

Covering the TI99/4A and the Myarc 9640

MICROpendium

Volume 9 Number 9

October 1992

\$2.50



Halloween in Chicago

See Page 24

128K Memory System from Asgard

See Page 13

Chemical Elements Puzzles Pegged Sounds of the TI
News, Views and Reviews



TEX+COMP

DOLLAR DAYS

WATCH YOUR SAVINGS GROW DURING DOLLAR DAYS

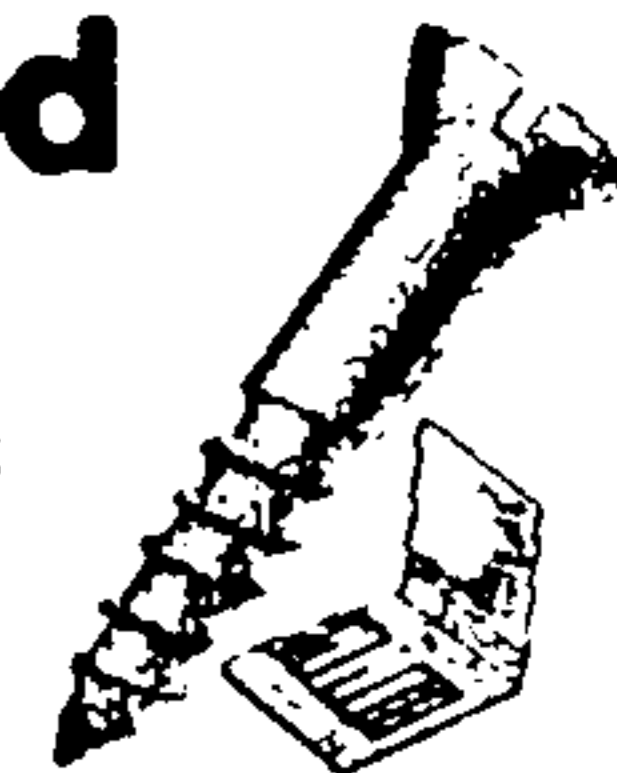
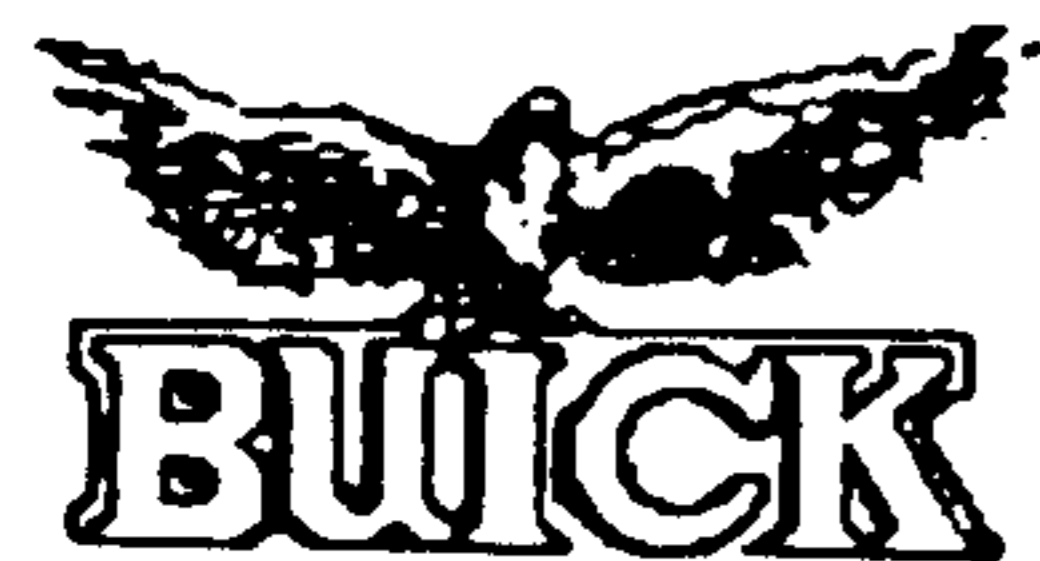
OUR LOWEST PRICES EVER ON THIS ENTIRE PAGE!

Big Price Reduction for Our Full-Featured COMPLETE PRINT SHOP PACKAGE

FOR THE TI-99/4A special price \$4.95*

featuring

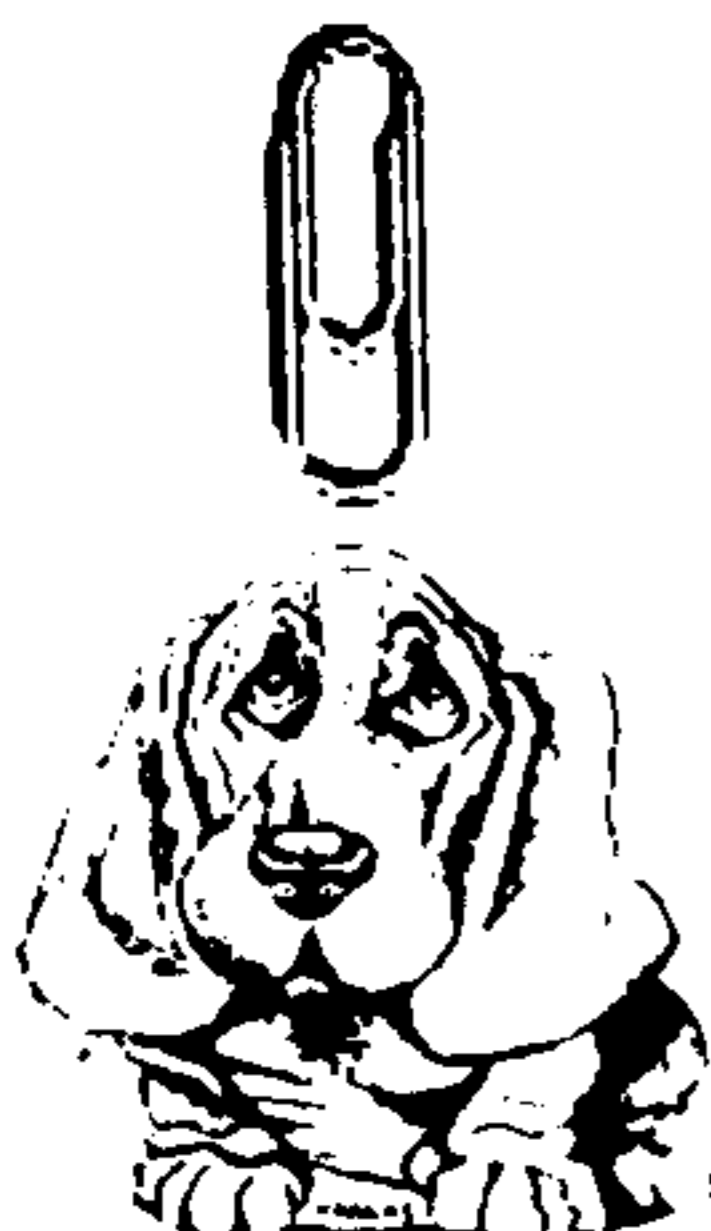
GRAPHX+ with Flip & Rotate & Quick Load (REG \$19.95)



