

Cmbia (Columbia): Frank da Cruz, 212-280-5126
CMU (Carnegie-Mellon University): Howard Gayle, 412-578-3042
COS (COS Information, Montreal): Kevin Small, 514-738-2191
Crltn (Carleton University): Neil Holtz, 613-231-7145
Eire (Bord Fáilte - Irish Tourist Board): James Cumiskey, Dublin 353-1-765871, ext. 1275
GATech (G A Technologies): Phil Andrews, 619-455-4583
GMD (Gesellschaft der Math und Datenfabrik, Bonn, Germany): Dr. Wolfgang Appelt
HP (Hewlett-Packard): Stuart Beatty, 303-226-3800, ext. 2067
IAM (Institut für Angewandte Math, Univ of Bonn, Germany): Bernd Schulze, 0228-733427
Imagen: Dan Curtis, 408-986-9400
INFN (INFN/CNAF, Bologna, Italy): Maria Luisa Luvisetto, 051-307572
Intgrph (Intergraph): Mike Cunningham, 205-772-2000
JDJW (JDJ Wordware): John D. Johnson, 415-965-3245
K&S (Kellerman & Smith): Barry Smith, 503-222-4234
LSU (Louisiana State University): Neal Stoltzfus, 504-388-1570
Lvmr (Lawrence Livermore Lab):
MR (Math Reviews): Dan Latterner, 313-996-5266
OCLC: Tom Hickey, 616-764-6075
OSU (Ohio State University): *DEC 20*: John Gourlay, 614-422-6653; *Prime*: John Crawford, 614-422-1741
PCTeX (Personal TeX, Inc.): Lance Carnes, 415-388-8853
RECAU (Aarhus University, Regional Computer Center):
SARA (Stichting Acad Rechenzentrum Amsterdam): Han Noot, Stichting Math Centrum, Tweede Boerhaavestraat 49, 1091 AL Amsterdam (TUGboat 5#1)
ScnLsr (Scan Laser, England): John Escott
SciAp (Science Applications): L. E. Fields, 619-458-2616
SLAC: Alan Spragens, 415-854-3300, ext. 2849
SRI:
Stnfd (Stanford):
Sun (Sun, Inc):
TAMU (Texas A&M): *HP 9000 Ser. 500*: Ken Marsh, 409-845-4940; *all others*: Bart Childs, 409-845-5470
TeXt: Lance Carnes, 415-388-8853
Textset (Ann Arbor, Mich.): Bruce Baker, 313-996-3566
Talrs (Talaris): Sonny Burkett, 619-587-0787
UBC (Univ of British Columbia): Afton Cayford, 604-228-3045
UCB (Univ of California, Berkeley): Michael Harrison, vortex@berkeley.arpa
UDel (Univ of Delaware): Daniel Grim, 302-451-1990
UKöln (Univ of Köln, Germany): Jochen Roderburg, 0221-/478-5372
UMd (Univ of Maryland): Chris Torek, 301-454-7690
UMich (Univ of Michigan): Hal Varian, 313-764-2364
UMilan (Università Degli Studi Milan, Italy): *Tektronix*: Dario Lucarella, 02/23.62.441 (329); *Versatec*: Giovanni Canzii, 02/23.52.93
USheffield (Univ of Sheffield, England): Ewart North, (0742)-78555, ext. 4307
UWash (Univ of Washington): Pierre MacKay, 206-543-2386
UWis (Univ of Wisconsin): William Kelly, 608-262-9501
Vndblt (Vanderbilt University): H. Denson Burnum, 615-322-2357

WashStU (Washington State University): Dean Guenther, 509-335-0411
Wzmn (Weizmann Institute, Rehovot, Israel): Malka Cymbalista, 08-482443
Yale: Bill Gropp, 203-436-3761

Index to Sample Output from Various Devices

Camera copy for the following items in this issue of TUGboat was prepared on the devices indicated, and can be taken as representative of the output produced by those devices. Some items (noted below) were received as copy larger than 100%; these were reduced photographically using the PMT process. The bulk of this issue, as usual, has been prepared (all with TeX82) on the DEC 2060 and Alphatype CRS at the American Mathematical Society.

