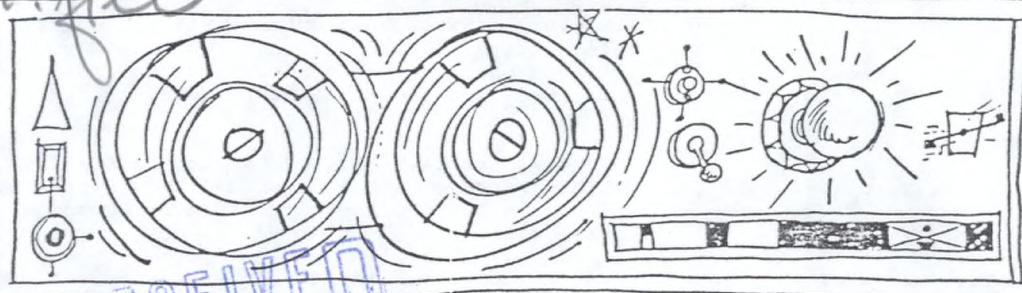
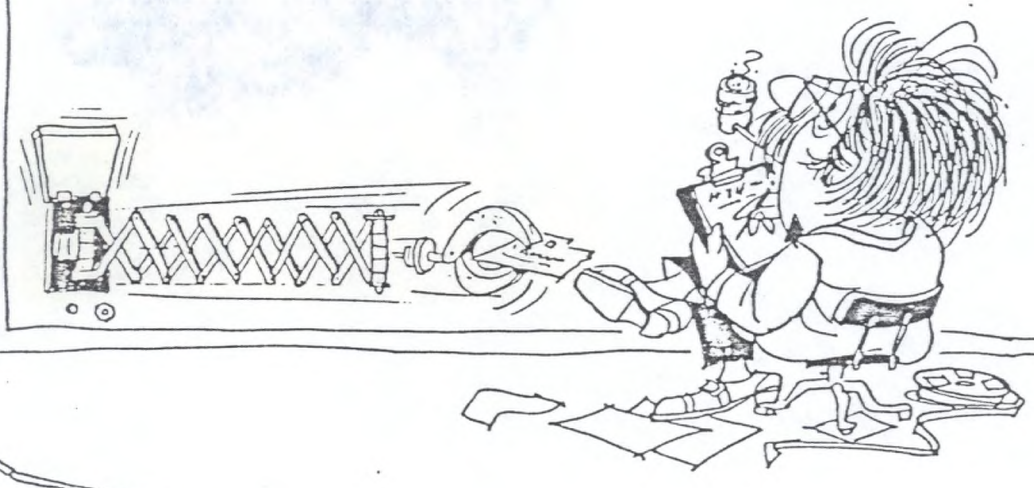
COMPUTER RESOURCES Newsletter



VOLUME 1
NUMBER 5
83:05:02

IN THIS ISSUE



BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY
3700 WILLINGDON AVENUE, BURNABY, BRITISH COLUMBIA, CANADA, V5G 3H2, AREA CODE (604) 434-5734

BCIT

PERSONNEL

Computer Resources Department staff are located in Room 2N214 unless otherwise shown below.

Locals shown are for BCIT's central number: (604) 434-5734.

Acting Director, Hans Holst.....245

Secretary, Jean Smith.....452

Academic Support Analysts

ACADEMIC DUTY ANALYST.....351
(Hours: Mon.-Fri. 8:30-11:30, 13:00-15:30)

Norm Alexander.....729
Ingrid Campbell.....268
Lee Herberts.....798
Dan Low.....268
David Thomson.....798

Supervisors

Academic Support, Neil McLagan.....680

Administrative Support, Neil McLagan.....680

Data Administration, Erica Westley.....454

Data Control, Rita Richardson.....(2N209)456

Data Entry/Keypunch, Carol Tkach...(2N212)618

Processing Services, Ron Sproule.....708

COMPUTER ROOM.....246
after 1700 and weekends.....434-5746

DATA ENTRY/KEYPUNCH.....(2N212)618
after 1700.....434-5754

DIAL-UP TO COMPUTERS
off campus.....430-3371
on campus.....448/449

PUBLISHING INFORMATION

The Computer Resources Newsletter is published by the Computer Resources Department of BCIT.

