new edition of the manual for Graphic Outlook appeared recently. Copies can be ordered from Stone Mountain Computing, 1096 Cambridge Drive, Santa Barbara, CA 93111. The price after academic discount is $28.00. Instructors interested in obtaining the right to copy the manual for their students’ use should contact Ray Stone at (805) 964-9101. Copies are available for reference in Room LC-8 Tisch Hall, at the Education Building site, and on reserve at Bobst Library.

A new version of the wordprocessing program WordMARC has been installed on CIMS1 and ACF5. Version 4.1.3 of WordMARC -- formerly called MUSE -- provides better footnoting than the previous version. It also supports output on Hewlett-Packard laser printers, and on the ACF’s Imagen laser printer in “daisy” mode. Greek and mathematical characters produced by WordMARC can now be displayed on Hewlett-Packard laser printers with the appropriate cartridge, but not as yet on our local Imagen. A typewriter-quality printer, the DIABLO 630 ECS, can be used for WordMARC documents containing Greek/Math characters. (Individuals who must have laser-printed Greek/Math characters may wish to use NROFF/TROFF and TeX.) Incidentally, WordMARC has a built in “speller”.

Database Management Systems

Version 3.0/17 of INGRES was installed on the Linguistic String Project’s VAX/VMS system (LSPl) recently, and will soon become available on ACF5, a VAX/VMS system. INGRES is a relational database management system. It has a rather easy query language which, nonetheless, is capable of complex searches. The system also permits database structuring ranging from the simple to the very complex. Further information on INGRES is available on line: type HELP INGRES, on ACF5. A copy of the INGRES manual set will be available for reference in Room 307 Warren Weaver Hall. Each of the three volumes can be purchased separately (at $50) from Relational Technology. We recommend Introduction to INGRES ($9.50) and Volume 1. Order forms are available from the ACF’s Documentation Office, Room 306 Warren Weaver Hall (460-7397). There also is the possibility of a right-to-copy agreement. For further information on INGRES documents, see the online HELP.

SIR (Scientific Information Retrieval) has been updated to Version 2.1.3 on the CYBER. In addition to the structural database management system SIR DBMS, Version 2.1.3 includes an interactive editor (SIREEDIT), a help system (SIRHELP), a facility by which programmers can create interfaces with other software (SIR/HOST), and one by which screens can be designed for entering, viewing, and modifying data (SIR/FORMS). In addition, we expect to install the simplified query language, SIR/SQL+, within the coming month.

To access the new version of SIR, you use the command OBTAIN,SIR213. Use the command SIR to invoke SIR/DBMS if default values of SIR parameters will do, and SIR(p1,p2,...,pn) where the pi are parameters, if you prefer non-default parameter values. See the SIR manual for descriptions of such parameters as IA,PS,WD. The command SIRHELP invokes SIR’s help facility. Contact Ed Friedman or Frank LoPresti for more details on SQL, HOST, FORMS, etc.

Software “Tools”

Level 617 of CDC’s Software Engineering System (SES) has been installed on the CYBER. SES is the set of procedures which you use to invoke a collection of software tools from CDC. These are software tools that you can use to manage source and object code, generate documents, manage files, manipulate text, and so on. One tool that is introduced with

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the new version of SES will evaluate text for reading difficulty. A tool that searches for spelling errors has been available for some time.

Documentation of SES is available online and in hardcopy. The online manuals are SESINFO and TOOLS. To access SESINFO and TOOLS, type, respectively,

```
EXPLAIN,M = SESINFO and EXPLAIN,M = TOOLS.
```

Reference copies of CDC's SES User's Handbook can be found in Rooms 313 Warren Weaver Hall and LC-8 Tisch Hall, and at 14 Washington Place.

Statistical Packages

**GENOVA 2.1** is now available on the CYBER. GENOVA is a program to perform generalized analysis of variance. It was written by Joe Crick and Robert Brennan to enable users to apply procedures described in *Elements of Generalizability Theory* (Brennan, R.L., American College Testing Program, 1983), which is, in turn, based on *The Dependability of Behavioral Measurement: Theory of Generalizability for Scores and Profiles* (Cronbach, Gleser, Nanda, & Rajaratnam, Wiley, 1972).

GENOVA distinguishes between a *G* (or generalizability) study and a *D* (or decision) study. In a *G* study, the emphasis is on estimated mean squares equations, the estimation of variance components and their standard errors, and the variance-covariance matrix of the variance components. By comparison, in a *D* study, the emphasis is on decision statistics. A particular feature of this program is that one can examine how variations in the situation -- such as different sample or population sizes, or changes from fixed to random effects -- impact the decision statistics. One does this by taking *G* study mean squares or variance components and reanalyzing them with different parameters.

GENOVA can handle only complete, balanced designs, *i.e.*, designs in which all possible interactions are assumed to be present. It cannot deal with designs such as Latin squares (in which some or all interactions may be zero or absent by the very nature of the design). The program can be accessed with the command `OBTAIN,GENOVA` and then executed with the command `GENOVA,p1,p2,...,pn`, where the $p_i$ are one or more non-default parameter values. (If default values will do, the command `GENOVA` can be used.) For information on the parameters of the GENOVA control statement, type

```
OBTAIN,WRITEUP = GENOVA.
```

Release 3 of GLIM, a package designed to do general linear modeling, is available on the ACF's IBM system. GLIM will also handle log linear models for contingency tables, and *logit* and *Probit* models for the analysis of proportions. Users have a choice of error structures which they can specify -- *viz.*, normal, Poisson, binomial or gamma -- and weights can be assigned for any model.