- Apple LaserWriter (300 dpi): Textset advertisement, p. 163.
- Canon CX (300 dpi): Georgia Tobin, the Font Forum, p. 122.
- Corona LP300 (300dpi): PC TeX advertisement, p. 166.
- HITAC H8172 Laser Beam Printer (240 dpi): Tsunetoshi Hayashi, Report on TeX implementation at HUCC, p. 135; reduced from 125%; HITAC M280H.

Site Reports

The TeX Directories at the "Source"

For those TeX users who have access to the Arpanet, the most recent version of any file that will be put into the standard (generic) distribution can be found at SU-Score, the DEC-20 (TOPS-20) system that is "home" to the Stanford TeX Project. Here are the names of the directories to look in.

<TeX>

The latest executables can be found here.

- <TEX.DOC>
All sorts of useful documentation — Start here with `-READ-.ME` and other `-READ-.*`.
- <TEX.AMSFONTS>
.MF sources (old MF) and .PXL files for the cyrillic and extra symbol fonts developed at the American Mathematical Society.
- <TEX.AMSTEX>
AMS-TEX (but not the *Joy of TEX*, at least not yet).
- <TEX.BIBTEX>
The bibliographic system designed for use with L^AT_EX.
- <TEX.CM>
The Computer Modern fonts.
- <TEX.FONTS>
Fonts — .TFM files and other representations.
- <TEX.FORMATS>
.FMT files.
- <TEX.INPUTS>
PLAIN.TeX et al.
- <TEX.LATEX>
L^AT_EX.
- <TEX.MF>
METAFONT sources, in WEB.
- <TEX.PXL>
.PXL files.
- <TEX.SOURCES>
The TEX sources, in WEB.
- <TEX.WEB>
WEB, Tangle and Weave.

TEX in the UK and Ireland: TEXline

Number 1 of the *TEXline*, the Newsletter of TEX users in UK and Ireland, appeared in August 1985. It begins with the following Editorial Note:

This Newsletter is fairly experimental, and I hope, reasonably informal. I am happy to print any material which is sent to me for inclusion (or even to hand the whole thing to someone else who would like the joy of assembling it). Naturally any positive suggestions will be positively welcomed. I tend to see the general field of interest as quite wide, and for that reason have included material which is not directly TEX, but is TEX-like.

The content of the TEXline includes notices and reports of meetings, a summary of “useful(?) things from *texhax/laser lovers*”, queries (nicely titled “Pleas, please”), an article on buying laser printers, a bibliography of books on TEX, and other interesting items. The next issue is scheduled to appear “by November”. The editor/assembler of this welcome addition to the TEX literature is

Malcolm W. Clark
Imperial College Computer Center
Exhibition Road
London SW7 2BX, England
Keep up the good work, Malcolm.

Data General Distribution News

Bart Childs
Texas A & M University

The primary news items here are:

1. We have successfully ported TEX1.5. Of course, it was absolutely no problem. The previous change file was sufficient.
2. We have ported METAFONT 0.91. We will be porting 0.96 in a day or two.
3. We have learned how to make a proper nonVirTEX and are now making a generic routine for that.
4. Data General's PASCAL/VS is apparently one of the cleaner ones around and they have a new optimizer which makes another five or six percent improvement.

We will make a new distribution tape as soon as we have item 3 working, add graphic output to METAFONT, and have our drivers using the PK form of the new Computer Modern fonts. See Tom Rokicki's note about this (page 115).

Our driver for the QMS Lasergrafix printers has been adapted for the Imagen, a preview mechanism for some graphics terminals and other printers. As soon as we have the ‘new fonts’ working well as a standard, we will contribute its sources to the different distribution tapes. It correctly handles the differences for QMS' use of the Canon and Xerox marking engines, pages can be intermixed in portrait and landscape modes, random access of the DVI file is used to make documents for folding, two pages of output on one sheet for proofing folded documents, and downloaded and cached fonts are used.

We have three utility items which we will be happy to distribute on standard magnetic tapes to anybody. These are:

1. A braces checking program. Of course, this is not needed for EMACS users.
2. A RUNOFF to T_EX converter. It was written in a rather brute force manner. We will be converting it to WEB.
3. A WORDSTAR to T_EX converter. This was written in WEB.