NEW FONTS INCREDIBLE

THE ALL TIME BEST GRAPHICS PROGRAM FOR THE 99/4A HAS JUST GOT EVEN BETTER WITH AN ALL NEW PACKAGE AT A GREAT LOW PRICE. ONLY \$19.95 COMPLETE WITH GRAPHX+ AND TWO DISK SIDES FILLED WITH NEW CLIPART AND FONTS. GRAPHX+ OFFERS EVERY FEATURE YOU NEED TO CREATE THE BEST 4A GRAPHICS YOU HAVE EVER SEEN. GRAPHX+ OFFERS FEATURES SUCH AS FREE HAND DRAWING AND ERASING, ZOOM FOR DETAILED WORK, AUTO FILL, COLORS, TEXT AND TITLES, AUTO CIRCLE DRAWING, CLIP STORAGE AND ANIMATION. 32K, EXBASIC, AND A STAR/EPSON COMPATIBLE DOT MATRIX PRINTER IS REQUIRED.

*BUY ANY 4 ACCESSORY PACKAGES AT THE NEW LOWER PRICE OF \$4.95 AND BUY THE COMPLETE GRAPHX+ PACKAGE FOR ONLY \$1.00.



GRAPHX DINOSAURS!

Asgard Software



\$4.95

DISK OF DINOSAURS is a fantastic collection of real and simulated dinosaurs from that warring 99.4A artist and publisher. Each disk contains 100 pieces of clipart and fonts for use with the GRAPHX+ publishing system. The disk also contains a bonus disk of the dinosaurs' for creating great posters along with all the other great clipart.

Graphx with professional resolution (up to 320x240) and along with its highly sophisticated "Zoom" function, makes copy function, multi-orientation, and always available clipboard as, in the words of Miss Pottery of Asgard Software, "the best drawing tool available for the 99.4A".

Now you can "draw" your own anything from calendars to greeting cards to reports, create dinosaur stickers, logos, and pictures faster than you can say "Brontosaurus". (It also be used with TI Artist with the conversion routine supplied. GRAPHX and a 1.44 disk drive system required.



MAC-FLICK

HIGH RESOLUTION CLIP ART FOR GRAPHX AND TI ARTIST

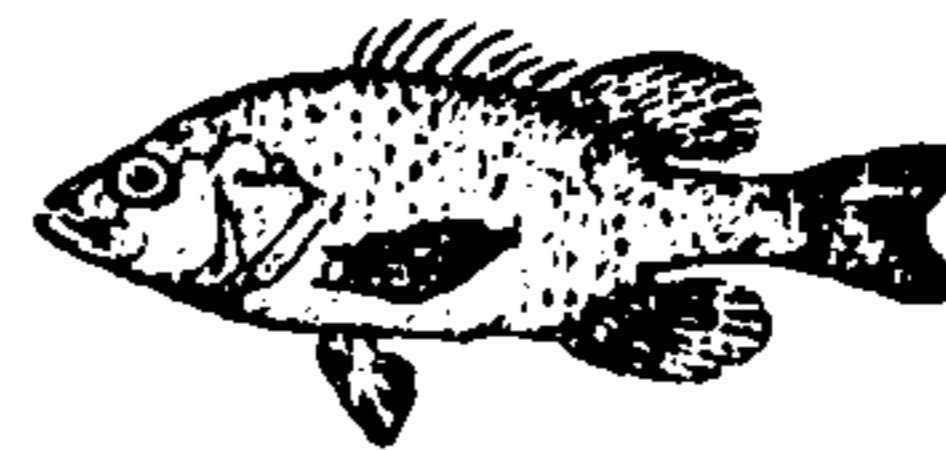


SIX DISK SIDES

TEX-COMP HAS TAKEN THE BEST MAC CLIPART AVAILABLE AND CONVERTED IT TO GRAPHX CLIPART FILES. NOW YOU CAN PRODUCE GRAPHICS WITH YOUR 4A THAT RIVALS THE BEST ANYWHERE. WE FILLED SIX DISK SIDES WITH OVER 140 PIECES OF CLIPART THAT ARE READY TO BE PRINTED OUT WITH GRAPHX OR CAN EVEN BE CONVERTED TO OTHER GRAPHIC SYSTEMS. THE SUPERIOR PRINTING CAPABILITY OF GRAPHX WILL CREATE ART THAT WILL BE OUTSTANDING!!

\$4.95

SIX DISK SIDES GRAPHX, 32K, AND STAR/EPSON DOT MATRIX PRINTER REQ.



