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PUB - 429

For Reference

**LBL
COMPUTING
NEWSLETTER**

Volume 22, Number 5
May 1985

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PUB-429 5-85/1300

Newsletter Closing Date is Wednesday, May 15, 1985 . . . and no later.

Address all communications for the Newsletter to Maggie Morley, Editor,
50B/1245 (415) 486-5529; or to login **mam** on UX4

Prepared for the U.S. Department of Energy under Contract DE-AC03-76SF00098

PUB-429

NAMES & NUMBERS TO KNOW

From on-site, dial <xxxx> From off-site, dial (415) 486-<xxxx> From FTS line, dial 451-<xxxx>

COMPUTING DIVISION

Head: Leroy Kerth7474 50B - 2232

OFFICE OF COMPUTING RESOURCES

Head: Ken Wiley7083 50B - 2258

COMPUTING SERVICES

Central Office5871,2 50B - 2239
 Guest Cards & Parking Permits.....5947 50B - 2239

COMPUTING SERVICES

Operating Systems & Product Set

Head: Jerry Borges5568 50F - 144

COMPUTING SERVICES

Applications Group

Head: John Colonias6019 50B - 2262B

COMPUTING SERVICES

User Services

Head: Eric Beals5351 50B - 4224C
 Accounting.....6310 50B - 4224B
 Library/Document Sales.....6094 50B - 1245
 Short Courses, UNIX.....5529 50B - 1245A
 GSS Tape Repair Service.....6094 50B - 1245
 Sticky Label Service.....6094 50B - 1245

DEVELCON IDENTIS

COMPUTER	DEVELCON DIRECTORY NAME
-----------------	--------------------------------

PDP 11/70 (UNIX1).....	UX1
PDP 11/70 (UNIX3).....	UX3
VAX 11/780 (UNIX4).....	UX4
VAX 11/750 (UNIX5).....	UX5
VAX 11/750 (UNIX6).....	UX6
VAX 11/780 (VMS).....	GEN
VAX 8600 (VMS).....	LBLA
VAX 11/780 (VMS).....	NMC
VAX 11/780 (VMS).....	IGM
CDC 6600B,.....	RECC
IBM 3081 (UCB).....	CCDB

LOCAL TYMNET ACCESS NUMBERS

Oakland 430-2900	Vallejo 707-557-0333
Walnut Creek 938-9550	Concord 682-3851
Pleasanton 462-8900	Fremont 490-7366
San Francisco 974-1300	Antioch 778-3420

COMPUTING SERVICES

Computer Operations & Networks

Head: F. Marvin Atchley.....5455 50B - 2239A
 Assistant: Sandy Merola4389 50B - 2239B
 Operations Area.....6211 50B - 1215
 Coke Operator5311 50B - 1275
 Connecting a Remote Terminal.....7444 50B - 2249A
 PSS (Program Storage System).....6219 50B - 2253
 Bldg 90 RJE.....5450 90 - 3136
 Terminal or Port Repair5354 50B - 2259
 Help Desk.....5981 50B - 2272
 Graphics System Manager5565 50B - 2245
 UX4/UX5/UX6 System Manager.....6720 50B - 1232
 UX1/UX3 System Manager.....7005 50B - 1232
 IGM/GEN System Manager5610 50B - 2245
 NMC/PDM System Manager5234 50B - 2245
 VMS Cluster Manager.....6203 50B - 2245
 Network Coordinator.....4388 50B - 1232
 Expediter Services.....6205 50B - 2253
 Magnetic Tape Library.....6219 50B - 2253
 Key Data Entry Service.....6256 90 - 3145

Operating Hours

All machines are available 24 hours daily.
 With these exceptions.

7600.....	M.....	7 AM to 9 AM
	Th.....	7 AM to 9 AM
6600B.....	T.....	7 AM to 9 AM
UX1 - PDP 11/70.....	Sun 5/05.....	12:30 to 6 AM*
	Mon 5/06.....	12:30 to 6 AM*
	Tues 5/07.....	12:30 to 6 AM*
UX2 - PDP 11/70.....	Sat 5/18.....	12:30 to 6 AM*
UX3 - PDP 11/70.....	Tue 5/21.....	12:30 to 6 AM*
UX4 - VAX 11/780.....	Mon 5/20.....	12:30 to 6 AM*
UX5 - VAX 11/750.....	Mon 5/27.....	12:30 to 8 AM*
UX6 - VAX 11/750.....	Fri 6/03.....	12:30 to 8 AM*
IGM - VAX 11/780.....	Mon 6/02.....	12:30 to 8 AM*
NMC - VAX 11/780.....	Mon 5/06.....	12:30 to 8 AM*
GEN - VAX 11/780.....	Mon 6/17.....	12:30 to 8 AM*
PDM - VAX11/780.....	Mon 5/13.....	12:30 to 8 AM*
DICOMED - PDP 11/34.....	Sun 5/05.....	8:30 AM to 4 PM

* Subject to Additional Maintenance Periods

Dial-up Access Numbers

- All Machines - 300 BPS ... 486-4959
- o All machines - 1200 BPS .. 486-4979
- UX1 Direct Line - 300 BPS 486-7015
- UX3 Direct Line - 300 BPS 486-7020
- RECC : 110 BPS 486-6351
- RECC - 300 BPS 486-5752
- RECC - 300 BPS 486-6041
- RECC - 300 BPS 486-6661
- o VA-3400 & 212A are equivalent

... On the Ethernet

HILL-WIDE ELECTRONIC MAIL FACILITY

William Jaquith

A Central Electronic Mail Facility, using the LBL Telephone Directory as reference, is being installed at the laboratory.

The laboratory is in the process of connecting many of its local computers to a hill-wide Ethernet, which will be this Mail system's electronic carrier.

As hookups are completed, you will be able to go to the LBL phone book, look up someone's last, middle, and first name, and -- if he's registered there with an electronic mail address -- you can send mail to him over the Ethernet.

To see if someone's name (for instance, "WDJaquith") is registered in its database, type

```
% lookup WDJaquith <cr> - or
```

```
% lookup Jaquith <cr> - or
```

```
% lookup Jake <cr>
```

(Abbreviations and partial names can be used to search the database.) If that name has been registered in the database, the computer will let you know with a single line of information.¹

- The first thing listed is your recipient's **electronic mail address** in the central mail facility. ("WDJaquith".)
- Next you'll see his full name as it appears in the LBL phone book. ("William D. Jaquith")
- Then comes his laboratory address/phone ("Computing Services 50B-2239 x4388")

To send him electronic mail on UNIX, type -

```
% Mail FMLast@lbl <cr>
```

To send him electronic mail on VMS/VAXes, type

```
$ Mail lbl::FMLast <cr>
```

To send him electronic mail on **software tools mail**, type

```
$ sndmsg FMLast@lbl <cr>
```

If you'd like to take advantage of this service and have your name included in the upcoming LBL central electronic mail database, (the Telephone Directory of our future), you'll have to send a request via electronic mail to:

```
registr@lbl    using software tools or UNIX mail
lbl::registr    using VMS mail
```

In your request, please include the following info:

Full Namefirst name, middle *initial*, last name

Electronicthe computer you designate to
Mail Addressreceive electronic mail . . .
and your login name

PhoneX 4388

DepartmentComputing Services

Mail Stop50B-2239

This new info will be listed in the upcoming LBL telephone directory.

When your name and address are installed in the electronic mail database, a user can go to the new phone book, find your First name, Middle *initial*, & Last name, (say, "FMLast") and use one of the address patterns outlined above to send electronic mail to you: (NOTE: we use **UPPER** and **lower-case** letters (and *italics*) in this example and throughout this article for **emphasis only**. Follow your local system conventions for upper and lower case letters.)