MVS T_EX Site Report

Craig Platt
University of Manitoba

At the recent TUG85 meeting, Alan Spragens and I agreed to share the rôle of IBM site coördinator, he for CMS and I for MVS and related systems. As mentioned by Alan in his article in the last issue, a CMS tape has been available for some time, but MVS hopefuls are still waiting. As a result of discussions with him and others at the meeting, I think we might see an MVS tape "Real Soon Now". I have been running a version 1.0 T_EX (but with only limited device support), and have sent out my change files to a couple of other users who reported success at installing them. I am currently testing a 1.4 version which I think will serve for an initial distribution. With a few more sites on line, I hope suggestions for improvements will start appearing.

At the IBM birds-of-a-feather session, a couple of ideas were discussed which will enhance the package. The ever-present problem of ASCII vs. EBCDIC character encoding becomes particularly important for creation of a "load-and-go" version of T_EX. T_EX uses ASCII coding for its internal string processing, and converts these codes to system-dependent encodings through the *xchr* and *xord* arrays. If a site installs T_EX by means of TANGLE and change files, these arrays can be adjusted to accomodate the local EBCDIC encoding—in fact this will be automatic if all text files on the distribution tape, including TANGLE.PAS, are character-translated first. But for a load-and-go version, a choice must be made at compile time. After some discussion about the ASCII-to-EBCDIC translation used by Stanford for the generic distribution tapes, we decided to try an idea from TEX80, namely the ASCII.TBL file. This

file will be read at run-time by T_EX (and by other programs that use internal ASCII encoding) and will be used to modify the *xchr* and *xord* tables appropriately. An installer will only have to edit this table to indicate any local exceptions from the "standard" translation. This scheme suffers from the disadvantage of requiring an extra file at run time, but it should be flexible enough to accomodate a variety of sites.

The tape will contain PLAIN.FMT, LATEX.FMT, and AMSTEX.FMT files, so these can be run directly (there is no plan to include a precompiled INITEX at the moment), but T_EX source files needed by these packages (e.g., ".sty" files) will still have to be character-translated as they are unloaded from the tape.

Another point of discussion, relevant to MVS sites, was that of file naming conventions. In the earlier versions of T_EX from Susan Plass and Eagle Berns, simple ddnames were used for file allocation. For a text file, the "area" and "extension" fields of a name were dropped and the remaining part used as a ddname for a sequential dataset. The current version builds on an idea suggested by Joey Tuttle last year, to add a bit of name parsing for more flexibility. Briefly, it makes up to three attempts to open an input file. First, a simple ddname is used as before. If that fails, a composite ddname is made by concatenating up to 5 characters of this simple name to the first three characters of the "extension". If this too is not found, then the extension alone is used as the ddname of a partitioned data set with the simple name as member (using the PDSIN option of PASCAL/VS). This last option will, for example, allow for libraries of macro files and other T_EX source files which can be in partitioned data sets concatenated to the ddname TEX.

There is clearly more work to do here, and we really need a dynamic allocation capability, but that seems to be non-trivial in the MVS environment. If we can get a few more sites going with this first version, perhaps suggestions for improvements will result.

It was agreed that the "official" MVS and CMS distribution tapes ought to include the new META-FONT as well as the CMR sources, so that users can build their own GF (or PXL) files. This means the whole package probably won't be ready till near the year's end. People who just can't wait might want to contact me for an "as-is" tape of work in progress, which I could provide on an informal basis. By default, this would be an unlabelled 6250 bpi tape with a number of partitioned data sets, including the above-mentioned load modules

as well as change files and most of the contents of the standard distribution tape. This format is the one I would suggest for eventual distribution by the Codes. People should let me know if it would be unsuitable in any way, and we can try to provide options.

Finally, my mailing address is
 Craig Platt
 Department of Mathematics and Astronomy
 University of Manitoba
 Winnipeg, Manitoba R3T 2N2
 Canada

Phone me at [204] 474-9832 during the day (with maximum probability of catching me between 1:30 and 2:30 CST on Mondays, Wednesdays, and Fridays). Otherwise you can leave a message at 474-8703 and I will return your call. Please indicate the best time to call back. If you have network access, try

`platt%uofm-uts.cdn@ubc.csnet`

or

`platt%uofm-uts.cdn@ubc.csnet`
`@csnet-relay.arpa`

T_EX at WSU

Dean Guenther
 Washington State University

At the TUG meeting, I briefly discussed and presented a video tape on our use of T_EX and *T_EXt1*, a macro package and on-line interface we have developed at Washington State University.