Contributions to the Newsletter and comments from our readers are welcomed. Address correspondence to: Editor, BCIT Computer Resources Newsletter, BCIT Computer Resources Department, 3700 Willingdon Avenue, Burnaby, B.C. V5G 3H2.

Subscription changes to the Newsletter may be requested by completing the form on the last page. You are subscribed if your name appears on the label attached to the Newsletter. Next issue is planned for 83:09:02.

FACILITIES

The major BCIT computer is an IBM 4341 Model Group 2 with 8 million bytes of main memory, 9 IBM disk drives, and approximately 80 terminals. Both batch and online processing for academic and administrative applications are performed. The operating systems are VM/CMS and DOS/VSE.

There are two Hewlett-Packard 2000/ACCESS minicomputers, called System A and System B, which are used for introductory computing instruction.

A Hewlett-Packard 3000/44 minicomputer is available for training on standard application packages.

Fourteen Apple II Plus microcomputers are available for student instructional use.

Two Apple II Plus microcomputers, an HP125 microcomputer (terminal to the HP3000), a DEC writer, an IBM 3278, and a Televideo 950 are available for exclusive Faculty use.

Further information on our facilities is available from the Duty Analyst, or the Supervisor of Processing Services, Ron Sproule.

Locations

IBM 4341

Card readers.....2N209
Keypunch Room 2N327
Student Terminal Labs:
(IBM 3278).....2N329
(Memorex).....2N419
(Televideo).....2N420/421

Faculty Area.....2N210

HP2000

System A Terminals.....2N322
System B Terminals.....2N323A

HP3000

Terminals.....2N319

*Microcomputers

Apple Cart.....Library
Faculty Resource Lab..... 2N327A
Student Lab.....1A220

*Access to the Apple Carts and the Faculty Resource Lab can be arranged through the Listening and Viewing desk in the Library. The Apple Carts may be used within the Library by students but they must relinquish the unit to any instructor desiring to use it.

The Student Lab (Room 1A220) may be booked through the Timetabling Department (Room 2N208, local 386). In non-booked times, the lab is open for scramble use.

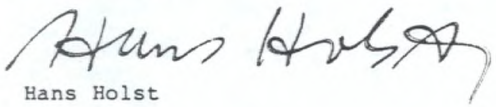
DIRECTOR'S MESSAGE

This is a very busy period for Computer Resources. A lot of items we have been working on for some time are coming up to deadlines:

- IBM 4341 - change disk drives from Model 3350 to 3370 on 83:04:29.
- Administrative DOS operating system - upgraded to VSE Release 3.0 as of 83:04:27.
- Optical Scanner - used to process students' exams and questionnaires. Replace worn out and obsolete unit by 83:05:09.
- HP 3000 - upgrade processor from Model 44 to 64 planned for 83:04:29. The two HP 2000 computer systems will be disconnected starting 83:06:25.
- A CAD (Computer Aided Design) system using an IBM computer and CAD workstations with software from CADAM, Inc. will be installed in late May, 1983.
- After extensive studies and negotiations a contract was signed with SCT (Systems and Computer Technology) Corporation to supply BCIT with an Integrated Student Information System program package. This package - which uses the CINCOM TOTAL data base management system - will be modified for BCIT's specific needs and is expected to handle student registrations for the 1984 fall term. Work has started on this major project.

Computer Resources and the rest of BCIT are operating under a very stringent budget this year. Some economies had to be made to stay within available funding. The disk drive changes mentioned earlier are part of this. We have had to reduce the IBM computer's printing capacity from three to two printers and will be eliminating the keypunch service for students as of 83:06:30. To minimize the impact on students due to the elimination of keypunch service, we are presently studying the replacement of the student keypunch devices in 2N-327 with on-line CRT devices.

April and May are generally the busiest months for Computer Resources - our capacity will be used to the limit. We will do our best to meet your needs.



Hans Holst

<>

EDITORIAL MESSAGE

This issue is the last Newsletter for this academic year. We hope that the information presented has been useful and has increased your ability to use the computer systems at BCIT. To facilitate the use of the Newsletter as a reference source, an index to the HARDWARE and SOFTWARE CHANGES and the FEATURES sections covered in the issues of Volume 1 is included with this issue.