One of the main attractions of this program is the simplicity and power of its command language, which makes it easy for users to specify many sorts of complex models. Also, GLIM supports several modes of data-entry, a variety of data transformations, and a programming facility for creating and storing macros of GLIM commands. The program is executed with the instruction `//EXEC GLIM`.

GLIM was developed by the Working Party on Statistical Computing of the Royal Statistical Society. A manual for GLIM can be examined in Room LC-7 Tisch Hall.

Also on the ACF IBM system, an updated version of MILS adds some features and corrects some errors associated with the previous version. MILS is a program for maximum likelihood estimation of linear structural equation models that incorporate measurement error. MILS' primary difference from other programs with similar functions is that MILS permits the estimation of models with multiplicative latent variables, or constructs that are products of other constructs, and thus makes it possible to examine latent interaction effects.

Other special features include a sophisticated inversion routine which provides
useful diagnostic information about singular or ill-conditioned matrices. A rough scale of "loss" or "degree of ill-conditioning" is provided, as well as information on the dependencies among the columns of the matrix. Also available are generalized least squares estimation, Heywood case detection, and the calculation of total and indirect effects, along with standard errors and t-statistics for these effects.

Version 3 of LIMDEP is now available on the ACF IBM system. LIMDEP is a collection of programs for estimating the parameters of a variety of regression models. These include models with limited and/or qualitative categorical dependent variables, nonlinear regression models, regressions with corrections for nonrandom sample selection, and linear multiple equation models. The new version of LIMDEP offers an expanded treatment of classical regression. Corrections for autocorrelation and heteroscedasticity are now possible, as well as constrained estimation. Version 3 also provides a new group of routines for matrix manipulation. The package is invoked with the instruction EXEC LIMDEP3. It was developed by Prof. William H. Greene of the Economics Department of NYU's Graduate School of Business Administration. For further information, contact the statistical consultants in Room LC-7 Tisch Hall.

Mathematical and Statistical Software

NAG Mark 11 will soon be installed on CMCL1 and ACF3. NAG ("Numerical Algorithms Group") is a library of subroutines applicable to a range of mathematical and statistical problems. At present, the reference copy of the NAG FORTRAN Library Manual in Room 307 Warren Weaver Hall is for Mark 11. For online documentation of NAG, type HELP NAG_LIBRARY.

MATLAB is now available on all VAX/VMS and VAX/UNIX machines. MATLAB is an interactive program that can serve as a convenient "laboratory" for computations involving matrices. It provides easy access to matrix software developed by the LINPACK and EISPACK projects. For more information type HELP MATLAB, on a VMS system.

Version 2.0 of the SLATEC Common Math Library is now available on the ACF's CYBER system and on CMCL1 and ACF1. SLATEC is a collection of mathematical subprograms written in FORTRAN. It contains EISPACK, LINPACK, FC, LSEI, WNNLS, and FISHPACK, as well as special functions obtained from FNLIB, FUNPACK, and AMOSLIB. Documentation of Version 2.0 will become available this summer. Extensive online documentation of Version 1.0 of the SLATEC library is available on the VAX/VMS systems through an interactive documentation processor, MATHDOC. To find out more about SLATEC and MATHDOC, on a VAX/VMS system, type the command HELP SLATEC. CYBER users can obtain hardcopy documentation of SLATEC in Room 306 Warren Weaver Hall.

For Graphics Users

NCAR now supports the HP 7475A 6-pen plotter, and will soon also be able to generate plots on our IMAGEN-10 laser printer. (Plots generated on the IMAGEN-10, however, will be black-and-white.) NCAR is a system of graphics software from the National Center for Atmospheric Research. It is available on the CYBER and VAX/VMS systems at NYU. Online documentation of NCAR is available on the VAX/VMS systems: type HELP GRAPHICS NCAR.

Copies of the NCAR manual are available for reference in Room 313 Warren Weaver Hall, and at 14 Washington Place.

Documentation Note: A revision of the ACF's User's Guide to Application Graphics at NYU is planned for sometime in the fall.

A recommendation to new graphics users: Please discuss your intended application with an ACF staff member prior to applying for a computer account.

Programming Languages

VAX-11 LISP has been installed on ACF3. Documentation of this Common LISP compiler from DEC can be found on ACF3 in

Applications Software Update continues on Page 12.
Applications Software Update continues from Page 11.


FRANZ LISP is now invoked by "franzlisp" -- and not "lisp". With the installation of VAX-11 LISP, it became necessary to modify the EUNICE setup procedure ETC-UNIXSETUP.COM, so that now "franzlisp" -- rather than "lisp" -- invokes the FRANZ LISP compiler. You can still use "franzlisp" as "lisp", however, by executing the definition $lispt=franzlisp. Later, to delete this definition for the remainder of your current session, use the command $delete/symbol/global lisp. If you will be using FRANZ LISP regularly, you should probably add the definition to your LOGIN.COM file. Insert it after the statement which calls SETUP or UNIXSETUP.

VAX-11 C is now available on the VAXcluster and can be used from ACF5. To invoke VAX-11 C, use the command CC. Documentation is available online through HELP (type HELP CC), and reference copies of DEC's Programming in VAX-11 C (Pub. No. AA-L370A-TE) can be found in Rooms 313 Warren Weaver Hall and LC-8 Tisch Hall.