We have been using T_EX heavily for the last three years. In a previous *TUGboat* (Vol. 5, No. 1) I mentioned some applications. Since then we have converted to T_EX82, and continue generating many papers, reports, articles, etc. One of those was the *ACM-SIGUCCS 1984 Conference Proceedings* (ISBN 0-89791-146-6).

Other articles accepted as camera ready are *André Thevet on North America: A Sixteenth Century View* by Dr. Roger Scleshinger (Department of History) and Professor Arthur Stabler (Department of Foreign Languages), published by McGill-Queen's University Press. Another, on Big Bend National Park, is by Professor Jameson (History). Dr. Nicolas Kiessling (Department of English) is publishing the *Catalogue of Robert Burton's Library* with the Oxford Bibliographical Society. All three of these

manuscripts are over 400 pages each. Dr. Bill Katra (Foreign Languages) has finished *Domingo F. Sarmiento: Public Writer Between 1839-1852*, published by the University of Arizona Press. Katra's *Sarmiento: Public Writer* and Kiessling's *Catalogue* were published using Computer Modern.

T_EXt1 is a collection of macros and IBM VM/CMS based on-line interface. Whereas the macros are not unlike L_AT_EX, we felt we could add a little more flexibility with respect to tailored formats. What is significantly different is the interface, which gives menu selection of the main functions; create/modify, spell check, proofread, print, and a few others. There is also an extensive help facility for such things as how to use each of the commands, and how to use the menus. You can also send the output to a network of printers ranging from dot matrix printers, to laser printers, or to a typesetter, all available to each user on the system.

We started *T_EXt1* in a pilot phase this last February with 40 faculty, staff, and graduate students. This fall we have moved to Beta testing, adding 250 more to the project, including undergraduates. We expect to be in full production this January.

Another item we worked on was getting IBM's Professional Office System (PROFS) to run under T_EX instead of IBM's Document Composition Facility (DCF). We were successful in this venture, but decided it was not such a good idea after all. Not the least of reasons being that replacing DCF with T_EX would render parts of the IBM supplied PROFS documentation useless and/or misleading. Also, PROFS supports other IBM products such as GDDM, HDDI (for Displaywriter integration), ISPF, etc. None of these were addressed in our test. Trying to keep a modified PROFS/T_EX up to speed with IBM's current and upcoming products would create a task that we likely would never have the personnel to accomplish.

Some good news. It appears that Compu-graphic has finally agreed to do something with METAFONT. Dave Fuchs has sent them the GF files for Computer Modern. They are presently testing the fonts, and expect to have the fonts available sometime next quarter. They will contact me with prices and availability. If you would like to know that information when it becomes available, call me (509-335-0411) or send me a note. I'm on BITNET, "GUENTHER AT WSUVM1".

Reports on T_EX Implementation at HUCC

Hayashi, Tsunetoshi*

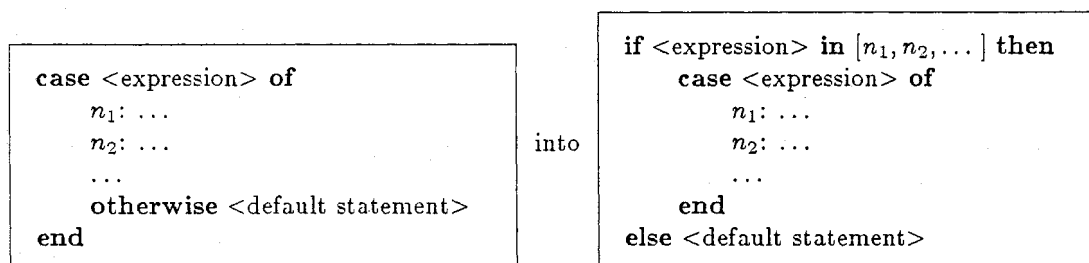
Basic Considerations

The T_EX82 Version 1.0 transport at Hokkaido University Computing Center (HUCC) is almost completed this summer, 1985. The INITEX version T_EX82 is currently running at HUCC, and I am intending to develop the production version as soon as possible. In the following, notes on decisions made in the attempt, and the measures devised to cope with problems found are presented. Note that this manuscript is typeset by T_EX82, and printed by DVIwrite on HITAC H-8172 Laser Beam Printer.