TECHNICAL SUMMARY:

- You can send mail via the LBL central electronic connection *only* to users who are registered in the central electronic database.
- It's possible for you to use your local electronic mail facilities and not use this special central facility at all.
- You can tell if someone is registered in the electronic mail database by using the command:

```
% lookup name <cr>
```

¹ A typical line will look like this:

WDJaquith William D. Jaquith Computing/Services 50B-2239 x4388

- You need not know which computer your recipient uses as his electronic mail address. The database already has that information.
- You need not know the path to the computer your recipient specified to receive mail. The central mail facility knows that path.
- You **MUST** register a middle initial. If you don't have one, you must substitute an "X" (e.g., "WXJaquith"). Those first three columns are significant in the database. The cluster - consisting of first and middle initials plus full last name - just about guarantees unique name-strings in the database. You'll have no difficulty figuring out which one of, say, seven Joe Smiths is your recipient.
- A last name may be very long or hyphenated. The mail database has no problem with it.
- The electronic mail database uses the names that are listed in the telephone book, and NOT nicknames.
- VMS users of software tools mail should use the following form of address when sending electronic mail:
FMLast@lbl
- VMS users of the VMS mail, should use the following form of address when sending electronic mail:
lbl::FMLast
- UNIX users should use the following form of address when sending electronic mail:
FMLast@lbl
- Mail that cannot be delivered is returned to the sender.

Forward comments and question to me (WDJaquith@lbl, x4388).

8600 USAGE CHARGES

Eric Beals

CPU time on the VAX 8600 is recharged at 4 times the rate of CPU time on the GEN or IGM. The recharges for Connect Time and Disk Usage are the same.

8600 Connect Time	\$ 1.00 per Hour Prime Time
8600 Connect Time	\$.00 per Hour NON-Prime Time
8600 Interactive CPU	\$400.00 per Hour Prime Time
8600 Interactive CPU	\$200.00 per Hour NON-Prime Time
8600 Batch CPU	\$200.00 per Hour Prime Time
8600 Batch CPU	\$100.00 per Hour NON-Prime Time
8600 Disk Usage	\$ 5.00 per 1000 Blocks per Month

Since the CPU on the 8600 is approximately four times faster than the CPU on a VAX 11/780, costs of running a job on the 8600 should be approximately the same as the cost of running it on the 11/780.

Forward comments and questions to me (eric@lbl, x5351).

$$f(k) = \int \left\{ \left[\left[\frac{\sin(kx)}{kx} \right] \right] \right\} dx$$

$$\nabla \times \vec{E} = \mu_0 \vec{J} + \mu_0 \epsilon_0 \frac{\partial}{\partial t} \vec{E}$$

$$\nabla \cdot \vec{B} = 0$$

$$\nabla \cdot \vec{E} = \frac{\rho}{\epsilon_0}$$

$$f(x) = \int \left[\frac{\sin^2 x + \cos^2 x}{\{x^2 + ax^3\}} \right] dx$$

Prepared with T³
and printed on an Epson.

NEW NROFF DRIVER TABLES ON VAX UNIX MACHINES

Carmen Chan

We've installed several new NROFF driver tables on the ux4, ux5 and ux6 machines.

Following is the listing of the new drivers :

```

          * * * * *
DEVICE                                     Recognized
NAME                                       Name
Anderson Jacobsen ..... "newaj"
832 (12-pitch)
Diablo 1650 (12-pitch) ..... "dsi1650-12"
Diablo 630 (12-pitch, ..... "ecs12"
  with extended
  character set)
Epson-mx (10-pitch) ..... "epsmx-sub"
                                     (with subscript only)
                                     "epsmx-sup"
                                     (with superscript only)
Texas Instruments ..... "ti810-12"
810 (12-pitch)

```

* * * * *

You can access a full listing of all the NROFF driver tables, available on the 4.2 BSD UNIX systems, by typing:

```
% help nroff <cr>
```

To format a text-file for a particular terminal/printer, you can use "nroff" with the "-T" option, for example :

```
% nroff -Tnewaj textfile <cr>
```

(this command will format the textfile for the Anderson Jacobson 832 printer).

For further information contact Carmen Chan (carmen@ux4, x4750).

DON'T GET CAUGHT . . . with your data on unusable media!

On July 1, when the 7600 goes away,

- you will NOT be able to read 7-track tapes
- the card readers will go away
- the key punches will go away
- PSS will go away.

BE PREPARED!

Copy your PSS datasets onto 1600- or 6250-bpi tapes (or a VMS or UNIX file system) before July 1. Otherwise, they will be lost forever.

"It wasn't raining when Noah built the ark."

(Howard Ruff)

FORTRAN CONVERSION GUIDE ON SALE

Extracted from the UCB Computing Services Newsletter, March-April 1985).

A comprehensive document, the *LBL FORTRAN Conversion Guide* (\$3.00, GEN 2.3.3), compiled by UCB Computing Services staff, is available for sale at LBL's Computing Services Library (50B-1245, x5529).

This guide covers most conversion issues and describes tools and other mechanisms which can substantially aid in conversion from LBL CDC 7600 to our cluster of five VAX 8600's. Use of the electronic network for transferring program files between CDC and VAX computers is described in detail.

Computing Services (UCB Evans Hall) also offers limited technical consulting. (To arrange for an appointment, please call Jerry Berkman at 642-4804).

SOME BASICS OF VAX CLUSTERS

Rosemary Allen

VAX/VMS can cluster many machines together into a single system which makes most of the resources available to any user of the cluster. The disk storage system in a cluster is shared by all of the CPU's in the cluster.

The CPU is now just another resource, just like the disk or a tape drive. Hence, you can use any CPU in the cluster.

- **CLUSTERING: ONE LOGIN FITS ALL**

Computing Services is constructing a cluster environment for all VMS users.

- You will have access to any machine available in the cluster system, with **one** account login and **one** physical location for disk files.
- The disk file systems are accessible from anywhere in the cluster and are no longer considered attached to any single machine, so you need just one login and one disk assignment.

The present cluster consists of LBLA (a VAX 8600), IGM, and GEN in a centralized system, with HSC¹ disk drives. At this moment, there are two HSC drives (and 13 disks) on this cluster system.

The NMC is not included: right now we are unable to upgrade it to the required operating system level (V4.0).

(1) **The "HSC DISK DRIVES"**

An "HSC" is not directly attached to any one machine: it and the disks operate independently of any single processor. Consequently, when one machine is unavailable, you can still access a disk from another machine.

(2) **"CLUSTER-SERVED DISKS":**

These disk drives are local to a single machine (currently only IGM) and are available on the cluster system by use of special VMS software.

When IGM is unavailable, its disks are also unavailable.

Our long-term goal is to move all users onto HSC disks as space permits.

¹ Hierarchical Storage Controller

Within two or three months, more HSC disks will arrive and then the contents of the IGM disks will be moved onto them. All new user accounts are being set up on an HSC disk.

- **FUTURE PLANS**

We plan to incorporate the four VAX 8600 machines to be delivered in the next few months into the cluster system as they arrive.

Develcon has been set up with a generic name of LBL for the new processors. We intend to distribute the interaction load over all the available 8600's (i.e., LBLA, LBLB, LBLC, LBLD, and LBLE). There may be exceptions due to very specialized software and/or hardware.

As each new processor is added, it will be accessible from Develcon either as LBL or LBL* where "*" stands for the machine letter. This way, the user needn't have to worry if a processor is available or down for maintenance.

Word of caution: You can only access the new processor(s) by "LBL" through Develcon. Any network access, (i.e., using DECnet remote login), **MUST** be initiated with the **exact** network host name (i.e., LBLA, LBLE, etc).

NEW PROCEDURES FOR ADP JUSTIFICATION

Ken Wiley

The Office of Computing Resources has implemented new approval procedures for the acquisition of computers, CAD/CAM, and office automation equipment and services. The new procedures are effective now. Copies of the new instructions and forms have been sent to all Division Administrators. These include new:

- ADP Resources Acquisition Justification instructions
- ADP Resources Acquisition Justification Form
- System Development Plan
- Draft of the new RPM SECTION 6.01, which explains the new procedures.