Linking C programs involves accessing the VAX-11 C runtime library. You can do this explicitly, with the command

$LINK myprog,SYSSLIBRARY.CRTLIB/LIBRARY,

where myprog is the name of the file containing your program. It may be convenient, however, to use a local command procedure which will cause all subsequent links in a terminal session to access the C runtime library. To do so, you enter

$@SYSSMANAGER:DEFLNKLIB CRTLIB/PROCESS

once within a session. (If you use VAX-11 C frequently, it may be most convenient to add this command to your LOGIN.COM file, so that it is executed each time you log in.) Once this command has been executed, you can link your C program simply by typing the command

$LINK myprog

FORTRAN Version 4.0 Upgrade.
Since the last issue of the Newsletter, VAX-11 FORTRAN was upgraded to Version 4.0 and then 4.1 on all the VMS systems. Versions 4.0 and 4.1 contain a new optimizer which appears to generate somewhat incorrect code in certain boundary cases. DEC has responded to our bug report about the VMS FORTRAN compiler. They believe that they have fixed all cases of this problem, and that the fix will appear in Version 4.2. In the interim, please continue to specify /Optimize when compiling FORTRAN programs under VMS Version 4 or later. That is, you should use $FORTRAN/NOOPTIMIZE rather than simply $FORTRAN.

File Transfer Software
A new version of KERMIT has been installed on the ACFcluster. It includes fixes for all the problems we have heard of with the VMS Version 3 Kermi. Should you encounter problems, please report them to DATACOM. □

• Contributions to the Applications Software Update. The item on LIMDEP was prepared substantially by Mary McCarthy, and those on GENOVA, GLIM, and MILS by Bert Holland. The LISP and FORTRAN items were taken from VAX/VMS bulletin board announcements by Stephen Tihor; the item on C is, for the most part, a bulletin board announcement by Nancy Gausewitz. Ed Friedman contributed information and technical review for the remaining items; they were written by Estelle Hochberg.

REMINDER: Please renew Individual Accounts early. Individual computer accounts on the ACF CYBER, VAX/VMS, VAX/UNIX, and IBM systems are valid only for the academic year. Any ACF account which was issued in the current academic year (1984/1985) will expire at the end of the summer.

We will start accepting applications for account renewal on July 15. We urge you to renew as early as possible, to avoid any delay in September. Blank forms (#ACF770, a yellow form) will be mailed out to Individual Account holders or their thesis advisers in early July. They will also be available after July 15 in Room 305 Warren Weaver Hall.
For Microcomputer Users at NYU

Recent Acquisitions in the ACF's Microcomputer Lab

Editor's Note: The ACF's Microcomputer Laboratory is a place where faculty and research staff can come to try out different equipment, and to obtain some guidance in selecting microcomputer software and hardware. The Lab is located in Warren Weaver Hall, Room 317. Visitors are urged to call to make appointments. Hours between noon and 8 p.m., Mondays through Fridays, are generally available. Call Gary Chapman, at 460-7160.

The previous issue of this Newsletter featured an article on the ACF's Microcomputer Lab. For this issue, we asked Gary Chapman of the ACF's Systems Staff to update us on some of the Lab's recent acquisitions.

The ACF Microcomputer Laboratory has continued to purchase, for demonstration purposes, examples of the latest microcomputer hardware and software which promise to interest people at NYU. Recently we have obtained the following.

Hardware. IBM PC/AT with Enhanced Graphics Adapter and Enhanced Color Display (this equipment represents recent offerings from IBM which improve the speed and graphics display capabilities of its personal computer line); Mouse Systems mouse for IBM PC's. The Lab also has, on loan, a Zenith Z-150 PC, a highly-compatible IBM PC clone.

Software. Gem, GemDraw, DoubleDOS, and PC-Paint for IBM PC's; Microsoft File, Microsoft Logo, and MacFortran for Apple Macintosh. Gem is one of several efforts underway to provide the IBM PC (and other microcomputers) with an icon-based visual interface similar to the Macintosh.

- Gary Chapman

An ACF Newsletter for Microcomputer Users

This spring, the ACF began publication of a newsletter for current and prospective users of microcomputers in the NYU community. The new ACF Microcomputer Newsletter provides information which, it is hoped, will help them select and use personal computers and personal computer software. Thus far, two issues have appeared, and we plan to continue to publish bimonthly during the academic year. The Microcomputer Newsletter is a joint effort of the ACF's Microcomputer Laboratory and its Documentation Office. If you would like to have your name added to the mailing list, please complete the form on the inside back cover of this Newsletter.

An ACF Electronic Bulletin Board for Micro Users at NYU

The ACF has set up an electronic bulletin board which is devoted to information on microcomputers. Like other electronic bulletin boards, it allows individuals to read notices that have been posted and to send notices for others to read. It was implemented by the ACF as part of INFO, a new, experimental system which, at present, also offers information on the software available on some of the computer systems at NYU, and help in logging on to the NYU computer systems.

Anyone who has a modem and a microcomputer or terminal can "dial in" to INFO and the ACF's Microcomputer Bulletin Board. In addition, the two facilities can be reached from any terminal which is connected to the NYU Computer System Selector (or "switch").

To access INFO and the Microcomputer Bulletin Board, you simply connect to the NYU Computer System Selector or "switch". (If you are dialing in, see instructions in the "Information and Directory" at the end of this newsletter.) In response to the SELECTION? prompt, type INFO and press the RETURN key.

You will then receive INFO's main "menu," where you will be offered instructions in using the Bulletin Board, as well as the other facilities which INFO offers. There is further help available within the INFO system if you need more assistance.
The ACF's Database Library

The ACF began a new database service during the current academic year. The service is to include a library of databases residing primarily on tape, and provide help to individuals at NYU in locating and accessing databases needed in their research. Initially, the ACF has concentrated on datasets resulting from studies in the Social Sciences, since this appeared to be where the greatest interest lay. Quality of American Life, 1971 and 1978; the General Social Survey Cumulative File (1972-1984); and the American National Election Study series (presidential elections, 1952-1980), are examples of the more popular of those already available at NYU.

An article introducing the ACF's new database service was published in the January 1985 issue of this Newsletter. Copies of that article can be obtained in the ACF's Documentation Office, Room 306 Warren Weaver Hall. The following is an update on some of the activities of the ACF's database service.