ASGARD SOFTWARE HAS PUBLISHED FOUR SETS OF PROFESSIONAL CLIPART AND FONTS FOR USE WITH THE GRAPHX+ PUBLISHING SYSTEM SO YOU CAN CREATE FANTASTIC ARTWORK WITHOUT EVEN HAVING ARTISTIC TALENT. EACH SET IS ONLY \$4.95 (VOL I-IV)

GRAPHX SLIDESHOW BY ASGARD IS A CLIPART COLLECTION AND A SPECIAL PROGRAM FOR DISPLAYING YOUR GRAPHX CREATIONS IN AUTOMATIC SEQUENCE. GREAT FOR DISPLAYS, TRADESHOWS AND PRESENTATIONS.....ONLY \$4.95

- GRAPHX+ SYSTEM (reg. 19.95) special sale price.....\$4.95*
- ASGARD GRAPHX COMPANION I.....\$4.95
- ASGARD GRAPHX COMPANION II.....\$4.95
- ASGARD GRAPHX COMPANION III.....\$4.95
- ASGARD GRAPHX COMPANION IV.....\$4.95
- ASGARD GRAPHX SLIDESHOW.....\$4.95
- PRINTING TO GO (Clipart for GRAPHX reg 9.95).....\$4.95
- GRAPHX DINOSAURS (Dinosaur clipart reg. 12.95).....\$4.95
- MAC-FLICK (Hi-res. clipart for GRAPHX reg. 12.95).....\$4.95

*BUY ANY 4 ACCESSORY PACKAGES AT THE NEW LOWER PRICE OF \$4.95 AND BUY THE COMPLETE GRAPHX+ PACKAGE (REG \$19.95) FOR ONLY \$1.00.

TEX+COMP

P.O. Box 33084, Granada Hills, CA 91344



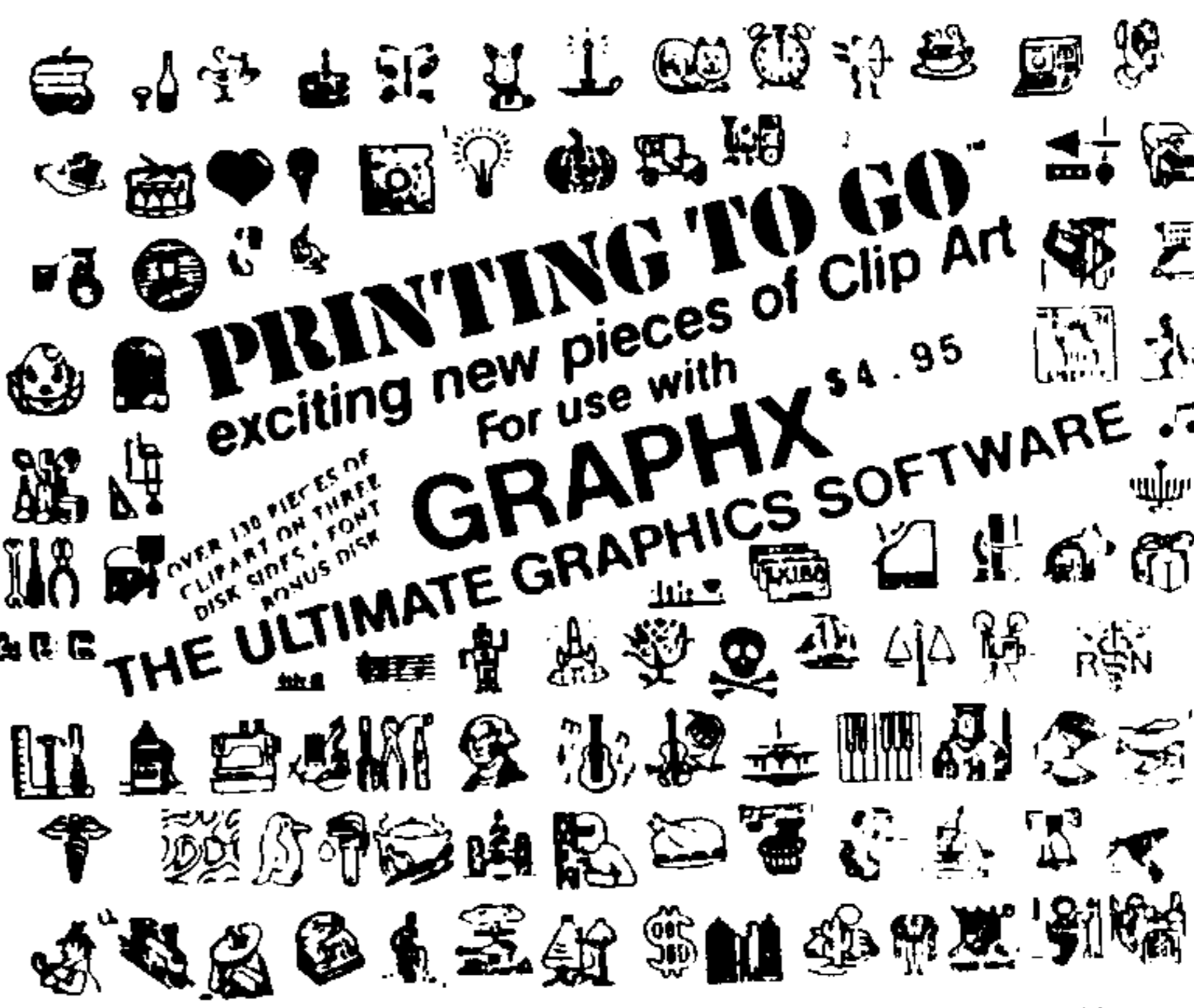
VISA and MASTERCARD HOLDERS CALL DIRECT: (818) 366-6631



CHARGE IT WE ACCEPT VISA or MASTERCARD



ORDER BY PHONE 24 HOURS A DAY (818) 366-6631 7 Days a Week!



PRINTING TO GO

exciting new pieces of Clip Art For use with GRAPHX \$4.95

OVER 100 PIECES OF CLIPART ON THREE DISK SIDES + FONT FONDS DISK

THE ULTIMATE GRAPHICS SOFTWARE

PRINTING TO GO IS A GREAT COLLECTION OF CLIP ART AND FONTS TO ADD TO YOUR GRAPHX PUBLISHING SYSTEM FOR THE TI-99/4A. THIS GREAT PACKAGE OF FOUR DISK SIDES AT A FANTASTIC PRICE IS A PROOF THAT GRAPHX IS THE BEST BUY IN 4A GRAPHIC PACKAGES AND BY FAR, THE BEST SUPPORTED. THIS COLLECTION CAN BE USED FOR CREATING NEWSLETTERS, ANNOUNCEMENTS OR ANY OTHER APPLICATION WHERE YOU NEED PROFESSIONAL LOOKING ART. THESE CLIPS CAN ALSO BE USED FOR CREATING PERSONALIZED STATIONERY OR EVEN FOR MAKING T-SHIRTS WITH THE TEX-COMP T-SHIRT KIT. OVER 100 PIECES OF QUALITY CLIPART + FONTS.