These new procedures will reduce the number of acquisitions needing approval by OCR but will increase the documentation in some cases. Please destroy all older issues of the instructions and forms. If you have any questions concerning the new procedures, please call OCR, (x7091).

READING AND WRITING TAPES ON THE VAX/VMS

Marge Hutchinson

We've compiled the following information to help you manage your tapes on the VAX. Users who wish to **SAVE** information on tapes will have to do their own bookkeeping on the VAX.

We are still considering alternatives to the present tape library system that goes away on July 1. There is no tape management system equivalent to the GSS tape system currently available, but we're still looking.

Two commands, **BACKUP** and **COPY** are available. Either can be used to transfer files to a tape and recover the file by name.

(1) **BACKUP & COPY**

BACKUP is most useful for archiving files. The tape utilization is more efficient with **BACKUP** than with **COPY** especially if the tape contains a large number of small logical records, since **BACKUP** packs the data into very large blocks.

(2) **OTHER COMMANDS**

Other commands you should know are **ALLOCATE**, **DEALLOCATE**, **INITIALIZE**, **MOUNT**, **DISMOUNT**, and **SET MAGTAPE/REWIND**.

• **ALLOCATE & DE-ALLOCATE**

Before you use any tape unit you should always allocate it. This prevents anyone else from using it.

Be sure to de-allocate it when you are finished. (If you forget, no other job can use that unit until you log off the machine.)

• **INITIALIZE**

Tapes written on the VAX are Files-11 format tapes. Files-11 tapes must have an **ANSII**-standard tape label. Use **INITIALIZE** to create a label on a new tape. Here is an example of an **INITIALIZE** command:

```
$ initialize/density=6250 mfa0: label
```

where *label* is a character string of 6 characters or less.

• **MOUNT & DISMOUNT**

When mounting a tape, you must specify the label name, unless you are mounting a tape as a foreign

tape. The label name is the same name you specified on the **INITIALIZE** command. If you have forgotten it, mount the tape with **"/FOREIGN"** specification and the label will be displayed. then **DISMOUNT/NOUNLOAD** and mount again without the **"/FOREIGN"** specification.

A larger blocksize is more efficient for tape storage since fewer record marks are needed. Maximum blocksize to use for transfer to other types of machines is 2048 bytes (that's the maximum **ANSII** standard blocksize.) You can use the **"/BLOCKSIZE=n"** option on the **MOUNT** command to set the blocksize to "n".

Following is a table showing the approximate number of megabytes that can be stored on a 2400 foot tape using various block sizes and densities.

BLOCKSIZE (Bytes)	DENSITY	
	1600 BPI	6250 BPI
512	16 Mb	22 Mb
2048 (default)	31 Mb	64 Mb
8192 (BACKUP default)	41 Mb	124 Mb

• **BACKUP**

With **BACKUP**, you must mount the tape with a **\$MOUNT/FOREIGN** command. Several files are written in a group called a **SAVESET**. Once a **SAVESET** is written, it must be handled as a unit, although a single file may be read from it. Files may not be added to or deleted from the **SAVESET** but new **SAVESETS** may be written and will be added to the end of the tape. If there are multiple **SAVESETS** of the same name on a tape, you will have to position the tape explicitly to the desired **SAVESET**; if you don't, the first one encountered with the given name will be retrieved. (If you must position the tape, you can use a series of **BACKUP/LIST/NOREWIND** commands.) You cannot rewrite a file in an existing **SAVESET**. To **SAVE** a new copy of a file in an existing **SAVESET**, you must create a new **SAVESET** with a different name. (One way to prevent duplicate **SAVESET** names is to include the date and time in the **SAVESET** name).

Use a directory command **"DIR"** to list all the **SAVESETS** on a tape. (For this, the tape must be

mounted without the `"/FOREIGN"` specification.)

Use a **BACKUP/LIST** command to list the files in the **SAVESET**.

There are many more **BACKUP** options. See the **VAX/VMS Utilities manual** for complete information.

- **COPY**

When copying with **COPY** to a file structured volume, the tape must be mounted as a files-11 tape (i.e. no `"/FOREIGN"` specification on the mount). (Copying to foreign tapes is also possible but will not be described here. See the **Guide to VAX/VMS Disk and Tape Operations** for further information.)

COPY writes files to tape in a way that is similar to writing them on disk, except that there is no hierarchical directory structure on the tape. If a file is written that already exists, and the version was not specified, the version number will be that of the file on the disk, and the file will be written to the end of the tape.

Unlike disk reads, if the version number is not specified when retrieving files,

the first file encountered will be retrieved, not the highest version number. Therefore, if you wish to keep several versions, you must specify the version number when retrieving the file. To get a list of all files on the tape, use the directory command. For further information about **COPY**, see the **VAX/VMS DCL Dictionary**.

Following are some examples of reading and writing tapes. All of these examples assume you mount your own tapes. The **allocate**, **dismount** and **deallocate** commands are shown only for the first example. To determine the names of the tape units, use `"SHOW DEVICE M"` and ignore all of the **MB** devices.

For more examples & instructions, consult *"Guide to VAX/VMS Disk and Magentic Tape Operations"*, available at the Computing Services Library, 50B/1245, ×5529 or 6094. Forward comments/questions to me (margeh@gen, ×4727).

- **EXAMPLES USING BACKUP**

Example 1. To write a file (**myfile.dat**) to tape using **BACKUP**

\$ allocate hsc012\$mua0	<i>allocate the tape drive</i>
\$ initialize/density=6250 hsc012\$mua0: mylabl	<i>initialize the tape</i>
\$ mount/foreign hsc012\$mua0:	<i>mount the tape foreign.</i>
\$ backup myfile.dat hsc012\$mua0:myfile.bck	<i>save in SAVESET myfile.bck</i>
\$ dismount hsc012\$mua0:	<i>dismount the tape</i>
\$ deallocate hsc012\$mua0:	<i>deallocate the tape unit</i>

Example 2. To use the **BACKUP** command to save the latest version of all files from the current directory and all subdirectories, in a **SAVESET** named `"myset.bck"`. In this example, the `/log` lists every file copied on your terminal; the `/verify` causes **BACKUP** to read back the files and compare them with the originals, and the `"/label"` specifies the volume label.

```
$ mount/foreign hsc012$mua0:
$ backup/log/verify/label=mylabel [...] hsc012$mua0:myset.bck
```

Example 3. To use the **BACKUP** command to list all files in a **SAVESET**.

```
$ mount/foreign hsc012$mua0:
$ backup/list hsc012$mua0:myset.bck
```

(Note: To determine the names of all **SAVESETS** on the tape, follow example 8 below).

Example 4. To use the **BACKUP** command to extract only the files with type **FOR** from the path specified and put them in directory **mydir**. The path can be determined from the list in example 3.

```
$ mount/foreign hsc012$mua0:
$ backup hsc012$mua0:myset.bck/select=[path]*.for [mydir]*.*
```

Example 5. To use the **BACKUP** command to **SAVE** all files modified since 1-apr-1985 and put them into the **SAVESET** "since.bck".

```
$ mount/foreign mfa0:
  backup /since="1-apr-1985" [...] mfa0:since.bck
```

EXAMPLES USING COPY

Example 6. To write a file (**myfile.dat**) to tape using copy

```
$ allocate hsc012$mua0:
$ mount hsc012$mua0:
  _LABEL:
  _LOGNAM:
$ copy myfile.dat hsc012$mua0:.*
$ dismount hsc012$mua0:
$ deallocate hsc012$mua0:
```

Mount the tape as files-11
You enter the label here. It's required.
You enter a logical name here.
Hit carriage return if none.

copy the file to tape and keep the same file name.

Example 7. To write all files from the current disk directory to tape.

```
$ mount hsc012$mua0: label
$ copy *.*;* hsc012$mua0:
```

The versions will be written in reverse order on the tape.