An online list of databases at NYU is now available through the IBM WYLBUR "help" facility. Typing HELP DATABASE will enable users to search a file listing -- by the name of the study associated with it -- each of the databases available at NYU. Users will be able to obtain a printed listing of the entire file, if desired. Alternatively, they will be able to use WYLBUR's "search string" facility, so as to have listed only those lines of a file which contain a particular word or phrase.

Copies of popular databases are being made for use on CYBER and VAX/VMS systems. A number of databases already available for use on the ACF's IBM system were placed on CYBER- and VAX/VMS-compatible tapes in the past few months, in response to individual requests. The ACF will now be doing the same for other popular datasets. Lists of the CYBER- and VMS-compatible data tapes will be available online on those machines in Fall 1985.

Input from academic departments. In the past few months, the ACF has met with faculty from the Economics, Politics, Psychology, and Sociology departments to discuss their database interests. If you are interested in the ACF's new database service, please contact Ed Franceschini (460-7291) to discuss general policy issues or special database requirements. For information on accessing databases which are already available, call ACF consultant George Sharrard (598-7851).

- From information supplied by Ed Franceschini and George Sharrard.
User Services Notes: Talks, Tutorials, and Helpful Hints

The ACF's program of User Services includes tutorials and lectures in the use of ACF systems and editors, and talks and seminars on special topics. The locations of ACF consultants are listed in the Information and Directory at the end of this newsletter. ACF consultants can also be reached by telephone and by electronic mail (see the Information and Directory and this item, for more).

Tutorials, Lectures and Hours: A Summer Schedule

This summer, as in previous semesters, the ACF will offer "walk-in" tutorials and introductory lectures. As in the past, additional tutorials will be provided when specially requested by faculty for their class or group.

"Walk-in" tutorials. As in previous semesters, the ACF will be offering walk-in tutorials for users of the CYBER and the IBM WYLBUR systems. These are scheduled tutorials for which students or faculty may sign up about one hour in advance. IBM tutorials take place in Room LC-8 Tisch Hall, and CYBER tutorials at the ACF's 14 Washington Place site. Tutorials can also be specially arranged for a class or group. (See the section after the next, for more information.)

Tutorials for CYBER users include introductions to the use of the CYBER; to the CYBER's full screen editor, FSE; and to Senator. They will be offered for the first two weeks or so of each summer session, depending upon need, on Mondays at 2 and 6:00 p.m., Wednesdays at 12 and 6:00 p.m., and Thursdays at 4 p.m. Schedule changes, if any, will be posted on the bulletin boards at the ACF's sites and in the online CYBER News. The IBM WYLBUR tutorials are an introduction to editing and job submittal under that system. In the summer, they will be offered at 5:30 and 6:30 p.m. on June 13, 17, 20, 24 and 27. A schedule of IBM WYLBUR tutorials for the second summer semester is being planned. Watch the online IBMNews and the bulletin boards at the Tisch Hall site for an announcement.

Specially arranged tutorials. Upon request of faculty, the ACF will also arrange a tutorial specially for a class or group, in any of a variety of topics -- including those presented in the ACF's walk-in tutorials. Call Juan Turruellas (598-7851) if your class or group is using IBM WYLBUR; to arrange tutorials on the CYBER or a VAX, call Frank LoPresti (598-2993).

WYLBUR lectures. Beginning students using IBM WYLBUR are encouraged to attend a WYLBUR lecture. These are given on Fridays at 5:30 p.m. in Room 102 Warren Weaver Hall. For the first summer session, they will be offered on June 14, June 21, and June 28. Plans for the second summer session will be posted on the bulletin boards at Tisch Hall and in the online IBMNews.

Changes in hours at ACF sites. Summer hours have begun at several ACF sites. The 14 Washington Place site, for example, will be closed after 6 p.m. on weekdays and all day Saturdays. (Exceptions will be made for individuals attending evening tutorials at 14 Washington Place; see the item above for the schedule of summer tutorials.) The Education Building will be closed Saturdays during the summer months. There may be additional changes in hours at the Education Building site, as well. We are waiting to hear from building management. Please watch the online news bulletins and the bulletin boards at the ACF sites for announcements of schedule changes.

ACF Talks, Seminars, and Lectures: Spring 1985

As in other semesters, the ACF presented talks and seminars touching on an assortment of special topics, as well as lectures introducing new users to a particular system or facility.

User Services Notes continues on Page 16.
ACF Talks on WYLBUR, VMS and UNIX at NYU. In the spring semester, ACF Systems Group members Stephen Tihor and David Sullivan gave introductory-level talks on, respectively, the VMS and UNIX systems at NYU, and a series of introductory lectures on IBM WYLBUR were given by Nancy Gausewitz. Stephen Tihor also spoke on VMS Version 4, focusing on the enhancements associated with the new version of the VAX/VMS operating system.

Tutorials. As in previous semesters, the ACF offered tutorials in the use of the CYBER and its editors, and in IBM WYLBUR. Walk-in tutorials were offered for the first three or four weeks of the semester. Tutorials-by-special-arrangement continued for several weeks after.

The fall schedule of tutorials will be announced via the online news bulletin and posted on the bulletin boards at the ACF's user work areas. For the summer schedule, see the item on Page 15 of this issue of the Newsletter.

ACF Talks and Seminars. The ACF's spring semester series of talks also included several on microcomputers. One, entitled Your Micro in Tandem with NYU Mainframes and Minicomputers, was given by David Spector, of the ACF Systems Group; in another, Gary Chapman, also of the ACF's Systems Group, spoke on the ACF's Microcomputer Laboratory and some of the services extended by the laboratory staff. New Directions in LOGO was a third talk of interest to micro users. It was given by Mike Tempel, Director of Training, LOGO Computer Systems, Inc.