In the Newsletter, we have tried to discuss topics of interest covering all the computer systems supported by Computer Resources - the HP2000, HP3000, IBM 4341, and the APPLE II microcomputers. In addition, we have tried to touch on topics of general interest in computer science and data processing such as office automation and the impact of the new microcomputers. In the future, we hope to cover such topics as local area networking, microcomputer operating systems, and software reliability and portability. We have tried to avoid the use of computer jargon and when unavoidable, short glossaries are included with the article.

The key to success is you, the reader and computer user. If we have provided you with greater insight into the use of the computers and software facilities at BCIT, then we have accomplished our goal. Please fill in the form on the last page to give us your ideas for improvement. We look forward to providing you with better information to allow you to use computers with greater ease.

<>

HOURS OF OPERATION

The normal operating schedule to 83:06:30 is given in the following table. Hours of operation for July and August and any changes to these hours of operation will be posted prominently and displayed on the terminal logon message as far in advance as possible.

System	Hours	Days
IBM 4341	0800 - 2300	Monday - Friday
	0900 - 1700	Saturday, Sunday
HP2000	0700 - 2400	Monday - Sunday
HP3000	0700 - 2400	Monday - Sunday

Holiday hours of operation:

Victoria Day Weekend	83:05:21-22	- 0900-1700
	83:05:23	- Closed
Canada Day Weekend	83:07:01-03	- Closed

HP2000/3000

The HP2000 systems will be removed from service on 83:06:25.

Service on the HP3000 will be interrupted 83:04:29 for installation of the HP3000/64. See the article UPGRADE TO MODEL 64 for further details.

SYSTEM BACKUPS

System	Times	Days
HP2000	2400 - 0030 1630 - 1715	Monday - Friday Saturday & Sunday
HP3000	0700 - 0730 2200 - 2400	Monday - Friday Friday Evening

Preventive maintenance - HP2000

System B - 83:06:15 1130 to 1430

<>

MAINTENANCE

The Computer Resources Department is responsible for maintenance of the following equipment:

Units	Rooms	Trouble Call
Microcomputers:		
APPLE II	1A220	
North Star	2N327A	
Terminal Labs:		local 246, after 1700 and weekends, 434-5746
IBM system	2N420/421 2N419 2N329	
HP2000 system	2N322 2N323A	
HP3000 system	2N319	
Keypunches	2N327	local 618, after 1700 and weekends, 434-5754

SUPPLIES

The Computer Resources Department stocks supplies for all terminals. Ribbons, paper, etc. will be replaced during daily checks. Supply shortages should be reported to the Operations staff at local 246 or, after 1700 and on weekends, at 434-5746.

Computer cards and Print Layout Sheets are supplied to students by Computer Resources and are available in Room 2N327. Coding forms are NOT supplied, and students may purchase these through one of the campus TNT (This 'n That) stores.

<>

HARDWARE PROBLEMS

On Sunday, 83:03:27, the head disk assembly of an IBM 3370 disk drive failed at 1230, resulting in a down time of 4.5 hours on the IBM 4341. A temporary software fix allowed operations to function without one disk drive on Monday morning. The faulty head disk assembly was replaced later on Monday 83:03:28.

<>

HARDWARE AND SOFTWARE CHANGES

REMOVAL OF HP2000 SYSTEMS

Friday 83:06:24 will be the last date that the HP 2000 "A" and "B" systems will be in operation. All terminals from both systems will be connected to the new HP 3000/64 on that date. Faculty users of the HP2000 who have not already applied for Ids on the HP3000 are encouraged to do so. We will keep you posted on how to use this new system; please contact the Duty Analyst if you have any questions.

<>

UPGRADE TO MODEL 64

The HP 3000/44 will be unavailable all day Friday 83:04:29, and possibly Saturday, for hardware upgrade. The HP3000/44 will be replaced by a HP3000/64 with 2 megabytes of memory, 66 ports, a potential link to the IBM 4341 system and a new level of the MPE operating system. It will be located in the main computer room. Current users of the HP3000 will not require any changes to programs or procedures to access the new system. They will use existing HP2000 and HP3000 terminals.

<>

DISK CONVERSION

The two remaining IBM 3350 disk drives on the IBM 4341 will be replaced with IBM 3370 disk drives on 83:04:29. The use of a single type of disk drive (the IBM 3370) can minimize disk access time with lower hardware cost, thus allowing us to meet our reduced budget.