Example 8. To list the names of all files on the tape.

```
$ mount hsc012$mua1: label
$ directory hsc012$mua1:
```

Example 9. To copy all files with file type **FOR** to directory [mydir]

```
$ mount hsc012$mua1: label
$ copy hsc012$mua1:*.for [mydir]*.*
```

Фейера или методом Абеля — Пуассона к функции

$$F^*(x) = \lim_{\epsilon \rightarrow +0} -\frac{1}{\pi} (\mathcal{L}) \int_{\epsilon}^{\pi} \frac{F(x+t) - 2F(x) + F(x-t)}{4 \sin^2 \frac{t}{2}} dt$$

$$\left[= \lim_{\epsilon \rightarrow +0} -\frac{1}{\pi} (\mathcal{F}) \left[\int_{-\pi}^{-\epsilon} + \int_{\epsilon}^{\pi} \right] \frac{dF(x+t)}{2 \operatorname{tg} \frac{t}{2}} dt \right]$$

$$\frac{1}{|Q|} \int_Q \sqrt{x_1^2 + x_2^2} \alpha dx = \frac{1}{|Q|} \int_Q \sqrt{x_1^2 + x_2^2} \alpha dx$$

Prepared with T³ and printed on an Epson.

THE COM IS FADING AWAY

Dan Van Zile

The DatagraphiX **4460 COM** machine seems to be failing. The last CRT we were able to obtain is dying. While it is slated to go away on July 1, along with most of the hardware associated with the CDC 7600, it may be gone before this newsletter hits your porch. The item is no longer being manufactured. The machine cannot be repaired.

If you use a **DISPOSE** to MF, TF, **35** or **16**, your work will be affected. Most of your film files can be processed on the Dicommed D-48, however. See the **HELP DESK**, (**x5981**) if you need assistance in converting.

MORE ON THE DISTRIBUTED PRINTING PROJECT

Marv Atchley

The distributed printing service described in last month's Newsletter will be available by mid-May. The Ethernet to Buildings 90 and 47 became operational in late April, and the Imagen 8/300 laser printers have been delivered. A few software bugs remain to be squashed.

The three Imagens available for general use will be located in

- Building 50B, First Floor
- Building 50B, Third Floor
- Building 90, Third Floor.

The SSC Group in Building 90, the Earth Sciences Division in 50E, and the AFRD Division in Building 47 have purchased Imagens for their own use.

As Bill Johnston's article indicated, these devices are suitable for *troff* and graphics output, and are not intended for large printouts.

CENTRAL SITE PLANNING

We have solicited bids for laser printer to support the VMS 8600 system and expect to purchase several medium-speed (20⁺ pages-per-minute) devices that will also support graphics. These new laser printers have a resolution of 300 dots-per-inch and print on standard 8 1/2" x 11" copier paper. The output will be printed out on separate pages instead of fan-fold, so users will have several options for filing: folders, binders, or a glue-binding process. There will be one older-style high-speed mechanical impact printer on the 8600 system for users who need to have their output printed on wide paper.

Forward comments and questions to me (atchley@ux4, x5455).

MORE ON THE TAPE LIBRARY

Marv Atchley

In last month's Newsletter, we announced that we would be abandoning our existing Tape Library Service when the 7600 went away on July 1. We had been led to believe that there would not be sufficient user support to warrant such a sophisticated system. To replace it, we envisioned a Tape Vault with user cardkey access and limited operator assistance.

Since that time, representatives from several Divisions have stepped forward, offering new input and real support. This causes us to reconsider those plans and to study other alternatives.

The cost of maintaining a service much like the present tape library system would be shared by the participants, and would cost somewhat more per tape than we now charge. (We are evaluating a commercial package designed for VMS users which looks pretty promising.)

By July, 1985, owners of tapes in the present tape library system must still arrange for one of the following actions for all of their tapes in the library. They can --

- Release tapes to the blank tape pool
- Archive tapes into the Inactive Library in the Federal Records Center, which will store them for up to 15 years. These tapes can be **FETCHED** back (it takes about a week).
- Release tapes to their own storage area - (not recommended unless storage areas are clean and have controlled temperature & humidity).
- Retain tapes for inclusion in the new Storage System -- **ONLY** if the tapes are to be used with the **BKY** replacement system or existing **VMS** or **UNIX** systems.

Forward comments and questions to me (atchley@ux5, x5455).

"It's what you learn after you know it all that counts."

(John Wooden, 1973)

FREE DISSPLA, TELL-A-GRAF TELL-A-PLAN GRAPHICS CLASSES IN JUNE

Claudette Lederer

ISSCO,¹ a major manufacturer of graphics software, will be presenting **FREE** on-site training classes during the first week of June '85. Purpose is to assist new users and old hands in using ISSCO products at the laboratory. (Charge for these courses is normally \$250 per student per day.)

This is the perfect opportunity for LBL Computer Center VAX/VMS users to become involved with -- and inspired by -- DISSPLA,² TELL-A-GRAF, and TELL-A-PLAN.

The classes will be taught by Nathan Gold (ISSCO's Bay Area Technical Representative).

Nathan has a demonstrated reputation as a highly-qualified, involved, and dynamic teacher.

These classes will be especially useful to graphics users who are in the midst of developing or rethinking a graphics effort. For those who are already using these packages, the classes will reinforce their skills and offer an opportunity to ask questions and make suggestions.

ISSCO listens to the suggestions made by its users, and acts upon them. An example of this is their new document "*Scientific Chart Design: Computer-generated Charts Using TELL-A-GRAF*," by K.W. Bridges and Sam Kim. This document reflects recognition of the need to support the scientific community more actively. In the past, beginning TELL-A-GRAF users had to use examples designed for the "business" community in TELL-A-GRAF FIRST FACTS or even the TELL-A-GRAF User's Manual. This new document supports scientific graphing -- the scientific community has been heard.

Each person enrolling in the on-site ISSCO classes will receive a free copy of "Scientific Chart Design" from ISSCO. Schedule is:

DATE	TIME	TITLE
Tues - June 4th	TELL-A-GRAF	An interactive, conversational computer graphics system which provides a flexible way to develop presentation quality graphics using English-like commands.
Wed - June 5th	DISSPLA	A high-level FORTRAN-callable subroutine plotting language for programmers.
Thur - June 6th	TELL-A-PLAN	An interactive, conversational, managerial tool, using English-like commands within TELL-A-GRAF, which aids in planning the design, implementation, and control of simple or complex projects.

To enroll in any or all of the classes call Lisa Long, (x5947).

"When it is not necessary to make a decision,
it is necessary not to make a decision."

(Lord Falkland, 1610-1643)

¹ Integrated Software Systems COrporation

² Display Integrated Software System and Plotting LAnguage

WORKSTATION NEWS

• **HP's INTEGRAL PERSONAL COMPUTER**

The Workstation Group has a new Hewlett-Packard Integral Personal Computer on loan from HP. The unit comes with a pre-release version of their UNIX Development System installed on a 24 MByte Winchester disk.

The unit will be available for short-term loan to laboratory employees as soon as the Workstation Group gets a chance to look it over.

For additional information and/or to get your name on the loan list contact R. LaPierre (x4692).

[22.5.1].....

• **CAMPUS IBM PC USER GROUP MEETING**

The University campus IBM PC User Group meets regularly on the second and fourth Wednesdays of the month at 5:30 PM at 10 Evans Hall. The next meeting is on May 8. The speaker is announced a few days before the meeting. Call Mike Morearty (642-3467) for more details.

[22.5.2].....

• **FREE LOTUS 1-2-3 UPDATES**

The Workstation Group has a new printer library file from Lotus that may help get your printer or plotter up and running. This library file replaces the one you received with your original purchase of LOTUS 1-2-3. The new release adds many new printers and plotters to the list of supported devices. Included on the new list are the **HP LaserJet**, the **HP ThinkJet**, the **HP 7475A**, and the **Toshiba P1350**.