An ACF "mini-series" of talks on database software included RIM: A Relational Database, given by Jeffrey Bary, an ACF Systems Group member; an overview and demonstration of the relational database system INGRES, by John Calandrello and other representatives of Relational Technology, Inc.; a presentation of NOTA BENE by Steve Siebert, one of the creators of this IBM PC-compatible word processor and text retrieval system; and a discussion of SIR by Dan Karron, who uses this hierarchical database management system in research at the NYU Medical Center. RIM, INGRES, and SIR are each available on the CYBER or on a VAX/VMS system at NYU.

A new series of talks on special topics is being planned for the fall semester. Announcements will be posted on the bulletin boards at the ACF sites and on the online news and bulletin board facilities. Notices are also sent to interested faculty via University mail. If you would like to be added to the mailing list, please contact ACF User Services member Frank LoPresti, who coordinates the ACF's Talks and Seminars series (598-2993).

Hints and Reminders on Reporting Problems, Seeking Help

Problems do not always occur during User Services' office hours. For some problems, moreover, the consultant may not be the best person to speak to (although, if you are not sure whom to speak to, seeing a consultant is always the right way to begin). Here are some of the ways in which you can report a problem, should you encounter one, and some guidelines as to the ACF staff member or office it should be reported to.

Facilities for communicating, via computer, with consultants. IBM WYLBUR users have a facility by which they can report WYLBUR-related problems to the ACF consultants, and request information on, and help with, the use of IBM WYLBUR at NYU. To use the new facility, you simply type HELP REPORT; it will prompt you for your message, and mail it for you when you are finished.

The REPORT facility on the WYLBUR system is only one of several which the ACF has set up so that users can communicate, via computer, with ACF consultants. On the CYBER, VAX/VMS, and VAX/UNIX systems, for the past year or so, there has been a mailbox (or "user") called "DATACOM" to which you can send electronic mail containing questions or reports concerning computing via dial-in, and the use of their terminals or microcomputers as means of connecting to the NYU systems. On the same systems, for a somewhat longer period of time, there has been a "user" called "COMMENT". To report a problem or ask a question relating to the use of these systems, you simply send an electronic mail message to "COMMENT". Messages sent to DATACOM

User Services Notes continues on Page 17.
and COMMENT are reviewed and then passed along to the appropriate member of the ACF staff for response.

Other means of reporting problems or requesting help. Individual account holders have other means by which they can report problems or anomalies encountered with ACF systems. Here is a list of the other resources to which you can turn for help. However, if you are not sure which ACF office is the appropriate one for your inquiry or report, then the very first person you should speak to is the consultant in Room 307 Warren Weaver Hall.


Hardware - other than communications. Examples: Non-working terminal, apparent printer malfunction. Equipment problem hotline: Dial 460-7414.


Software. Examples: An apparent "bug" in software, whether the program was obtained from the manufacturer of the computer or from another outside source, or provided locally. Send electronic mail to the "user" named "COMMENT" on any VAX (VMS or UNIX), or on the CYBER or the PYRAMID. Your mail will be routed to the appropriate person. On IBM WYLBUR, use HELP REPORT.


Account questions, administrative information. Examples: Addition of funds or resources to an account; apparent discrepancy in account information. Accounts Office, Room 305 Warren Weaver Hall.

All other inquiries. The consultants in Room 307 Warren Weaver Hall. In person or by phone: 460-7398, 598-3970. □

-Information on REPORT was supplied by Juan Teruel.
Databases, Online and Offline

A National Online Meeting was held in New York from 30 April to 2 May 1985. At National Online Meetings, one is exposed to an array of databases which have been prepared by commercial or academic organizations and which, for a fee, can be accessed by an individual or by an institution like NYU. This meeting provided a good opportunity to review and consider the relative merits of online and offline databases as tools for scholarly research and instruction. The notes which follow are intended as a prod for thoughtful discussion of the matter.

Electronic Data Retrieval Systems

The most important rapid access information retrieval mechanism for research at New York University and most other major institutions is the book. Used in conjunction with a properly structured catalog, and housed in a facility such as Bobst library, books are unrivaled in their ability to provide data in detail on almost any desired subject. They convey text, pictures and graphs at rates limited only by our ability to absorb. An electronic data retrieval system faces difficult competition.

Electronic systems exist in a continuum from raw data on tape to highly sophisticated interactive retrieval systems with front-end graphics workstations. They are perhaps best understood by the portion of the world of books they attempt to replace or augment.

Differences in depth or kind of detail. Some systems, such as the Library of Congress Machine Readable Cataloging (MARC) or NYU's Bobcat, try to improve on the library card catalog. A typical card catalog might allow access by author name, by subject or by title. If any entry crosses many subjects, one may be sent on a long search through many drawers of cards. An electronic system tries to make such searches more efficient by allowing many alternate search strategies, such as on partially or incorrectly spelled author names, or on an intersection of many subjects. Once one has the entries, one must still, however, go find the books or journals to know much about them, since the electronically stored information will have only minimal descriptive information.

The next class of electronic systems provides abstracts as well as simple catalog citations. For example, the BIOSIS files provide abstracts in the biological and biomedical literature, while PsycINFO provides similar information for the psychological literature. Such files serve the same function as abstracting journals, providing references to individual journal articles as well as full books, allowing one to do a significant amount of preliminary research without actually going to the journals involved.