The whole T_EX82 and T_EXware programs were founded on Pascal-H of DEC-20. This Pascal implementation deviates rather much from the Jensen-Wirth standard and T_EX82 heavily relies on the extension. The amount of work required for transporting depends on how much the target Pascal compiler can support such extensions.

The target system is HITAC M280H/VOS3 at HUCC. HITAC M280H is a 16 MIPS 370 compatible machine; its performance is nearly equivalent to IBM model 3084. VOS3 is its operating system being "almost" compatible to MVS/TSO. The VOS3 Pascal provides none of above extensions, and conforms well to the standard except for external routine call and a few additional built-in procedures.

Default entry in case statement. This extensions is rather easily handled by WEB macro, syntax-oriented translation, or systematic source code editing. A syntax translation program which rewrites a case statement with default entry into an if statement and a case statement without default entry was written and used. In writing this program, I employed a parser generator software tool, which had been developed for compiler writing. It translates



This conversion would not keep the same meaning if the <expression> had had side effect when evaluated. Lucky enough, there is no such place in the T_EX82 and T_EXware programs. A remaining problem is that VOS3 Pascal can only accept a set expression where the domain of its integer or subrange element is between 0 and 2047. A set whose element is more than 2090 is generated by the above conversion. I had to hand-edit this part of the generated Pascal code.

Non-standard i/o. Extended i/o facilities such as dynamic file declaration, array of file, packed file, run-time file binding, interactive terminal i/o, and subtle terminal control are not provided by VOS3 Pascal. I employed proper record variables for defining file specifications and assembler-written i/o driver routines instead of Pascal file variables and i/o procedures. This solved both dynamic file declaration and array of file as well as look-ahead convention and run-time file binding.

Small integer packing. VOS3 Pascal can pack only quarter words into a word. This may cause increased storage requirement, nevertheless, this will not reduce run-time efficiency. T_EX82 can run comfortably without this extension.

The Driver Routines

The driver routines are written in assembler as a single program and provides requisite facilities for T_EX82. They are dynamic file binding, file i/o, interactive terminal i/o, and command line access as well as interrupt handling, and retrieving run-time environment information.

* Associate Professor, Hokkaido University Computing Center, Kita 11 Nishi 5, Kitaku, Sapporo, Hokkaido 060, JAPAN

The assembly program uses a set of macros for structured programming. The control flow is represented by macros such as IF, ENDIF, LOOP, ENDLLOOP, and so on. Incidentally, the driver program uses looping structure scarcely. There has been a few lines of redundant codes generated by these macros, nevertheless, they helped much in programming the driver routines by clarifying the control structure of assembly codes.

System Dependent Modules

Modules concerned with file name generation are marked "system dependent" in the T_EX82 program, and I had to write these parts from scratch as the change file. T_EX82 deals with several distinct directories/areas, to which files are placed. There is no counterpart in VOS3, instead, they roughly correspond to system files and user files.

Different convention for generating an external file name from a name parameter given by terminal or input text is employed for each kind of files T_EX82 is using. In general, the name syntax is similar to that of external file names. There is subtle difference for some convenience. For example, a name may include lower case letters. A member name is appended to a name parameter separated by a colon, if necessary. A name beginning with '#' represents a system file and is used only by dropping '#'. The rest of names represent user files, to which user identifier is appended in front, and file type is appended to rear, if that name has no file type tag. There is slight difference in the file search order for each kind of files. A file can be bound by an ALLOCATE TSS command or, in batch mode, by a Job Control Language DD statement prior to T_EX82 run, and this binding precedes the file search order except for \input, \read, and \write files. A user may control file allocation freely depending on his own interest. In batch mode, terminal i/o can be also bound to arbitrary files, since it is using QSAM interface.

DVIwrite Program

A DVI file output by T_EX82 is converted into visual form by the DVIwrite program. This program was developed by rewriting the DVItypewriter. I intended that this program would work system independently as much as possible. The DVIwrite program is consisted of two major parts; the system independent part and system dependent plotting library. The system independent part translates a DVI file into vector format, that is, a collection of vectors representing consecutive black dot patterns. A system dependent plotting library draws the vectors as visual form. This part can be substituted for different output devices: laser beam printer, CRT display, facsimile, etc. It seems this strategy is more appropriate for the coming GF font format than the current PXL format.