<>

REMOVAL OF WATBOL AND WATFIV UNDER SDOS

WATBOL and WATFIV are no longer available under DOS/VSE as a result of the IBM 3350 disk drive conversion. Waterloo does not support these compilers under DOS/VSE on IBM 3370-type disk drives.

In place of WATBOL use the IBM COBOL F compiler and for WATFIV, use the IBM FORTRAN F compiler. See the BCIT DOS/VSE User's Guide for more information on using these compilers. WATFIV will still be available under CMS.

<>

INSTALLATION OF VS FORTRAN (FORTRAN 77)

VS FORTRAN has been installed on the test system and will be available on the Academic DOS (SDOS) system on 83:09:01.

VS FORTRAN is an implementation of FORTRAN 77 and requires VSE Release 3 on SDOS. VS FORTRAN has facilities to make system management easy and improve programmer productivity. While it will accept most of the old FORTRAN source code, for improved efficiency, the old FORTRAN source code should be recompiled with the VS FORTRAN compiler. More details will be available in September.

<>

CADAM IMPLEMENTATION

CAD will soon be a reality at BCIT. CADAM Incorporated has agreed to donate the CADAM (Computer-Aided Design And Manufacturing) package to BCIT for training in computer-aided design and drafting. The initial configuration will consist of two IBM 3251 work stations and a plotter.

Training on the CADAM system is planned for a small group in June. These trainees will then conduct training sessions for the rest of BCIT faculty and staff. The first group of students will start using the system for pilot projects in the fall term.

<>

OPTICAL SCANNER REPLACEMENT

Optical scanning allows easy and inexpensive data entry to computers. Answer sheets are marked in pencil and put into computer form by a scanner unit. At BCIT, the OPSCAN 17 scanner has been used to input and analyze tests, instructor evaluations, and other information.

Due to poor reliability of the OPSCAN 17 unit, we have temporarily replaced it with a Sentry 7001 scanner. Beginning 83:05:09, this unit will be in operation. The new scanner requires different answer sheets than the current red-coloured sheet. These new sheets are available from Central Stores. Due to budget restrictions, this new unit will not be available after 83:07:31.

<>

FEATURES

COMPUTING ACCESS 1983/84

All requests for 1983/84 student computing access are due 83:05:02. If you have not completed a request, please do so soon. Forms are available from the Duty Analyst, local 351.

<>

OFFICE AUTOMATION

Office automation is the application of computers and other high technologies to such office functions as:

- preparing, storing, duplicating, and distributing documents
- communicating by telephone,
- scheduling meetings,
- retrieving information for review and decision making.

Today's office is being streamlined by computer technology. Nowhere are these innovations more apparent than in the creation and handling of documents. The speed of document preparation has increased significantly, while the introduction of computerized word processors has reduced filing by allowing the storage of documents onto magnetic media such as diskettes, tape cartridges, or large disk drives. With computerized preparation, standard letters or memos can be stored, retrieved, and customized for each addressee. The speed of duplicating documents is being increased many times over that of electrostatic copiers through the use of the computer and computer-driven laser printers.

In a system which allows on-line access by many users simultaneously, documents that are stored on a computer can be "sent" from one user to other users of the system. The computer then becomes a centralized mail distribution system. The user examining "mail" from a terminal can decide whether or not to print the document or have it "filed" in his or her own disk space. This method of message distribution is much faster than that of regular mail.

Computer technology is also revolutionizing telephone usage in the workplace. The telephone is a vehicle for efficient communications but, at the same time, it is a source for wasting time. Recently, computer-based switching systems have been developed to enhance the use of the telephone. The source, destination, and the length of telephone calls are recorded for analysis and time management. Simple units have memory to store often-used telephone numbers for automatic dialing or re-dialing at the touch of a button. More complex units also have memory for the storage of messages.

When getting in touch with people to arrange meetings is a problem, an electronic mail system coupled with a scheduling system is ideal. (The scheduling systems are referred to as electronic calendaring systems). The person trying to arrange the meeting can set a schedule and send it to everyone concerned (assuming that they are all computer users). The other members of the group can enter their optimal meeting times into the schedule and return it to the original sender. On receiving the modified schedules, the person arranging the meeting can submit the schedules to the calendaring system to find an optimal meeting schedule for all participants. This schedule can then be retransmitted to the entire group.