The final class of electronic systems are those which provide hard data and/or full text. They are intended as replacements for actual books and journals. They also allow research which goes beyond that which can be done by hand or eye from a book, since one can structure analyses based on individual words within texts, or on patterns of numbers within a table. For example, the Protein Data Bank provides numeric data on the structure of proteins and other macromolecules on magnetic tape. This data is not generally available in any other form. There are a growing number of such databases. As full text and hard data databases become more available, there will be more need for high bandwidth connections between the data and high performance workstations with good graphics.

Online versus offline databases. For almost all electronic databases, one faces the choice of online or offline access, or some mixture of the two. In online access, one calls some central machine -- via some system of communications -- and directs interactive queries to the system. Typically, the queries are typed in at a terminal, and the responses are displayed on the same terminal. In online searching, one generally pays some sort of "start-up" fee; charges are then based on the frequency and the nature of searches. In offline access, one prepares some sort of batch search which works against a tape or a disk containing data. Generally, one purchases the data and, sometimes, some accompanying data-retrieval software. Online access has the advantage of immediacy, but it costs more per

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Databases, Online and Offline continues on Page 19.
search and is hard to use when large volumes of data are required. Offline searching is more convenient when many pages of output are needed, but often involves major expense in purchasing the raw data and even larger expense in creating software to use it. In most cases, people with a need for modest numbers of searches, even involving significant output are better off using an online service and having them mail the extra output.

**Microcomputer-based retrieval systems.** An interesting recent trend in the database field is the establishment of microcomputer-based retrieval systems. In some cases, they down-load data from an online system and then massage it locally. In other cases, they might work with a box of floppies on which a larger database has been subdivided. In the near future, full databases stored on inexpensive video disks may allow one to use a micro as effectively as a large central system, provided one can limit one's interest to a moderate number of databases. This may well be sufficient for many users, if past trends in database usage are good indicators. As Martha E. Williams noted at the Online meeting, "...the growth [of the online database industry] was largely due to growth of a very limited number of databases from a small number of producers and a small number of vendors." *(Highlights of the Online Database Field - Gateways, Front Ends and Intermediary Systems, National Online Meeting Proceedings, 1985, pp. 1 - 4, Learned Information, NJ.)*

**Special databases distributed offline.** Special needs for continuing access to large volumes of data in narrow fields may justify the acquisition and use of a database distributed on tape or disk. There is quite a range of these, but some require that specialized local software be developed for retrieving, sifting, and reformatting data prior to analysis. The U.S. Census, for example, is a valuable source of statistical data that is available on tape. There are also very large databases of economic information which can be used for modeling, and many chemical databases which can be used directly in scientific research. As a rule, these are available for offline access. Most online systems do not provide the general computational capabilities needed to analyze such data.

**Databases Of Interest: A Sampler**

The following are some database systems which are distributed on tape. They are offered as examples of what is available, not as a representative sample.

**Library of Congress Machine Readable Cataloging (MARC) Services.** "The Library of Congress has distributed machine-readable bibliographic records on magnetic tape through the Cataloging Distribution Service since 1968. Beginning with records for English language monographs, the tape services have been expanded so they now include records for Roman alphabet languages, languages in non-Roman scripts that have been Romanized, and languages in non-Roman scripts providing both Romanized and vernacular data; for other forms of materials (serials, maps, visual materials, music); authority data; Cataloging in Publication (CIP) data; and records created by other institutions (CONSER project, U.S. Government Printing Office, British Library, National Library of Canada, Boston Public Library, Harvard University, University of Chicago, and U.S. Copyright Office).

"All bibliographic and authority records are distributed on magnetic tapes in the MARC II communications format. MARC data adheres to the standards set by the American National Standards Institute (ANSI) for the interchange of information on magnetic tape...." *(from the 1985 MARC Service catalog.)*

The tape service from the Library of Congress consists of Books All, Books English, Books CJK, Books U.S., Books Canada, Minimal Level Cataloging, COBRA (Collaboration for Bibliographic Records in Art), Serials, Unauthenticated CONSER Records, GPO Monthly Catalog, Visual Materials, Maps, Music, Name Authorities, Jukebox Licensing File, and the British Library UKMARC Tape Service in USMARC format. Subscriptions range from $9,300 for a complete Books All, Visual Materials, Maps, Serials and Music subscription, down to a few hundred dollars for a subscription to one of the smaller services (e.g., COBRA for $390, MAPS for $760). Back files for the complete service cost $7,050.


**Biosciences Information Service.** BIOSIS provides abstracting and indexing services for...
Databases, Online and Off continues from Page 19.

Biological and biomedical research. Among their services are three magnetic tape services: Biosis Previews, Biological Abstracts on Tape, and Biosis Previews Authority File Tapes.

Biosis Previews is the machine-readable version of citations from Biological Abstracts (1969-), Biological Abstracts/RRM (Reports, Reviews, Meeting) (1980-), and BioResearch Index (1969-1979). A current lease costs $800 per year plus usage charges. Back tapes are available. These tapes carry citations only, not abstracts. The year 1983 is expected to have about 440,000 entries. One gets 4 tapes per month.

Biological Abstracts on Tape is the machine-readable version of the abstracts appearing in Biological Abstracts. A current lease costs $800 per year plus usage charges. Back tapes are available. These tapes carry actual text of abstracts. The year 1983 is expected to have about 220,000 entries. One gets 2 tapes per month.

Biosis Previews Authority File Tapes are machine-readable records of Biosis Previews support material, including lists of journals, lists of publishers, a subject guide tape, a concept headings tape, an organism names tape, a biosystematic headings tape, and a master index authority file. The full set leases for $2000 per year.

For further information, contact BioSciences Information Service (Biosis), 2100 Arch Street, Philadelphia, PA 19103-1399, (800) 587-4800, (215) 587-4800.