And there's more . . .

The Workstation Group has produced utilities that allow the user to embed printer control codes in LOTUS spreadsheets. You can dress-up the spreadsheet by doing such things as "Enlarged" printing, "Italicized printing" and Underlined printing of worksheet sections.

We now provide support for **Okidata 92/93** printers and the **HP LaserJet** printer (in addition to the **Epson** printer utilities mentioned in March's Newsletter).

Bring your disk for copying to Workstation Group member Dan Van Zile, (50B/1245, x5589). It's a good idea to phone him first.

[22.5.3].....

• **WANG TRANSFERS TO AND FROM MACINTOSH AND IBM PC'S**

You can now transfer to and from **Wang ois** systems and **Macintosh** and **IBM PC's** without going through the Central Computing Facility. You'll need a **Wang ois** system with TTE or TTY communications software of the right sort as well as the appropriate PC hardware. Call Buck Koonce (x5739) for a demo.

[22.5.4].....

• **HP PLOTTER FOR LOAN/EVALUATION**

Hewlett Packard has loaned the Workstation Group a ThinkJet Printer and an eight-pen sheetfeed plotter Model **HP 7550A**.

The ThinkJet Printer is a low-noise ink-jet dot-matrix printer. It's an LLNL PC Stores item (stock number 6020-68201, approximate cost: \$332.). Contact Dan Van Zile x5589) to arrange for a short-term loan of the unit to try out on your IBM or compatible PC.

The **HP 7550A** plotter is a high-resolution plotter (0.001 in.) that has programmable pen-velocity and pen-pressure parameters to accommodate differences in plotting material and plotting pens. HP has provided the Workstation Group with Business Graphics Software to demonstrate the capabilities of the plotter. To arrange for a demonstration of the **7550A**, contact Workstation Group member Richard LaPierre (x5692).

[22.5.5].....

• **CAI's AVAILABLE**

Computer Aided Instruction diskettes for **IBM PC/DOS** as well as beginning and advanced Lotus 1-2-3 are available for loan. Contact Dan Van Zile (x5589).

These training programs have been favorably reviewed by many users.

[22.5.6].....

• **SCIENTIFIC WORD PROCESSORS FOR THE IBM PC**

We have several Scientific Word Processor programs available to Laboratory employees for testing and evaluation. Included in that number are:

- *Volkswriter Scientific*

WORKSTATION NEWS (continued . . .)

- *TechFont* with Proofwriter
- *Spellbinder Scientific*
- *VuWriter*
- *T³* from **TCI Software Research**

To arrange for a loan (and evaluation), contact Richard LaPierre, (x4692), or Dan Van Zile, (x5589).

[22.2.7].....

- **T³ DEMO ON MAY 20**

Representatives of **T³**, a scientific Word processing Program from TCI Software Research Inc., will present a demo from 10:30 AM to 2:30 PM Monday, May 20, in the Bldg. 50B Conference Room (Rm. 4205). Watch the *Currents* for further info.

(See the "User's Review" of **T³** elsewhere in this Newsletter . . . Ed.)

[22.5.8].....

- **ZENITH PC LOANER**

Zenith Data Systems has loaned the Workstation Group an IBM-compatible PC for test and evaluation by LBL users. The demo unit (MODEL ZF-151-52) has 320-KBytes of RAM memory, two floppy disk drives, and a monochrome monitor.

As mentioned in earlier Newsletters, **Zenith** has a very attractive discount for laboratory employees.

To arrange for a short-term loan of the **Zenith PC**, contact Workstation Group member Dan Van Zile (x5589).

[22.5.9].....

- **VT100 TERMINAL EMULATOR FOR THE IBM PC**

The Workstation Group has a copy of PC-VT, a user-supported software package that emulates DEC VT100 and VT102 video terminals.

This package has received good reviews as a full emulation of the VT100 terminals. In addition PC-VT also provides a Hayes-compatible dialing directory, XMODEM file transfer protocol, and the capability to run DOS functions or other programs without terminating PC-VT or disconnecting from the host. PC-VT can echo all displayed characters to a printer thereby producing a hard copy record of your terminal session. The program comes with a very polished documentation package (about 100 pages long).

For a copy of this program disk, contact Workstation Group member Dan Van Zile (x5589).

The Workstation Group will continue to support VTERM II, a VT100 emulator. (It's available from LLNL PC Stores for about \$80.)

We like the concept of "freeware" (non-licensed software supplied by the developer) that permits you to try out the package, sending in a "suggested donation" if you find it useful.

[22.5.10].....

- **PC TEX DEMO**

There will be a demonstration of PC TEX, a full implementation of Knuth's TEX (a technical typesetting program) on the IBM PC.

Lance Carnes of **Personal TEX** will be demonstrating the product in the Bldg 70A Conference Room (Rm. 3377) on Wednesday May 8th from 10 AM till 1 PM.

For further information contact Workstation Group members Maggie Morley (x5529), or Buck Koonce (x5739).

[22.5.11].....

- **HP LASERJET PRINTER**

Hewlett Packard has loaned the Workstation Group an HP LaserJet Printer with three font-cartridges. It is available for demonstration and evaluation. Many commercial word-processing programs now support this printer. (We use an updated *Volkswriter DeLuxe*, V2.1). We will gladly give you a demonstration and show how to print out your *Volkswriter Deluxe* Word Processing text and *Lotus* worksheets with it. To arrange a demonstration, contact Richard LaPierre, (x4692).

[22.5.12].....

- **MFE TERMINAL EMULATION VIA PC's**

An IBM PC disk containing software that may be used to connect a PC to MFE mainframe computers is available for copying from Dan Van Zile, (x5589). This software allows a PC to serve as a terminal to MFE. It has a built-in editor and can also send and receive file using MFE's protocol. Limited help is available through Dan - (50B/1245, x5589).

[22.5.13].....

- **PUBLIC DOMAIN SOFTWARE UPDATE**

We've updated the indexes of available Public Domain software for the IBM PC's and clones. We've tagged extension numbers to index-names where the disk has not yet arrived.

WORKSTATION NEWS (continued . . .)

(For example, "disk-less" file *library.23* has been temporarily renamed *library.23x*. The "x" indicates that we do NOT have the disk yet).

REMINDER:

- on the VMS systems, access the index with the command
"set def ibmpcsoftware".
- On the UNIX systems, use the command
"cd /usr/micro/ibm/pcsoftware"
to change your directory to the appropriate one.

If you wish to copy software from the master disks that we do have, contact Workstation Group member Dan Van Zile (50/1245, x5589).

[22.5.14].....

• NEW EDITION OF KERMIT USER GUIDE

KERMIT users take note: we've just acquired the new Sixth Edition of the KERMIT USER GUIDE.

To get your copy of the latest edition for systems in use at the laboratory, stop by the Computer Center Library (50B/1245A).

[22.5.15].....

• OFFICE-WRITER FOR LOAN/EVALUATION

Word Processing software, *Office Writer*, is available for loan from the Workstation Group. Like Volkswriter, it is simple to use and has a feature that allows you to convert your documents to Wang word processing formats. A tutorial is included, and with the help of the on-line help menu, you can learn to use it in a few hours. To arrange for a short-term loan, contact Workstation Group member Buck Koonce, (x5739).

[22.5.16].....

TIMELY TIP: . . . to new PC/AT Owners. Timely Tip - New IBM PC/AT Owners. IBM does not have a master key for your keylock. Therefore,

be SURE to record the SERIAL NUMBER of your key and -- better still -- put the duplicate key in a safe place.

.....[MAY.85 1]

TIMELY TIP: . . . to new PC owners. Be sure to keep your receiving document for warranty repairs. Label your system (in a highly visible place) with the warranty expiration date.

.....[MAY.85 2]

• HANDY HINTS: PROGRAM BACKUPS

(The following is extracted from the April issue of *Sacra Blue*, the Newsletter of the Sacramento PC Users Group.)