Several plotting libraries aimed at HITAC CRT terminal, Tektronix graphic terminal, and laser beam printer were developed. Among them, the library for the laser beam printer is the most esoteric. The principal use of the laser beam printer is to print large amount of standard format listings and documents. The interface to the device defined by VOS3 is not appropriate for graphics output such as this. There is a clumsy interface to output graphical information on this device, namely, "forms overlay generation" interface. The interface works as a user own code exit, so a Pascal routine cannot drive this interface directly because of different run-time stack convention. I decided the plot library would work in the way that: the initialization routine attaches a separate task, and this task will drive the interface directly; the rest of plot libraries and the task communicate with each other through synchronization operations WAIT and POST. The interface runs rather slow, since it uses VOS3 sorting utility programs. Consequently, the DVIwrite program is not suitable for interactive processing. The document now you are reading is output through this interface.

Some Statistics

The T_EX82 Pascal source code generated amounts to over 5,100 lines and 18,400 statements. The VOS3 Pascal compiler is very slow, it takes 120 second cpu time to compile it. The memory size is over 882 kilobyte including Pascal run-time library, but disregarding run-time stack. The T_EX82 run seems very fast, it takes no noticeable time in preparing this manuscript. In fact, it takes about 2 second cpu time. At least one bug was found in VOS3 Pascal compiler while T_EX82 was being validated.

DVIwrite is rather slow. It took about one minutes of cpu time to typeset one page of this manuscript. This may be remedied by writing dot-vector-conversion routine in assembler, or by using GF font files. As I obtained 300 dpi font tape and the laser beam printer is 240 dpi, the output is slightly enlarged 25 %.

Finally, the whole job is done by myself in one man-year effort.

Unix T_EX Site Report

Richard Furuta

With the beginning of a new academic year, many of us are changing jobs and moving to new parts of the country.

Howard Trickey has completed his Ph.D. at Stanford and is now working for AT&T's research laboratories in Murray Hill, New Jersey. We would be remiss if we failed to acknowledge the great contribution that Howard has made to the Unix T_EX world. Howard is responsible for the Unix port of almost every one of the programs in the generic T_EX distribution. His influence may also be found in the design of the programs, themselves. His good taste in program design and high standards are clearly reflected throughout the entire Unix T_EX distribution. Unfortunately for us, his new position means that he will not be taking as central a role in maintaining the Unix T_EX distribution and we will greatly miss his contributions.

By the time this note reaches print, I hope to be comfortably settled into my new position in the Computer Science Department at the University of Maryland, College Park. It is our intention that the Unix T_EX distribution will continue to be homed at the University of Washington, at least for the present. As noted in a previous issue of the TUGboat, Pierre MacKay has assumed many of the administrative duties associated with maintaining the distribution. Requests for the tape and queries about the distribution should continue to be addressed to him.

The Unix T_EX distribution is very much a collective effort. A few days ago, I decided to put together a mailing list of those people who have contributed directly to this T_EX distribution. I was pleasantly surprised to discover that over 30 individuals have contributed material to the tape! We welcome your further contributions.

As the popularity of T_EX increases, I believe it important to maintain the open nature of the distribution of material on the various T_EX distribution tapes. As examples, we have consciously resisted placing binary-only material onto the Unix T_EX tape, providing sources for all material, and we have tried to keep the distribution costs as low as we can. We may have to modify the distribution mechanisms later this year as Pierre's and my work loads increase, but we will try to continue to provide a comprehensive distribution at as close to cost as possible.

In news this time, Mike Urban has provided us with a version of T_EX for the Pyramid that relies

on a version of the Pyramid Pascal compiler that has not yet been released (as of early September, when this is being written). At press time, we are still in the process of determining how best to merge this material into the Unix T_EX tape. If you are interested in this port, please contact Pierre MacKay for further information.

Since the last report in the July TUGboat, Paul Richards of the University of Illinois has continued to supply new versions of the **WEB METAFONT** for Unix as the development work continues at Stanford. I expect that we will have incorporated the new CM fonts into the distribution by the time this reaches publication. A Unix version of Oren Patashnik's **bibtex** (with change file from Howard Trickey) was added to the tape in mid-June. The **bibtex** program allows reference within L^AT_EX to bibliographic listings that are included in a Scribe-like bibliography file. Also, Rusty Wright of U. C. San Diego has supplied a separate program, named **r2bib**, that translates **refer**-format files into **bibtex**'s format.