The Protein Data Bank. This is an international computerized archive for structural data on biological macromolecules. Both atomic coordinates and structure factor/phase data are collected, stored and distributed for proteins, tRNA’s, polynucleotides and polysaccharides. Coordinate data is currently available for more than 260 structures. Data distribution is via magnetic tape (approximately $200 depending on format) and on microfiche.

For more information, contact Frances C. Bernstein, Protein Data Bank, Brookhaven National Laboratory, Chemistry Department, Upton, L.I., New York 11793, (516) 282-4382.

PsycINFO Database. The American Psychological Association leases tapes derived from Psychological Abstracts for $5000-$7000 per year, with back data available for $.10 per record (400,000 records for $48,000 are available as of May 1985). The tapes carry about 25% more information than is printed in Psychological Abstracts. For example, citations of Dissertation Abstracts International appear in the database only. It is estimated that in 1985 there will be 39,000 new records. Tapes are available in 800 or 1600 BPI IBM blocked record EBCDIC format.

Additional information is available from Lois Granick, Director PsycINFO, American Psychological Association, 1200 Seventeenth Street, N.W., Washington, D.C. 20036.

Some Database Services At NYU

Examples of database services used at NYU include those accessed through the University libraries; some microcomputer-based services subscribed to by individuals or individual departments; and the Academic Computing Facility’s new service for users of specialized research data sets.

Online access through the University libraries. The NYU libraries provide online access to various outside database services. Among them are the DIALOG and BRS systems, which have a wide range of data in business, science, law, technology, energy, education, the humanities and social sciences. Access is also provided to the Research Library Information Network, which has the Library of Congress catalog information as well as catalog information from the member institutions.

The ACF’s database service. A database service was established by the Academic Computing Facility this year for individual researchers at NYU. The ACF provides help in locating databases needed for research, and in accessing them on the ACF’s computing facilities. A library of the more popular offline databases has also been started as part of the service, as well as a catalog of those databases which could be obtained if required. Users of the ACF’s IBM WYLBUR system can obtain a list of the databases available at NYU by entering the command HELP DATABASE; others can obtain a hard-copy listing of the same information by contacting ACF consultant George Sharrard (598-7851). (For more information on the ACF’s database service, see the item on Page 14 of this issue of the Newsletter.)

- Herbert J. Bernstein

Watch future issues of the Newsletter for more on databases and database services at NYU.
Academic Computing Facility: Information and Directory

Administration
Director: Professor Max Goldstein
Assistant Directors: Ed Franceschini, Terry Moore
Accounts Manager: Anna Moore
Administrative Assistant: Barbara Kissner

Mailing Address
Academic Computing Facility, Courant Institute of Mathematical Sciences
New York University, 251 Mercer Street, New York, N.Y. 10012

Key: WWH - Warren Weaver Hall, 14 WPL - 14 Washington Place, TH - Tisch Hall,
ED - Education Building, BOB - Bobst Library.

IN BRIEF: SELECTED FACILITIES AND TELEPHONE NUMBERS
(For details on these and other facilities, see our Directory on the following page.)

Accounts and General Information: 460-7427 (305 WWH)

Consultants:  
For students  CYBER  598-2993 (14 WPL)  
CYBER, IBM  598-7851 (LC-7 TH)

For faculty and staff only  CYBER, VAX/VMS  598-3970 (307 WWH)  
460-7398 (307 WWH)  
CYBER, IBM  598-7851 (LC-7 TH)

Dial-In: From  Dial  For (bps)

NYU's  598 exchange  Extension 7001  110 - 300
(from NYU only)  "  4141  110 - 1200
"  460 exchange  "  7381  110 - 1200
"  285 exchange  "  6272  110 - 300
Off Campus  777-7600 (Try 777-7880 if no answer.)

Equipment Problems: 460-7414 (WWH only. See Directory for other sites.)

Computer Operators:  
WWH  460-7170
TH  460-7174 (LC-14), 460-7175 (LC-8)
14 WPL  460-7176

Systems' Status: CYBER, VAX/VMS, VAX/UNIX 460-7285 (recorded message)

Tape Librarian: CYBER, VAX/VMS, VAX/UNIX 460-7155
IBM  598-7901

Tutorials (arranged on request): IBM WYLBUR  598-7851
CYBER or VAX/VMS  598-2993

User Work Areas: 14 WPL; ED, 2nd Floor; BOB, B-level; TH, Room LC-8;
WWH, 3rd Floor (faculty only).

Mon - Fri 9 a.m. to midnight, Sat 9 a.m. to 5:45 p.m.
(BOB follows the library's hours.)

ACF/NYU Newsletter, Vol. V, No. 2, June 1985  21
DIRECTORY

Key Street Addresses


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

Administration and General Information 305 WWH, Mon - Fri, 9 a.m. to 5 p.m., 460-7427

Consultants: See User Services

Dial-Up Numbers

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<td>285</td>
<td>110 - 300</td>
<td>6272</td>
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</tbody>
</table>

(Dial 777-7880 if no answer.) (from NYU ONLY)

Documentation

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

ACF Introduction and Directory, for holders of Individual Accounts: single copies are available in Rooms LC-7 TH and 305, 306, and 307 WWH.

Book Center (NYU), 18 Washington Place, stocks commercially published software manuals, tradebooks on computing, and selected manuals for the CYBER, VAX/VMS, and IBM systems. Inquire at information desk, lower level. Computer tapes are sold at the stationery counter.

ACF Writeups, CYBER: Use "obtain(writeup=qindex)" for information.

IBM: Batch, use "/exec manuals,name=index", after your jobcard. WYLBUR, type "u wyl.pb.pub.manual.index", then "list".

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-7, Mon - Fri, 9 a.m. to 9 p.m., Sat 9 a.m. to 5 p.m., 598-7851.