[One of the inviolable tribal laws of the PC community is] . . . "Always make a backup of your programs or data." [Here are a] . . . few ideas on how to back up programs that are stored on the hard disk.

• For floppy drive systems:

Backup your programs or data with the DISKCOPY command.

• For hard-disk drive systems:

Back up your programs or data with the BACKUP command. Unlike DISKCOPY, BACKUP requires a formatted disk.

The command, BACKUP, has a command string of:

C > BACKUP <source> <target>, where the source is the hard disk and the target is usually one of your floppy disks.

For example, to copy all files from the hard disk to the A: drive, you would type:

C > BACKUP C: A:

This copies all files in the current directory to the A: drive. The command takes a lot of time and quite a few diskettes to complete, especially if the hard disk has many files on it.

There are "options" to this command that let you specify given files to back up.

- The first option lets you specify a path (or sub-directory). Remember: the BACKUP command above would only copy the files in the current directory.

To backup all files in the \LETTER subdirectory to the A: drive, use the command:

C > BACKUP c:\letter*. * a:

To back up just the files in the same subdirectory with the "last name" (extension) if IBM, use the command

C > BACKUP c:\letter*.ibm a:

To back up just the files that have changed since the last time we used the BACKUP command, use the "/M" option.

WORKSTATION NEWS (continued . . .)

For instance, to apply that last command with this options, type

```
C > BACKUP C:\letter\*.ibm a: /M
```

To back up just the files that have changed after a certain date, use the /D option. For instance, to backup the files that have been changed since April Fools day, 1985., type

```
C > BACKUP C:\letter\*.ibm a:/D:4-1-85
```

Up to this point, these commands will cause DOS to first erase the files on the backup disk (in our case the A: drive) before it backs up the files we have specified. The next option, /A, allows us to add the files we have specified to the A: drive. Any files that have the same name will be replaced with the file as it exists on the hard disk. For example:

```
C > BACKUP C:\letter\*.ibm a: /A
```

will allow us to add all the files with the IBM extension to our backup disk.

Another option, /S, will cause all files in all sub-directories to be backed up. However, this may take a while, depending on how full your hard disk is.

Some notes about the BACKUP command.

- First, the files as they exist on our backup disk (the "A:" floppy), are not usable unless we use the RESTORE command.

- Second, think about exactly what you want backed up, so as to be more/most specific.

- You may want to create some batch files that will do the BACKUP commands for you.

The RESTORE command, which allows you to put the files back on the hard disk in a readable manner, works much the same way as the BACKUP command:

```
C > RESTORE <from SOME files> <to SOME disk, usually C:>
```

Note: RESTORE just works on disks that have been written with the BACKUP command.

To restore the files from the last command:

```
C > RESTORE A:*.ibm c:
```

This puts all files with a last name of "ibm" (and a "first name" of anything) from the A: disk to the C: drive.

There are just two options for the RESTORE command: /S and /P.

(1) /S restores all files in all subdirectories from the source drive.

(2) The /P option prompts you when the most recent copy of a file is about to be replaced by a previous copy.

It also prompts you if you try to restore a file previously marked as a "read only" file. You can choose to restore that file by typing in "Y" or "N".

With the BACKUP and RESTORE commands, you are prompted to insert another floppy disk in the "target" drive, if required. You will want to label those disks very carefully, so you'll have the right disks available when you restore them.

It is very important that you perform backups of your files on a regular basis. You may find it cumbersome to use floppy disks for backup. (NOTE: The Workstation Group has been looking at some alternatives and we will have something about tape backup options soon).

MACINTOSH NEWS

Van Jacobson

• THE MAC PROGRAM ARCHIVES

CORRECTION: In the March newsletter I said that the Mac archive could be accessed as "RTSGVX::MAC:" -- then discovered (after press time) that using the logical name "MAC" broke something in VMS and had to change the name to "MACINTOSH". My apologies to folks who tried to access the archive.

VMS users can access the archive using the prefix RTSGVX::MACINTOSH:. The file "00read.me" is a brief description of the archive. The file "00dir" is a (somewhat incomplete) Table of Contents. You might want to start by doing

```
$ copy rtsgvx::macintosh:00read.me,00dir [ ]
```

then look at "00read.me" for more information.

UNIX users (and outside users with Arpanet access) can access the archive via "anonymous ftp" to host "lbl-rtsg", i.e.,

```
% ftp lbl-rtsg
```

(when you're prompted for a password, reply with your initials)

```
ftp> cd macintosh
ftp> get 00read.me
ftp> bye
```

WORKSTATION NEWS (continued . . .)

then look at "00read.me" for more information. There are currently about 300 files in the archive and we've been receiving 2-3 new ones per week.

• PAINTIMP AND • WRITE2TEXT

"PAINTIMP", a program that prints **MACPAINT** pictures on the Imagen laser printer has been installed on the Computer Center **UNIX** and **VMS-Eunice** machines. (The output from the Imagen is of much higher quality than output from the Apple Imagewriter -- 300 dots per inch vs. 100 dots per inch.) A typical use of it might be:

```
macget -d - | paintimp | lpr -Pip1 -v
```

For more information, see the online manual entry (i.e., "man paintimp").

WRITE2TEXT, promised for late March, still hasn't been written. I plan to get to it "real soon now". With luck it will be available about the time you read this.

• A MACINTOSH MAILING LIST

In an attempt to distribute Mac news more swiftly, we're setting up a trial Mac mailing list ("mail" means electronic mail), modeled after the mailing lists that have been so successful on the Arpanet. If you would like to be added to the list, send mail to

```
mac-users-request@lbl-rtsg (from UNIX or Tools mail)
rtsgvx::mac-users-request (from the Computer
                           Center VMS machines or
                           any VMS v4.0 machine
                           on the LBL Decnet)
```

(VMS machines that are still running v3.x should use "_" (underline) rather than "-" (hyphen) in the address).

If you would like to send mail to everyone on the list, address it to

```
mac-users@lbl-rtsg (from UNIX)
rtsgvx::mac-users (from VMS)
```

Any mail sent to "mac-users" will simply be re-distributed to everyone on the mailing list. DON'T send requests to be added or removed from the list to "mac-users", send them to "mac-users-request" (which goes to the 'list administrator' and is not re-distributed).

If there is interest, we might also be able to re-distribute the Arpanet "info-mac" mailing list and the U.C. Berkeley "mac-users" list to sites unable to receive them directly.

• NEWS FROM APPLE

An upgrade to the basic Macintosh software should be released by Apple in early May. The upgrade will be free and will contain:

- **MACWRITE 4.5** (the "virtual memory"). It will handle arbitrarily large documents. There is also a nice, integrated spelling checker (available as a separate product from Assimilation, Inc.) for this version of **MACWRITE**).
- **MACPAINT 1.5** (a few bug fixes. This version will also use RAM rather than disk files for its work space on a "FATMAC" so it's much faster when dealing with large drawings).
- **Finder 4.1** (a major re-write of the "finder". The new version is much faster (2-3 times) than the current finder (which is 1.1g). The new version also doesn't slow down when you have many files on a disk and isn't limited to 100 files, total, for all disks -- This will be important to hard disk users and will be essential when we get our network file server going (more about that next month)).
- **New System** (this system doesn't get a number). There are many bug fixes and several performance improvements. The main, user-visible change is a new print driver which (a) is much faster and (b) supports the wide-carriage Imagewriter ("Imagewriter-15").

Since the upgrade is free and everyone who bought a Mac is licensed for this software, the upgrade procedure is pretty simple: find someone who has the stuff and copy his disk. Mac dealers are supposed to have the new software by May 1 and, if you go in with a blank disk, they are supposed to let you make a copy of it. LBL is a "class 2 service site" which means that we should be getting the new disk at the same time the dealers do. If you can't find someone who already has the upgrade, contact Lev Pope in RTSG (x6411) and arrange to come by to make a copy of the new disk. We don't have the facilities (or the funding) to mass-duplicate and distribute disks; you'll have to come by with a blank disk to make your own copy of whatever master we get.