TERMS: All prices F.O.B. Los Angeles. For fastest service use cashiers check or money order. Personal checks take ten days to clear. Add 3% shipping & handling (with a \$3 minimum). Add 4.5% east of Mississippi. All prices shown include a 3% cash discount. Add 3% if paying by Visa or Mastercharge. Prices and availability subject to change. Include street address for UPS delivery. California orders add 8.25% sales tax. Canada, Hawaii, Alaska and overseas shipping extra.

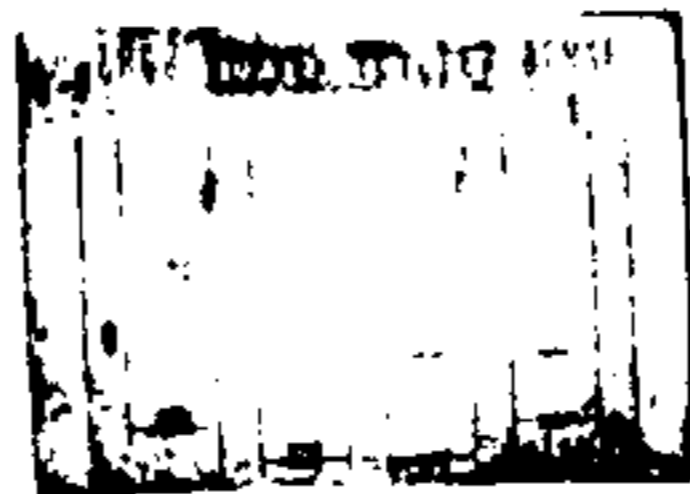
TEX+COMP **DOLLAR DAYS** WATCH YOUR SAVINGS GROW DURING DOLLAR DAYS

OUR LOWEST PRICES EVER ON THIS ENTIRE PAGE!

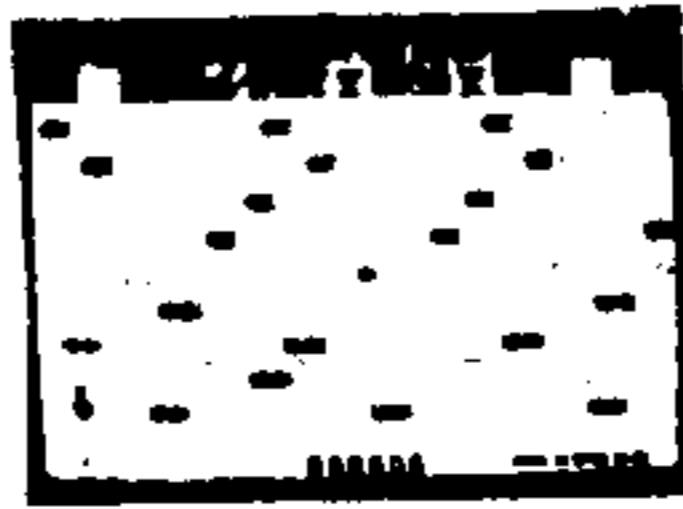
There may never be a better time than now to buy

ARCADE SPECIAL

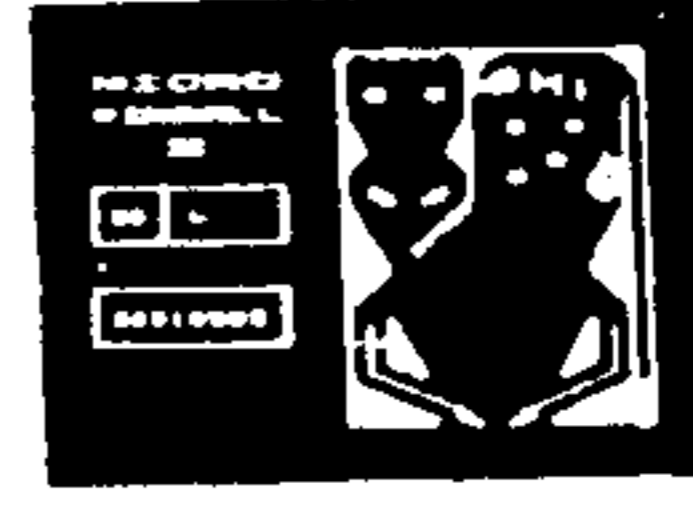
FOUR GREAT ARCADE GAMES ON DISK AT ONE GREAT PRICE!!!



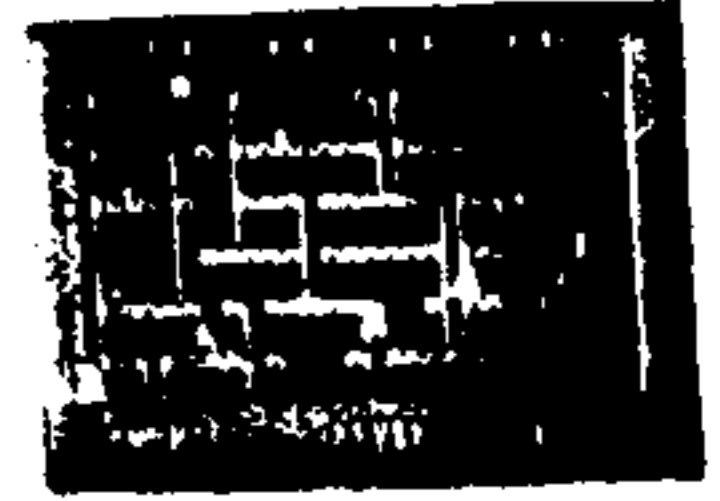
BURGER BUILDER



TI TOAD



MICRO PINBALL II



MIDNIGHT MASON

NOW YOU CAN GET FOUR OF THE HOTTEST ARCADE GAMES FOR THE 99/4A AT THE LOWEST PRICE EVER. THEY ALL AUTO LOAD WITH EX-BASIC AND HAVE GREAT GRAPHICS AND ARCADE ACTION.