Office automation is not only changing clerical functions; management functions are being affected as well. Managers must have information that is both easily accessible and understandable to support decision making. In the past, the primary data processing function has been to process historical records. Only recently has attention been given to developing software tools for forecasting the results of decisions. The searching of probable alternatives with simulation programs is referred to as "what-if" simulation.

The CMS system on the IBM 4341 computer allows the automating of many office functions. The text editors, XEDIT on the IBM 4341 and the EDITOR on the HP3000, enable the preparation, storage and retrieval of documents. On the CMS system, documents can be prepared with XEDIT and formatted for printing with SCRIPT. This Newsletter and all the User's Guides prepared by the Academic Support Group have been done in this manner.

On the CMS system, one user can send messages or documents to another user. This is a form of electronic mail. At present, Computer Resources does not have a proper electronic mail system, a computerized calendaring system, or a computer-driven laser printer. Elsewhere in BCIT, there exists AES and WANG word processing systems. At present, there is no communication between the various devices so one system cannot make use of the capabilities of the other systems. This will be discussed in a future article on local area networking.

There are many periodicals in the Library that discuss office automation. One issue

recommended for further reading is the February 23, 1983 issue of Computer World on Office Automation, Volume 17 Number 8A.

<>

MICROCOMPUTER SERIES

The Academic Support Group, in cooperation with the Library, has been inviting a series of microcomputer vendors onto campus to display their various units and associated software. A booth is set up in the Listening and Viewing area of the Library, usually during Wednesday breaks, and staff and students have an opportunity to view the offerings.

These displays are not an endorsement of the products or the vendor by Computer Resources. They are strictly for the viewing convenience of the BCIT community.

To date, the portable KAYPRO II (Data Terminals Ltd.), the APPLE PLUS IIE (BYTE Shop), the portable MICRO-PROFESSOR II (CYBER Videocom Inc.), the NEC Advanced Personal Computer (RAE Data Systems) and the Victor 9000 (Key Computer) have been exhibited. The response has been excellent.

Vendors have been good enough to offer group and educational discounts to staff, and at least one company has offered a student price.

Several other vendors of systems such as the Osborne , DEC, Franklin, and Atari are confirming dates. We will try to get as many shown as possible. Watch for posters with details and listen to the CFML broadcasts.

By the way, the TNT shop in the 2N building retails the ARROW 1000, a fully "APPLE-compatible" machine.

<>

HP2000 AND HP3000 BASIC LANGUAGE (PART II)

In this article, we will explain the remainder of the differences between the BASIC language on the HP2000 ACCESS and the HP3000 computer systems. The numbering of each point continues from that of Part I in the March Newsletter.

These points are adapted from the documentation that came with the conversion program.

11) For single precision floating-point numbers, the HP2000 ACCESS has a 23-bit mantissa; the HP3000, only 21-bits. The limits for the exponent are 10**38 and 10**77 for the HP2000 and the HP3000 respectively. (In lieu of superscripts, the symbol "**" represents exponentiation.)

12) In HP2000 ACCESS, "S" or "M" is not required in a floating point specification of a format string if the number is negative. It is required on the HP3000.

13) The HP2000 ACCESS leaves a leading blank for positive result when converting a number to a string; the HP3000 does not.

14) The HP2000 ACCESS always appends a decimal point to integer values between 32768 and 999999; the HP3000 does not.

15) The ENTER statement allows the programmer to determine the port number on which the user is logged in and to specify the allowable response time for data input.

    a) On both systems, time-out is computed modulo 256. However, on the HP3000 if the number is less than one, it is made equal to 1; if it is greater than 255, it is made equal to 255.

       Definition: The modulus is the remainder after a division by the given number.

    b) The return variable normally returns the user's response time. In addition, the HP2000 ACCESS returns -257 for parity errors and -258 for precision errors; these are "fatal" errors on the HP3000.

       Definition: For even parity, the number of bits in a transmitted character is even; for odd parity, the number of bits is odd. On even parity, a parity error occurs if the received character has an odd number of bits, i.e., one bit is lost in transmission. The reverse holds for odd parity.)