In device drivers, Scott Simpson of TRW supplied a number of small fixes to his driver for the QMS 800 and 1200 laser printers. Chris Torek of the University of Maryland continues to enhance his set of device drivers for the Imagen laser printers and for the Versatec. Most notably, the Imagen support now includes the 12/300 in addition to the 8/300. Further, the positioning code in Chris' drivers was updated to correspond to the current **dvitype** definitions, and **dviselect**, which allows extraction of individual pages from a DVI file, was enhanced to allow specification of negative page numbers.

Neal Holtz of Carleton University has provided a driver for the Apple LaserWriter (which uses Adobe's PostScript printing language) and I expect that it will be on the tape before this note reaches press.

Finally, as this note is being prepared, we are in the midst of updating the version of T_EX on the tape to be version 1.5. This process should be long completed by the time that the publication reaches you. A new version of L^AT_EX is also expected soon and will be included when it is released.

Mike Harrison of U. C. Berkeley sends along a note, reproduced below, describing the collection of T_EX-related software that they have been developing. This software, targeted primarily for the SUN workstation, augments the material on the Unix T_EX tape and consequently may be of particular interest to those of you running T_EX on the SUN. As obtaining the material requires signing of a license

agreement, Berkeley is distributing the material themselves, so you should contact Professor Harrison for a copy of the license and for information on the distribution charges (the information we have is that these charges are in the neighborhood of \$100).

News from Berkeley

The Berkeley **VORTEX*** project has as its primary goal the design and implementation of a new document processing environment that allows the user to edit/preview **TEX** documents interactively at both the source level (ASCII representation) and the proof level (bitmap representation), whichever is more convenient. Furthermore, any changes made to one representation will be propagated to the other automatically. There are two basic requirements derived from that goal: (1) **VORTEX** and **TEX** must generate identical outputs, and (2) the user should feel more comfortable with **VORTEX** than with the current disintegrated environment. The design is expected to be complete by the end of this year. prototype will be implemented starting 1986.

The **VORTEX** group has been developing **TEX**-related software since early 1984. There is a new distribution of their work now ready for public release. It consists of a tape containing a number of programs that greatly facilitate using **TEX** and related systems for high quality document preparation. Here is an overview of the major subsystems:

1. **dvitool** is a previewer for DVI files that runs on the SUN workstation. This system is very robust, handles arbitrary DVI files, and provides a great many features. It is a full tool in the sense of the SUN window system and can be adjusted to any size the user finds appropriate. It is possible to keep a small window on the screen for previewing at the same time a source window is present. This is extremely valuable in debugging. Changing the view you have of a page is instantaneous.
2. **texdvi** is a program that runs **TEX** and previews the results using **dvitool**. If the tool does not exist it is started, if the tool exists it is opened and the file is read into it automatically. **latexdvi** and **slitexdvi** are similar systems for **L^ATEX** and **SL^ITEX** respectively. This is actually one program and would work with your own version of "Foo**TEX**" as well (by linking **texdvi** to **foodvi**, for example).
3. **p_xtool** is a SUN-based font editor for PXL files. It is similar in spirit to **icontool** or **fonttool**.

A graphics window is available and an image of the font is shown with the pixels depicted on the screen. Using the mouse, one is able to edit pixels. There is also a "show mode" in which the finished character is displayed on the screen. This tool is very useful for creating and editing fonts.

4. **FONTS**: A rather complete set of fonts is available for **TEX** and **L^ATEX** in the sizes needed for the previewer (note that **SL^ITEX** fonts are not included in this distribution). These are regularly in use at Berkeley and rarely have people run into missing font problems (**dvitool** responds gracefully to missing fonts). These fonts, mostly supplied by the UNIX **TEX** distribution at the University of Washington, are somewhat bit-tuned using **p_xtool** for the SUN screen.
5. **bibtex.ml** is a very large macro package for Gosling Emacs that greatly facilitates the preparation of .bib files for document preparation. This is intended for use with **L^ATEX** and **BIB_{TEX}**. The user selects the type of reference intended such as an article and the program provides fields to be filled in, copies fields from previous entries, provides various kinds of checking and assists you in other ways. One particularly useful option is preparing a draft bibliography that includes numerical references, symbolic references and a formatted version of the entries. Another of the options allows previewing on the SUN or printing on any of your local printers. This particular system is not SUN specific although it does interface nicely with **dvitool** mentioned above. Also it is expected to be ported to GNU Emacs in the near future.