MIDNIGHT MASON IS THE 99/4A ANSWER TO GHOST BUSTERS. YOU HAVE TO RETURN AT MIDNIGHT (OF COURSE) TO A HAUNTED HOUSE WHERE YOU LEFT YOUR TOOLS DURING THE DAY SHIFT. THE OBJECT IS TO GATHER UP YOUR TOOLS BEFORE THE GHOSTS GATHER YOU UP! GREAT ARCADE ACTION WHERE YOU CLIMB, RUN JUMP AND EVEN BREAK THROUGH WALLS WHILE THE GHOSTS KEEP COMING!

MICRO PINBALL II TURNS YOUR 99/4A INTO A REALISTIC PINBALL MACHINE WITH KEYBOARD OPERATED FLIPPERS AND FANTASTIC ACTION. THIS IS BY FAR ONE OF THE BEST ACTION GAMES AVAILABLE FOR THE 99/4A OR ANY OTHER COMPUTER.

TI TOAD IS EXACTLY WHAT THE NAME SAYS. IF YOU LIKE "FROGGER" YOU WILL LOVE TI TOAD AT A FRACTION OF THE PRICE BUT WITH ALL THE THRILLS IN GETTING "KERMIT" ACROSS VARIOUS ROADWAYS WITHOUT BECOMING PART OF THE PAVEMENT.

BURGER BUILDER IS KNOWN BY ALL THE COIN OP PLAYERS AS THE GAME WHERE YOU BUILD A BETTER BURGER WHILE BEING CHASED BY "FRANK" INSTEIN. ABSOLUTELY REALISTIC ARCADE ACTION AND THRILLS!

ALL FOUR ONLY **\$4⁹⁵** + S & H ON DISK

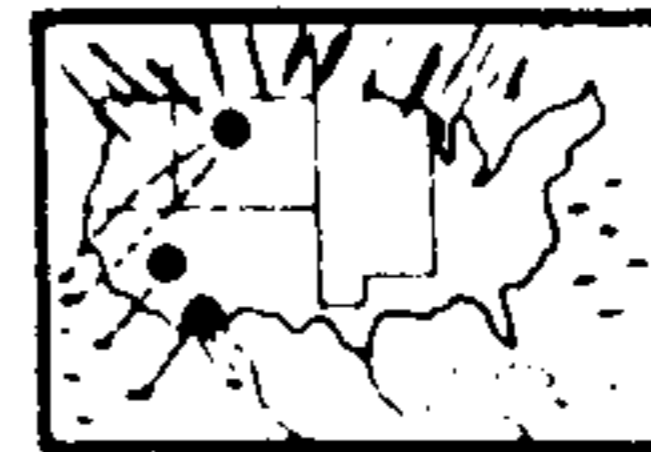
THREE GREAT GAMES

Computer War **SUBMARINE COMMANDER**

Based on the hit movie "WarGames"®



RIVER RESCUE



COMPUTER WAR Based on the hit movie "WarGames" the aliens are trying to NORAD! Can you crack the code and destroy the simulated enemy missiles before the world is engulfed in a thermonuclear holocaust? Fast Action Uses joysticks or keyboard



RIVER RESCUE A group of helpless and starving refugees are trapped between a fierce battle to the north and the raging river. With your powerful boat, you must try to rescue as many as possible and deliver them to a friendly neighboring country. It won't be easy though - you must contend with hostile troops, electric nets and other hazards. High speed action for one or two players from THORN.

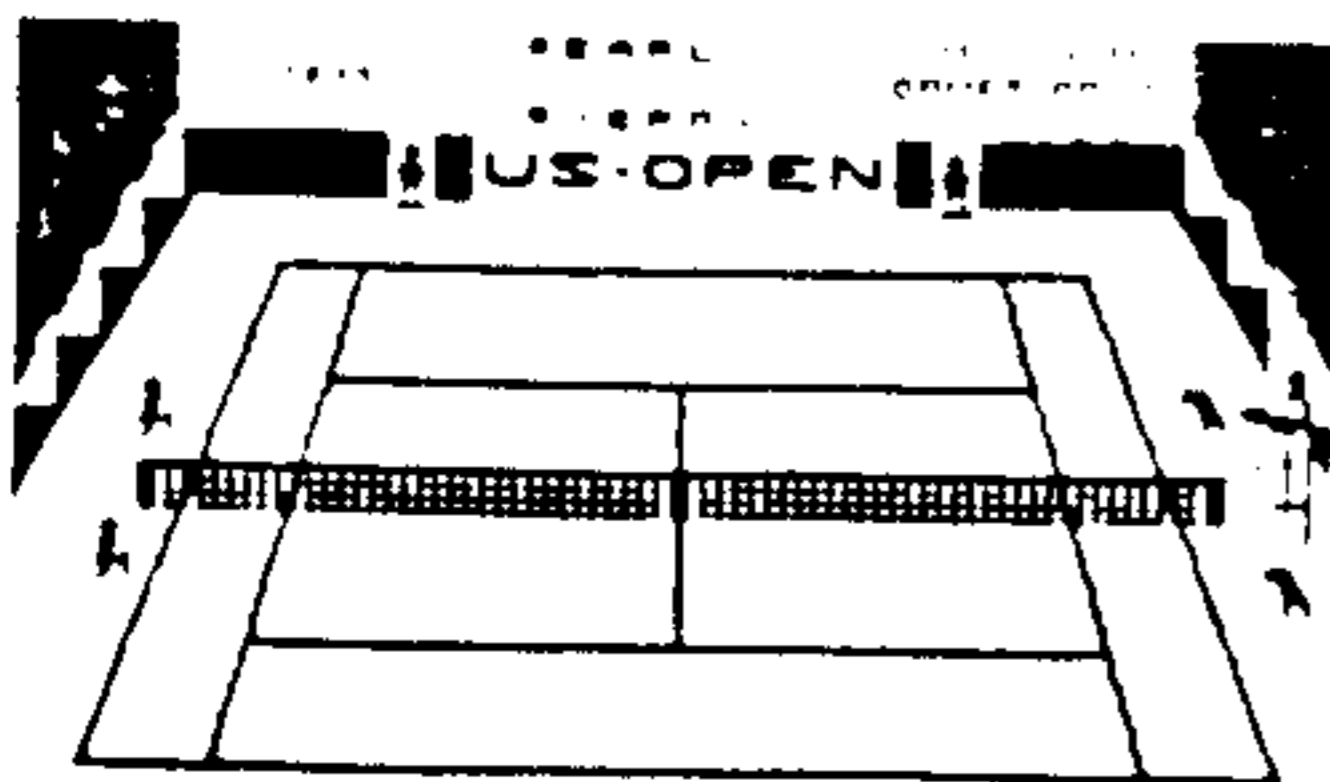
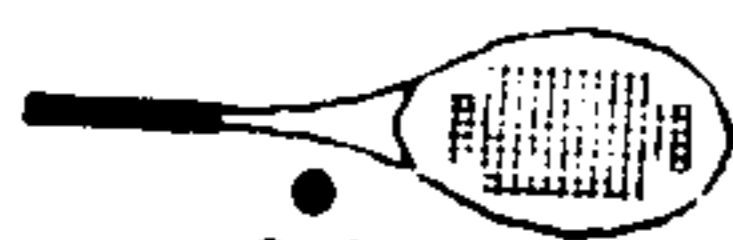
HERE ARE THREE ARCADE STYLE GAMES OF THE TYPE YOU NOW SEE FOR NINTENDO® OR SEGA® FOR OVER THIRTY DOLLARS EACH. THESE THREE GAMES WERE INTENDED FOR RELEASE ON MODULE BY ENTERTAINMENT GIANT THRONE EMI BUT NEVER MADE IT TO THE TI MARKET, NOW TEX-COMP BRINGS YOU ALL THREE GREAT GAMES AT ONE SUPER LOW PRICE