Multiple Copies of ACF Writeups for Classroom Use: Estelle Hochberg, 306 WWH for CYBER, VAX/VMS, VAX/UNIX; consultants, LC-7 TH, for IBM. (Please allow about a week. Blank forms for CYBER writeups can be obtained in 306 WWH or LC-7 TH.)

On-Line Help Utilities (CYBER, VAX/VMS, IBM WYLBUR): 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 "help ibmnews".

**VAX/VMS BBOARD:**
Type "bboard"; strike return key to list each message; type "help" for further instructions; type "exit" to quit.

**UNIX Notes:**
Type "notes general nyu.general" for news. Type "man notes" for more information.

Reference Copies of Manuals: 14 WPL, TH Room LC-8, WWH Room 313; selected CYBER, VAX/VMS, and VAX/UNIX manuals are also available at the Bobst Library Reserve Desk (instructor is listed as "Computer"), the CIMS Library, and the Computer Science Department's Help Room (1128 WWH). For CYBER, type "obtain(writeup=replist)"; for VAX/VMS, use "print nyu$1ib:vaxman.doc".

**Equipment Problems**
- at 14 WPL Site Supervisor
- at ED " "
- at TH " ", Room LC-8
- at WWH Operations Personnel, Room 312, or 460-7414
- ACF Terminals at Other Locations: 460-7414

**Microcomputers**
**File Transfer:** Up-loading and down-loading to and from NYU computer systems, via KERMIT. For information, call 460-7181.

**Laboratory:** The ACF Microcomputer Laboratory, a support center for faculty who wish to examine microcomputers and microcomputer software packages, and explore their uses in instruction and research. Mon to Fri, noon to 8 p.m., 317 WWH. Please call 460-7160 for an appointment.

**Systems' Status**
CYBER, VAX: 460-7285 (recorded message)

**Tape Use**
- **Tape Librarian:**
  - CYBER, VAX 460-7155
  - IBM 598-7901

- **Tape Purchase:**
  - NYU Book Center
  - stationery counter

**Tape Questions and Requests:**
- CYBER, VAX 460-7155
- IBM 598-7851

**Terminals (Problems with), ACF equipment only:** see Equipment Problems
Tutorials are scheduled during the first 3-4 weeks of each semester. Also offered by special arrangement, upon request of faculty. Call 598-7851 for IBM WYLBUR, 598-2993 for CYBER, VAX/VMS.

User Services

Student Advisement

<table>
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<tr>
<th>CYBER:</th>
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Consultants

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<td>460-7398</td>
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Hours for Consultants and Student Advisers are posted at 14 WPL, WWH outside Room 305, and TH Room LC-7. See the CYBER writeup "CONSULT" for advisers' hours.

User Work Areas

Mon - Fri 9 a.m. to midnight, Sat 9 a.m. to 5:45 p.m. *
(Note: WWH facilities are for faculty and researchers only.)

CYBER Interactive terminals, self-service printers

14 WPL, TH Room LC-8, ED second floor, WWH Room 313; Bobst B-level *
Card readers TH Room LC-14, WWH Room 311
Keypunches TH Room LC-14, WWH Room 310
Output folders (high speed printers)
TH Room LC-14, WWH Room 312

VAX Interactive terminals, self-service printers

TH Room LC-8, ED second floor, WWH Room 313; Bobst B-level *
Output folders (main printer) WWH Room 312, TH LC-14

IBM Interactive terminals

WYLBUR TH Room LC-8, ED second floor, WWH Room 313, Bobst B-level *
Card reader TH Room LC-14
Keypunches TH Room LC-14 Output folders TH Room LC-14

* The ACF terminals on the B-level of Bobst Library are available during all library and study-hall hours. There are no printers at Bobst. There is also a faculty-only facility in Room 313 WWH. Special summer hours: 14 WPL Mon. - Fri., 9 a.m. to 6 p.m., closed Sat.; ED closed Sat.

Key: WWH - Warren Weaver Hall, 14 WPL - 14 Washington Place, TH - Tisch Hall, ED - Education Building, BOB - Bobst Library.

Note: The NYU Book Center (18 Washington Place) now stocks a wide assortment of manuals and trade books dealing with computers and computer applications. Computer supplies (blank tapes, diskettes, paper) and popular microcomputer software are also sold. Inquire at the stationery counter for computer supplies, at the textbook information counter (lower level) for all else.

NYU faculty and staff may order diskettes, paper and other computer supplies through their departments from Central Supply.
To Get On the Mailing List for the ACF's Microcomputer Newsletter...

If you would like to receive future issues of the ACF's Microcomputer Newsletter, please fill out this form and send it to The ACF Microcomputer Newsletter, c/o The ACF Documentation Office, 251 Mercer Street, New York, N.Y. 10012. (No need to send us this form if you have already submitted one from an issue of the Microcomputer Newsletter.)

Name: ____________________________________________

Address (a University address, if possible, please):

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Please check one:

___ Faculty       ___ Student

___ Administration   ___ Staff

Would You Like To Be Placed On the Mailing List for This Newsletter?

The ACF/NYU Newsletter is sent to holders of Individual Accounts on ACF computer systems, and to others on our mailing list. If you would like to receive future issues of the ACF/NYU Newsletter, whether or not you expect to have an Individual Account in the coming academic year, please fill out this form and send it to The ACF/NYU Newsletter, c/o The ACF Documentation Office, 251 Mercer Street, New York, N.Y. 10012. (No need to send this form if you have already requested that your name be added to this newsletter's mailing list.)

Name: ____________________________________________

Address (a University address, if possible, please):

________________________________________________________________________
________________________________________________________________________

Please check one:

___ Faculty       ___ Student

___ Administration   ___ Staff
The Academic Computing Facility

New York University