If you are interested in this distribution, please write to:

Professor Michael A. Harrison
 Re: **VORTEX** Distribution
 Computer Science Division
 571 Evans Hall
 University of California
 Berkeley, CA 94720

or through the net, to: vortex@berkeley.arpa.

* for Visually ORiented **TEX**.

VAX/VMS Site Report

Barry Smith

This issue's deadline finds us in the midst of too many projects, with none of them complete. On the VAX side, there's a new (1.5) release of T_EX, the first release of METAFONT, and the new improved Computer Modern typefaces. Thanks, Don (and crew), for all of these—best wishes for your sabbatical. David (Kellerman) says he's working on an LN03 driver, too.

I've been working on the MacRailroad—Macintosh T_EX is getting up steam. Thanks to the Stanford consortium office, we were able to demonstrate Macintosh T_EX driving an Apple LaserWriter at the TUG meeting. By the time you read this, we should have an 'integrated' T_EX able to switch from input editing to output display and printing (and back) at the click of a mouse.

And, my wife Annie has been busy—we're expecting our first child early next year. (It's a boy!)

Maybe they'll all be ready by Christmas.

"small" T _E X implementations			
Computer	Processor	Contact	Organization, Address
Hewlett-Packard 1000	16-bit	John Johnson	JDJ Wordware, Box 354, Cupertino, CA 95015; 415-965-3245
Hewlett-Packard 3000	16-bit	Lance Carnes	TeXE, 163 Linden Lane, Mill Valley, CA 94941; 415-388-8853
DEC PDP-11/44 Plexus, Onyx IBM PC	16-bit ¹ Z8000 ¹ 8086/88 ¹	Dick Gauthier	TYX, 11250 Roger Bacon Dr., Suite 16, Reston, VA 22090; 703-471-0233
Apollo	MC68000	Thom Hickey Bill Gropp Pierre Clouthier Jim Sterken	OCLC, Box 7777, Dublin, OH 43017; 614-764-6075 Dept. of Computer Science, Yale University, Box 2158, Yale Station, New Haven, CT 06520; 203-436-3761 COS Information, 5647, rue Ferrier, Montreal, H4C 1V4, P.Q.; 514-738-2191 Textset, Box 7993, Ann Arbor, MI 48107; 313-996-3566
Hewlett-Packard 9836	MC68000	Jim Crumly	Hewlett-Packard, Box 15, Boise, ID 83707; 208-376-6000 x2869
Sun Microsystems	MC68000	Jim Sterken Pierre MacKay	Textset, Box 7993, Ann Arbor, MI 48107; 313-996-3566 University of Washington, Computer Science, FR-35, Seattle, WA 98195; 206-545-2386
Cyb	MC68000	Norman Naugle	Mathematics Dept., Texas A&M University, College Station, TX 77843; 409-845-3104
Apple Macintosh	MC68000	Barry Smith David Kellerman	Kellerman & Smith, 534 SW Third Ave., Portland, OR 97204; 503-222-4234
Masscomp	MC68000	Norman Naugle	Mathematics Dept., Texas A&M University, College Station, TX 77843; 409-845-3104
Synapse	MC68000	Dick Wallenstein	Comcon, 5 Underwood Ct., Delran, NJ 08075; 609-764-1720
PERQ/IQL		Jaap van 't Ooster	Océ, St. Urbanusweg 43, 5900 MA Venlo, Holland
IBM PC, XT, AT	8088, 80286	Lance Carnes	Personal T _E X, 20 Sunnyside, Suite H, Mill Valley, CA 94941; 415-388-8853
IBM XT, AT	8088, 80286		Addison-Wesley Publishing Co., Educational and Professional Technologies Division, Reading, MA 01867; 617-944-6795
IBM XT, AT	8088, 80286 ²	Ronny Bar-Gadda	446 College Ave., Palo Alto, CA 94306; 415-326-1275

¹ not T_EX82 ² in progress or recently completed