Forward questions or comments to:

```
van@lbl-rtsg (from UNIX)
rtsgvx::van (from VMS)
```

CONSUMER REPORTS

This month, three readers sent us reviews of four different PC software packages. We cordially invite those of you who are using other PC software to share your recommendations/criticisms with us. Forward your comments to **CONSUMER REPORTS**, c/o The Workstation Group, MS 50B-1245, LBL . . . mam.

A USER'S LOOK AT VUWRITER & BRIT

Claudia Madison
Department of Physics, UCB

Vuwriter is from Vuman Computer Systems, Ltd., Manchester, England. **Brit Scientex** is from Scientific Communications Corporation, Philadelphia, PA 19103).

Vuwriter and *Brit* are nearly identical word processing programs with special features for producing equations and Greek and scientific symbols in technical word processing.

Both of these packages are available for **IBM** and **Victor** personal computers. On the **IBM**, *Brit* requires a **Hercules** graphics board or an **IBM** color graphics board; *Vuwriter* requires a **Hercules** graphics board. Both programs support various dot matrix printers and the Xerox/Diablo **630 ECS** daisy-wheel printer. They employ a software protection device that is easily installed on the graphics card. Because of this device, a parallel printer, if connected, must be turned on, whether printing or not, for the user to be able to "save" any documents.

The programs are "what-you-see-is-what-you-get" word processors driven almost entirely by function keys. Key choices are given in a series of menus printed on the bottom line of the screen. A particular function key's function at any time is dependent on the menu in effect at that time. There is no questions that such "command-less" operation is easy for novices. The inevitable trade-off, though, is that doing simple, frequent tasks can require fairly long sequences of function keys. *Brit* displays 10 function key choices per menu while *Vuwriter* displays only 7, one of which is a toggle between **EDIT** and **COMMAND** modes (for which *Brit* uses the **ESC** key), and one of which is usually dedicated to showing **MORE** of the menu. In *Vuwriter*, one must add extra strokes to already bulky sequences just to get *more* of the function menu.

Both programs feature very delicate character sets, pretty but a trifle hard to read. *Vuwriter* has four fonts: normal, italic, Greek, and scientific. *Brit* has those plus

one labeled "extra". The **630 ECS** printer cannot use the italic or extra fonts, or most of the scientific.

Organization is by document file -- rather than by page as with some word processing programs -- allowing rapid movement from one end of the document to the other. *Vuwriter* displays available memory space during editing, a nice touch for producers of long documents.

The programs generate backup files automatically when a file is read. *Brit* has a **BACKUP** function for quickly saving a document during an editing session.

Cursor movement is from the keypad. Deletion in *Brit* is not menu-driven but uses **<Alt>** + function-key combinations; *Vuwriter* has the option to use menu-driven function keys for deletion or to use **—><Shift>** combinations. The only other non-menu-driven commands are those to set print attributes (bold, subscript, etc.) which are **<Alt>** + function-key combinations in *Brit* and **<Shift>** + function-key combinations in *Vuwriter*. *Brit* allows hard spaces and soft hyphens.

During editing, *Vuwriter* is always in **insert** mode; *Brit* uses the **insert** key as a toggle between **insert** and **typeover** modes. *Brit* uses the **delete** key to delete characters, which seems obvious until one learns that *Vuwriter* uses the **delete** key as a **HELP** key -- pressing it gives information pertinent to whatever menu is in effect at the time.

As word processors, these are standard. Both have easy **search** and **replace** procedures, and **quick** format, line-spacing, and font changing routines. *Vuwriter* has an exceptionally graceful method for indenting paragraphs. Both automatically reformat paragraphs when line lengths change.

The programs allow easy marking of blocks of text and more choices of what to do with the marked blocks than most people will ever want. Curiously, *Vuwriter* does not allow one to write a marked block onto the disk. Both programs will save one marked block to buffer for later recall. (In block operations, the function menu system is most cumbersome. To mark a block and do one thing with it took nine different function keys in *Vuwriter* -- not counting cursor key movement. The same operation took six in *Brit*, the difference being the times one has to hit the **MORE** key to see more of a menu in *Vuwriter*.)

CONSUMER REPORTS (continued . . .)

Neither program has provision for making macros (storing sequences of keystrokes), but both allow insertion of one file into another. A merged printing facility for multiple letters is standard with *Vuwriter*. Neither has spelling checking, though *Vuwriter*, as an option, can run **the Word+**. Both programs can generate **ascii** files. The only advantage of either of these programs over any good word processing program is using multiple character fonts. Accessing extra fonts is easy for both programs, and the **delete** key in *Vuwriter* or **<Shift> + print-screen** in *Brit* brings a map of the current keyboard onto the screen for reference. There are as many characters as most technical users will need, though, again, the **630 ECS** can't print many of them.

Getting into a non-justified, half-line-space mode for typing multi-level equations is also easy in both systems. *Brit* provides a **FORMULA** format that performs the non-justified and line-space changes in one step. Also in *Brit*, depressing the scroll-lock key while in formula format allows the cursor to travel freely on the screen -- it won't return to the left margin on blank lines.

Brit and *Vuwriter* handle overstriking similarly; the overstruck characters are superimposed on previous characters. This means that it is not possible to edit just **one** of the characters.

Background printing is featured in both programs. *Brit* allows two active printer configurations. *Vuwriter* allows one active configuration, but re-configuring can be done from the menu with a disk included in the package. Both programs support matrix printers that have draft and letter-quality modes.

I can't speak about configuring *Vuwriter* because I had only a demonstration copy. *Brit* was supposed to be configured by the manufacturer, but on start-up it did not offer our printer as a choice in the printer selection routines. There is no configuration disk provided with the program. A call to the manufacturer brought us a configuration disk which did not include our printer driver (parallel). (Scientific Communications is determined that **ECS 630** printers use only serial interfaces. Their manual says so. Their configuration disk says so.) Thanks to the technical section of their manual -- far and away the best part of the manual -- we located the "interface" code and got the printer working.

These two programs, alike as two peas in a pod in most ways, diverge dramatically when it comes to documentation. *Brit* uses poorly duplicated typescript on 8 1/2" X 11" paper. There is no index. Some statements are absolutely misleading to brand new

computer users. *Vuwriter's* manual is properly printed, clearly written, and well-indexed. The Tutorial and Reference sections both cover all aspects of its operation.

In sum, despite some confusion over printer configuration and its dismal manual, *Brit* is slightly more convenient to use than *Vuwriter*. But both are easy to learn and are far and away better for technical typing than the major microcomputer word processing programs.

TECHNICAL DETAILS

- What-you-see-is-what-you-get.
- On the **IBM**, *Brit* requires a **Hercules** graphics board or an **IBM** color graphics board; *Vuwriter* requires a **Hercules** graphics board.
- They support various dot matrix printers and the Xerox/Diablo **630 ECS** daisy-wheel printer.

* * * * *

Copies of Madison's just-released "**Microcomputer Wordprocessing Systems for Technical Typists**" a succinct evaluation of some current programs and add-ons, is available at Computing Services Library (50B-1245, X5529).

A USER'S LOOK AT T³

Roy Kerth
Computing Division, LBL

T³ is from TCI Software Research Inc. 1190-B Foster Road, Las Cruces, NM 88001).

T³ is a scientific word processing program for **IBM** and **IBM** look-a-likes. Its roots are in the Department of Mathematics at New Mexico State University. It is available from **TCI** and from **IBM**. It is a "what-you-see-is-what-you-get" program, showing text and formulas on the screen as they will appear when printed. A number of printers are supported. They range in quality and price from the **Epsons** to the **QMS** laser printer.