16) The HP3000 physical record is 20% greater than the HP2000 physical record size for BASIC formatted files since an additional 20% is added to the logical record size for data descriptors.

    Definition: A physical record is the number of characters read or written in one read or write operation by a hardware input or output device such as a disk drive. A logical record is the number of characters read or written by one READ or WRITE statement in a computer program.

17) On the HP2000 ACCESS, the CREATE statement returns additional error codes for no space in the account library and for no space in the system; these are not available on the HP3000.

18) On the HP2000 ACCESS, a direct I/O file cannot have a logical record that spans more than one physical record; otherwise a logical read or write results in a partial transfer of data. On the HP3000, direct I/O file logical records can span more than one physical record.

19) On the HP2000 ACCESS, the output control characters LIN(0), CTL(13), and "+" for "overprinting" will result in a new record for ASCII files that are not line printer or terminal files. On the HP3000, the current record is overwritten as it would be on a printer or terminal.

20) The CTL function, used in a PRINT statement, provides control for ASCII file devices such as the printer, magnetic tape drive, and the card reader.

    a) The HP2000 ACCESS permits CTL on PRINT statements to an input device. For example, PRINT #1;CTL(42) where file #1 is the card reader will cause the card punches to be read and converted to EBCDIC (the IBM standard) character representation. The default is CTL(40)

which converts the card punches to the ASCII representation (the character representation on the HP).

b) The CTL arguments of the HP2000 ACCESS are machine-independent while those of the HP3000 are machine-dependent.

21) The HP2000 ACCESS permits continuation of the REM statement onto more than one line while the HP3000 does not.

Parts I and II of this article are combined into one document, HP2000 & HP3000 BASIC LANGUAGE DIFFERENCES, available from the Duty Analyst.

<>

INDEX TO NEWSLETTER ARTICLES FOR VOLUME 1

I. HARDWARE AND SOFTWARE CHANGES

II. FEATURES

A. GENERAL

B. PROGRAMMING LANGUAGES

C. MICROCOMPUTERS

D. HP3000

E. IBM 4341 VM/CMS/DOS

F. DATA ENTRY SERVICES

G. DOCUMENTATION

H. DUTY ANALYST

<>

READER SURVEY

This is our last issue until September and it's time to review our progress thus' far. We'd like to hear what you liked, didn't like, or want to see in this Newsletter. For example, are we too technical or too long winded? What kind of articles did you enjoy?

As an added incentive to respond, we're offering a NAME THE NEW HP3000/64 CONTEST. The person offering the "best" name will win a HP3000 GUIDED TOUR manual to begin their HP3000 learning. Good luck, and thanks!

Rate the following sections of the Newsletter on a scale of 1 (not useful) to 5 (very useful).

|_| hours of operation, phone numbers, etc.
|_| software and hardware changes articles
|_| feature articles (e.g., CAD)

What are the strengths of the Newsletter?
(e.g., writing style, topics)

What are the weaknesses of the Newsletter?
(e.g., too technical, too long)

What topics (e.g., microcomputers, networking, CAD) would you like to see in future?

MY NAME FOR THE HP3000/64) IS:

_____.
(e.g., "Mini" Mouse, Dave's Disaster)

NAME _____

TECHNOLOGY _____.

PLEASE RETURN TO:
Editor
Computer Resources Department
BCIT

CMS VERSION OF NEWSLETTER

If you have a CMS ID, you can access a copy of the Newsletter through one of the terminals. This file will be updated with each issue of the Newsletter.

The procedure is as follows:

1) Logon to CMS

2) Type 'NEWS' and the current version will be displayed at your terminal through XEDIT.

3) Use the standard XEDIT commands to scroll through the Newsletter.

4) Type 'QUIT' when you have finished viewing the Newsletter.

<>

NEWSLETTER SUBSCRIPTIONS

CHECK the subscription change wanted:

____ ADD MY NAME TO YOUR MAILING LIST

____ CHANGE MY NAME/DEPARTMENT
(Please attach current address lab)

____ DELETE MY NAME

NAME/TITLE _____
last first

DEPARTMENT/ADDRESS _____

RETURN TO: Editor
Computer Resources Newsletter
Computer Resources Department
BCIT
3700 Willingdon Avenue
Burnaby, B.C. CANADA V5G 3H2