ALL THREE GAMES ONE ONE DISK AT ONE LOW PRICE! **\$4⁹⁵** + S & H

SUB COMMANDER Simulates a sub patrol mission to hunt down and destroy enemy shipping. The your sonar when submerged, rise to periscope level and attack. Hazards include enemy destroyers, depth charges, water pressure, and an uneven sea floor. Full instrumentation display from THORN EMI.



PRO TENNIS+



PRO TENNIS+ LETS YOU ENJOY THE EXCITEMENT, ACTION AND THRILLS OF PROFESSIONAL TENNIS WITH COMPLETE CONTROL.

THE GRAPHIC THREE DIMENSIONAL DISPLAYS ADD TO INCREASED REALISM AND OPTIONAL SPEECH AND REALISTIC SOUNDS OF THE BALL BEING STRUCK MAKES YOU FEEL THAT YOU ARE RIGHT ON THE COURT.

WE HAVE NOT SEEN A BETTER TENNIS GAME ON ANY BRAND COMPUTER OR GAME SYSTEM AND WE ARE SURE YOUR FRIENDS WITH OTHER BRAND COMPUTERS AND GAME SYSTEMS WILL BE DULY IMPRESSED.

NOW YOU CAN ENJOY THE ULTIMATE ACTION ARCADE GAME ON YOUR 99/4A! EXTENDED BASIC, 32K MEMORY EXPANSION AND DISK DRIVE REQUIRED.

COMPLETE ON DISK! ONLY **\$4⁹⁵** FREE BONUS: ON EACH PRO TENNIS+ DISK WE ALSO INCLUDE A COLLECTION OF NEVER RELEASED TI ARCADE STYLE GAMES. THESE GAMES ARE TRUE COLLECTOR'S ITEMS AND ARE WELL WORTH THE PRICE OF THIS DISK BY THEMSELVES!

TEX+COMP
P.O. Box 33084, Granada Hills, CA 91344



VISA and MASTERCARD HOLDERS CALL DIRECT: (818) 366-6631



TERMS: All prices F.O.B. Los Angeles. For fastest service use cashiers check or money order. Personal checks take ten days to clear. Add 3% shipping & handling (with a \$3 minimum). Add 4.5% east of Mississippi. All prices shown include a 3% cash discount. Add 3% if paying by Visa or Mastercharge. Prices and availability subject to change. Include street address for UPS delivery. California orders add 8.25% sales tax. Canada, Hawaii, Alaska and overseas shipping extra.



AUTHORIZED DEALER



ORDER BY PHONE **(818) 366-6631**
24 HOURS A DAY
7 Days a Week!

Contents

MICROpendium

MICROpendium (ISSN 10432299) is published monthly for \$25 per year by Burns-Koloen Communications Inc., 16606 Terrace Dr., Austin, TX 78728-1156. Second-class postage paid at Austin, Texas, and additional mailing offices. POSTMASTER: Send address changes to MICROpendium, P.O. Box 1343, Round Rock, TX 78680-1343.

No information published in the pages of MICROpendium may be used without permission of the publisher, Burns-Koloen Communications Inc. Only computer user groups that have exchange agreements with MICROpendium may excerpt articles appearing in MICROpendium without prior approval.

While all efforts are directed at providing factual and true information in published articles, the publisher cannot accept responsibility for errors that appear in advertising or text appearing in MICROpendium. The inclusion of brand names in text does not constitute an endorsement of any product by the publisher. Statements published by MICROpendium which reflect erroneously on individuals, products or companies will be corrected upon contacting the publisher.

Unless the author specifies, letters will be treated as unconditionally assigned for publication, copyright purposes and use in any other publication or brochure and are subject to MICROpendium's unrestricted right to edit and comment.

Display advertising deadlines and rates are available upon request.

All correspondence should be mailed to MICROpendium at P.O. Box 1343, Round Rock, TX 78680. We cannot take responsibility for unsolicited manuscripts but will give consideration to anything sent to the above address. Manuscripts will be returned only if a self-addressed stamped envelope is included.

Foreign subscriptions are \$30.25 (Mexico); \$32.50 (Canada); \$30.00, surface mail to other countries; \$42 airmail to other countries.

All editions of MICROpendium are mailed from the Round Rock (Texas) Post Office.