As a word processor, the program is excellent. It supports all the bells and whistles you could ask for - (e.g., "search", "search-and-do-something", headers, footers, automatic page numbering, automatic footnote placement & numbering, different binding margins for odd- and even-numbered pages, etc., etc., etc.)

CONSUMER REPORTS (continued . . .)

It has a few that you may not have thought of - (e.g., aligning a particular character in a string on a tab stop). You create new documents by revising old ones and a number of examples are supplied to get you started. The system is completely menu-driven with menus appearing as windows that overlay the text. **TCI** has introduced a unique method to keep menus from getting in the way of the experienced user. Commands and functions of the system are not executed until you release the particular calling key! This means that if you don't need the help of several menus to remember a particular key sequence, you can just go ahead and type it, holding the first key. When you release the key, it is executed, bypassing the menus.

The system has been designed for multi-users with password-protection for files. It allows you to tailor system parameters, such as the repeat rate of the cursor keys or the pitch and duration of the error beep. These are remembered and invoked each time you sign on.

As for formulas and symbols, the system is equally easy to use. You have two keyboards available during the editing of a document. You can easily switch back and forth, or call other keyboards. You can custom-design your keyboards by copying and modifying one of the several that are supplied. There is even a new **DVORAK** for those who are adventurous. You may also design your own fonts as well!

The program has all of the symbols I needed to put together Maxwell's equations, Schrödinger's equation, etc. Macros or key sequences are supported. For example, I have defined "<Ctrl>I2" as a two-line-high integral sign and "<Ctrl>I3" as a 3-line-high integral, etc. A unique feature of **T³** is that nearly all of the functions that apply to text (e.g., centering, etc), apply also to formulas. When a formula several lines high is built, the system knows that it all goes together and will move it around as a unit. If you add something to the top of a formula that would make it overlap some preceding text, the entire formula - and any following text - are moved down to make space.

Printing must be done with the printer in the graphics mode. I have only tried an **Epson FX80**. It gives good copy but it's slow! I suspect that a printer such as **Toshiba P13xx** would be much better and if you want to go first class the output I've seen from the **QMS LaserPrinter** is of type-set quality.

The documentation is good: There's an extensive tutorial as well as a reference manual. The disks are not copy-protected so you have no problems with

backup.

Are there problems? The only drawback I see is that it requires a full system to use **T³**. Memory of at least 512K is required and 640K is recommended. While the system can be used with two floppies, a hard disk is recommended. From my experience with an **XT**, I'm sure it would be very frustrating without a hard disk. On the other hand this is an excellent program -- one that we've all been waiting for.

TECHNICAL DETAILS

- What-you-see-is-what-you-get.
- It runs on **IBM PC, XT, AT**, and many compatibles including **Zenith Z150, Compaq, Columbia, AT&T 6300**, and **Leading Edge**.
- It must have color graphics or **Hercules** graphics.
- It needs at least 512K **RAM** (640K is recommended.)
- It requires two double-sided floppy disk drives, but a fixed disk system is recommended.
- It's available from **TCI Software Research, Inc.** 1190-b Foster Road, Las Cruces, NM 88001 and **IBM Product# 9542**.
- Price: \$400 to \$500 depending on printer driver ordered.

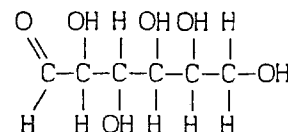
A USER'S LOOK AT VOLKSWRITER SCIENTIFIC

Sue Doe Nym
Computing Division, LBL

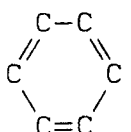
Volkswriter Scientific, is from *Lifetree Software Inc.*, 411 Pacific St., Monterey, CA 93940.)

Volkswriter Scientific is a scientific word processing package distributed by the software house that sells the popular *Volkswriter Deluxe*. It is not an upgrade of a previous program from Lifetree but rather a completely new program. Unlike most other "what-you-see-is-what-you-get" word processors *Volkswriter Scientific* shows proportional spacing on the screen so that one sees the final form of the text -- including microspacing and justification -- before it is printed.

GLUCOSE — The product of photosynthesis:²



Benzene:



CONSUMER REPORTS (continued . . .)

If you use *Volkswriter Deluxe*, you'll recognize the extensive use of the <Ctrl>, <Shift>, and <Alt> keys in combination with function keys to perform various operations. However, these have been redefined and many are quite different. A couple of notable improvements are:

- Menus appear at the bottom of the screen (rather than at the top, as before).
- You need not check the cursor size to tell if you are in the insert or typeover mode. The English words "type over" and "insert" appear in the menu box, thereby making it simpler to check which mode you are in.

Menus are used

- to indicate the function key definitions and
- to indicate the key definitions for the special symbols used to build up formulas and other expressions.

Generally, most of the word processing functions that one would expect from a modern word processor (e.g., moving or copying text), are implemented. Search commands are an exception! They are not implemented. All in all, typing text with this program is as easy as with most other systems.

Scientific expressions are built from a number of symbols and building blocks (accessed by double key strokes). These keystrokes are well documented on the menus. I found it quite easy to find a particular key combination. However, I did find it a bit tedious to enter two key strokes for every symbol -- rather than hitting a single key to change to a symbol keyboard as with other systems. Macros are supported and it is possible to define a series of key strokes that are invoked by pressing <Alt> with an alpha key. The array of symbols and building blocks provided are adequate to meet just about any scientific need. They include Greek, italics, small numbers for super and subscripts, as well as a number of special symbols from mathematics, physics and chemistry. The ability to adjust the micropositioning is a real help in developing readable formulas.

Printing is done in the graphics mode and thus is slow (typically over one minute per page for draft mode and as much as 6 minutes for high density mode with the slower printers.) For most printers there are two type sizes available: one uses lines that are approximately 8 inches of printout for a full screen width, the other approximately 6 inches. The larger type size printed in "high density mode" can be reduced on a copier by 75 per cent to give very acceptable elite size print.

Drawbacks? First, it is a page-oriented system. That is, you have one page in memory at a time. When done it is "save"ed and the next is loaded. This takes some getting used to if you are accustomed to scanning up and down an entire manuscript. Second, what comes with the system is all you get. There is no provision for developing your own fonts. The typeface is quite readable; it resembles the printing of an old-fashioned expert draftsman using a very fine pencil, i.e., thin lines and an open appearance.

It is a good system and will meet the needs of many scientists for their personal use. It is easy to learn and easy to relearn when one has been away from it for some time. At its present capability it is not a replacement for a full-blown typesetting system.

Technical Details

- What-you-see-is-what-you-get.
- Runs on IBM PC, XT, AT or compatible system.
- DOS 2.0 or later version.
- Requires 256K of RAM.
- Color graphics adapter or compatible video card.
- Price \$350.00

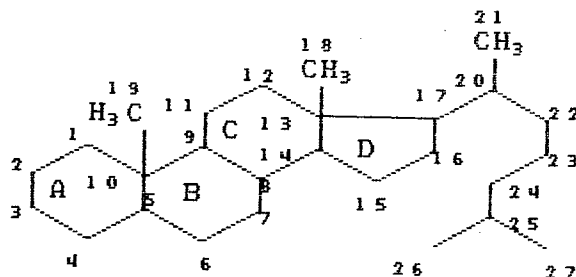
Maxwell's Equations:

$$\nabla \cdot D = \rho \quad \nabla \cdot B = 0 \quad \nabla \times E = -\frac{\partial B}{\partial t} \quad \nabla \times H = \frac{\partial D}{\partial t} + J$$

$$\left\{ \frac{dx}{\ln x} = \ln(\ln x) + \sum_{n=1}^{\infty} \frac{(\ln x)^n}{n n!} \right. \quad \left. \left\{ G_{\alpha\beta} = 8\pi T_{\alpha\beta} \right\} \right.$$

"The Greeks were right.
St. Augustine was right.
Isaac Newton was right.
Chicken Little was right."

(. . . variously attributed)



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