Mailing address: P.O. Box 1343, Round Rock TX 78680

Telephone: (512) 255-1512

CompuServe: 75156,3270

Delphi TI NET: MICROPENDIUM

GENie: J.Koloen

**John Koloen.....Publisher
Laura Burns.....Editor**

Regena on BASIC

Chemical elements Page 10

Asgard offers new memory system

128K of program memory Page 13

The Art of Assembly

Sounds of the TI Page 14

Extended BASIC (plus)

Puzzles pegged Page 19

MY-BASIC

WHILE...WEND and more Page 22

Chicago Faire

Vendor space sets record Page 24

Newsbytes

HUG TIBBS off the air, VAST mailing address changes, and the Orphanage BBS operates in Oklahoma Page 24

Reviews

MICRO-Reviews: Football '92, Address Labels, Stor Mor Page 26

Drawing Master V1.3 Page 27

User Notes

Model paint for disk ID, what sprites can do, and a solution to Geneve heat problems Page 28

Classified Page 31

Departments

Bugs and Bytes Page 6

Comments Page 6

Feedback Page 8

Reader to Reader Page 9

TI Fairs Page 30

*READ THIS

Here are some tips to help you when entering programs from MICROpendium:
1. All BASIC and Extended BASIC programs are run through Checksum, the numbers that follow exclamation points at the end of each program line. Do not enter these numbers or exclamation points. Checksum was published in the October 1987 edition.
2. Long XBASIC lines are entered by inputting until the screen stops accepting characters, pressing Enter, pressing FCTN REDO, cursoring to the end of the line and continuing input.

TI INTERNATIONAL WORLD FAIRE WEEKEND
 ★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★

WHERE: **CHICAGO** ** **MILWAUKEE**
 **
Holiday Inn Elk Grove ** **Quality Inn,**
1000 Busse Road (Rt. 83) ** **5311 Howell Ave.,**
Elk Grove Village IL 60007 ** **Milwaukee, WI**
(708) 437-6010 ** **(414) 481-2400**
 **
 **
 **
WHEN: **SATURDAY, October 31, 1992** ** **SUNDAY, November 1, 1992**
9:00 A.M. - 6:00 P.M. ** **9:00 A.M. -5:00 P.M.**
 **
 **
ADMISSION: **\$4.00** ** **\$2.00 (\$1.00 in advance)**
 **
 **
FOR INFORMATION CALL: (708) 864-8644 ** **(414) 535-0133**
 **
or WRITE TO: **Hal Shanafield** ** **W99CC**
2515 Marcy ** **P.O. Box 2723**
Evanston, IL 60201 ** **Appleton, WI**
 ** **54911**
BBS: **(708) 862-0182 (300-2400 Baud) Msg to 162** **
 **
 **
VENDORS: **(partial list)** ** **Guest**
9640 News - Competition Computer Solutions ** **Speakers**
Harrison Software -- Bud Mills Services/WHT ** **Door**
Ramcharged Computers --C.a.D.D. Electronics ** **Prizes**
MICROpendium magazine - Genial TRAVeller **
Oasis Pensive Abacutors -- MS Express Software **
L. L. Conner Enterprise -- Crystal Software **
D. Wright Stuff -- Rave 99 -- Disk 'N Dat *****

SOCIAL MIXER: **FRIDAY, October 30, 1992**
8:00 P.M. - Midnight -- Admission \$5.00

DINNER: **SATURDAY, October 31, 1992**
Cocktails Poolside 6:30 - 7:30 P.M.
Dinner 7:30 P.M. -10:30 P.M. -- Admission \$15.00
Costume (optional) - Come as your favorite TI Software
Reservations Requested: (708) 864 8644

HOTEL ROOM RATES **Double/Single \$50.00 (includes breakfast)**
Tell Hotel the "tracking code" is I.W.F.

Comments

Why 32 pages?

This is a question that's been asked by a lot of our readers, and they deserve an answer.

First, our advertising revenue has dropped substantially between 1991 and 1992. Advertising is what allows magazines to large numbers of pages. Without it, the page count goes down. Advertising subsidizes subscriptions, it's as simple as that. And when the advertising drops, so does the subsidy for subscribers.

Second, circulation revenues have been declining, but not at the rate of our advertising revenues. We see a leveling off of this decline, but we don't see any increase.

Third, our per copy cost for bulk orders from user groups are only \$1.25 per copy, including postage. During the fat years we were able to subsidize these orders, but now they are dragging us down.

WHAT CAN BE DONE?

We could raise our subscription rate from the current \$25 per year in the hopes of generating enough revenue to increase the number of pages to 40 per issue. Our printer uses increments of eight pages, which makes 40 the next step up from 32. To do this, we would have to raise the rates enough to cover the cost of our writers, additional printing costs and additional postage costs. To make this work, the subscription rate would have to go up by \$10 per year.

Also, user groups would have to pay more than half-price

for the magazine, perhaps 75 percent of a full subscription.

Of course, subscribers would have to be willing to pay \$35 per year for a subscription. User groups would have to be willing to pay 75 percent rather than 50 percent of the cost of the magazine. And we would need to have close to the current average level of advertising support. Given these things, we would be able to afford to print 40-page magazines again.

Obviously, I'd love to publish 40 pages. We've got tons of stuff that piles up waiting for space to be printed. This includes articles, programs, tutorials, you name it. But the decision isn't mine. It's yours. If you think a 40-page magazine is worth the extra cost, then let us know. Just as importantly, we'd also like to hear from those who would be opposed to a \$35 annual subscription price. If there are a substantial number of those who would oppose it, we wouldn't do it. As I said, to make it work we have to have the support of all of our readers.

But have no fear. MICROpendium will continue publishing. The subject we're discussing today isn't about whether to publish or how long but how much. In the long run, you'll get what you're willing to pay for. Now, it's up to you to let us know.

—JK

BUGS & BYTES

PC Emulator project promoted down under

Never say that Mike Wright isn't willing to go far to get his PC emulator project, announced in the August 1992 MICROpendium, going. This summer Wright, who is a member of the Boston Computer Society, was in Brisbane, Australia, discussing the project at a meeting of a user group there.

Wright's software project will allow a PC to emulate a TI.

Wright says he received 50 letters from people interested in the project. Although the number isn't very high, "people are sending much more money than I want. I don't want money. I want people." He and Mark Van Coppenole will show the emulator at the Chicago fair. He plans to release the software in three stages: I/O routines, video (for sprites), and sound and speech. He notes that "I would like to do this ... but it's got to be worthwhile doing it. By worthwhile, I mean there has to be a lot of (interested) people out there."

Wright says he'll be releasing his plan to those who wrote to him last month. At the show he intends to use the emulator

software to reconfigure a PC into a TI99/4A or a TI99/4.

SCSI to run at Faire; Accelerator 'dead'

Though Horizon Computing and Western Horizon Technology's proposed SCSI interface still lacks software to bring it to the market, according to Bud Mills a prototype will be up and running by the Chicago TI International World's Faire.

Mills says the company's 4000 cards will be shipping by the time you read this.

However, the Accelerator "on hold" from Don O'Neil at Western Horizon was recently pronounced "dead" in a message by O'Neil on Delphi's TI-Net.

Where's OPA?

Several complaints have been received here and posted on computer bulletin boards regarding delays in delivery of products from Oasis Pensive Abacutors (OPA) in Canada.

TI-99/4A owners use their computers for *word processing* more than anything else. Over the years, Asgard Software has tried, and usually succeeded in making word processing easier and more powerful. Our *Spell It!* spelling checker is the standard by which all others are measured, and our *Screen Preview* has helped many see what they have written before they print it.

Now, for the first time, we have combined all of the useful add-on utilities and nice features found in all of the *TI-Writer* compatible programs into one, advanced program. Written entirely from scratch, *First Draft* brings word processing for the 99/4A and Geneve into the 90's.

This *TI-Writer* compatible programs allows you to create documents as large as your disk in 40 or 80 columns. Spell-check a word or the entire document any time you want with our *Spell It!*

compatible dictionary. Use the pull-down menus to access a wide array of commands for every-thing from merging documents to managing

your disks. You can even add *DISKU* comments to your files. Use the advanced formatter to print out multi-column documents with *Page Pro 99* graphics, and to take advantage of your printer's features just select the right "printer driver". The list of features and firsts goes on and on.

From *First Draft* to Final Copy, no other word processor for the 99/4A comes close. Order your copy today - because it's shipping today.

\$39.95

Shipping & Handling:

U.S. Add \$3.00

Canada Add \$4.00

Airmail Add \$7.00

*Registered Spell It! users
only \$29.95 plus S&H*

First Draft

BY Arthur Gibson

Features

- The program may be fully customized
- Includes a 25,000 word spelling checker - check a single word or the whole document while writing
- Includes 40 and 80 column versions
- TI-Writer compatible - load and save in both *First Draft* and TI-Writer formats
- Create, edit and print documents as large as your available disk space.
- Full built-in disk manager accessible from the editor: delete/rename a file, format a disk, add comments, etc.
- Menu driven - no command line
- Easy file merging
- Parallel columns - create and edit multi-column documents in the editor and the formatter
- Extended formatter featuring over 20 new commands - include *Page Pro 99* pictures in your document, multi-line footers/headers, etc.
- Printer drivers - use simple commands to access any printer's features. Never worry about codes again
- Built-in screen preview function
- Compatible with Funnelweb, Horizon RAM-disk, TIM Mechatronics, Dijit, Geneve 9640 and the HFDC

Asgard Software
P.O. Box 10306
Rockville, MD 20849

Feedback

Shortest way may not be user-friendliest

I have never written to the MICROpendium before, and perhaps I should be chastised for that, but the comments of Mr. Merle Vogt of Von Ormy, Texas, in the August User Notes may be an indication of what's wrong (if anything) with the TI community, and literally forces me to reply.

I don't know if Merle is related to my friend, Ed Machonis, father of Tinygrams, or not, but he seems to share a desire to shorten programs at the sacrifice of user friendliness, utility and other useful purposes.

I do not think anyone should complain about the "complexity" of a program that has user prompts and docs and other user friendliness, then go on to substitute another more complex problem (algorithm), which does less and actually takes more bytes, for the equivalent operational part. Arrays are not simple for most people.

If brevity is the soul of Mr. Vogt, then why not just the following?:

```
1 B=1
2 C=B+A :: A=B :: B=C :: PRINT C;
:: GOTO 2
```

Note that the above does not STOP at a mere 48 Fibonacci numbers. Notice, also, the better print format. I do not know why Merle chose that limit, since he did not choose to let the user pick the limit. I have very little use for authors who make such decisions for me. Like telling me which drive to put a disk in, instead of asking where it is.

Earl Raguse
Huntington Beach, California

Why 32 pages?

I've been wondering why MICROpendium has dropped down to 32 pages. It seems as if it has been like this for about the last six months.

I am not the only one who feels this way. Maybe you could answer this question in the next issue.

Joseph Stomiany
La Mirada, California

The amount of paid advertising, including classifieds, has dropped substantially

in recent months, with the result that it is not cost-effective to publish a larger issue. The reason you can get fatter magazines on other computers (as well as on non-computer topics) for a lower subscription price is their greater advertising volume (and higher advertising rates) which would be unrealistic for the TI market. In some cases, these magazines also have economies of scale from being part of much larger publishing concerns, as well.
— Ed.

Review gets response

Thank you for reviewing my new program, GENERIC DIRECTORY, in the August 1992 issue. I really felt the cover of the issue was more appropriate than intended since you were helping me to feel the world that the TI99 now has GEN/DIR (pronounced "gender"). I would like to clear up a few minor points that might cause some confusion.

In your review, you stated that it would be possible to display the disk directory in 80 columns, i.e. with a Geneve. Actually the program is written for TIMODE on the Geneve, and no matter how it is run it will have a 40-column screen. The directory written as a file is 80 columns and will display on the 80-column screen with the appropriate editor.

Also, there is a slight misunderstanding in point 5, "Delete File With Bad Sectors." This is not to delete the file called "BADSECTORS"; this option deletes any user file that contains bad sectors, and keeps the bad sectors "in use."

It would be worthwhile to give a brief comment about who would be interested in these two independent programs and what they would do for them. The directory program and the disk cleanup program are written primarily for the people who like to experiment or who like to do systems projects or who like to write programs in any language. I also find it useful when using programs I am not familiar with, such as those from a club's library. I would like to try to give you an idea of what each program can do for you.

DISK DIRECTORY PROGRAM

This program started as a simple directory program that would provide the user

with all the generic information about each file that I could manually (with some work) figure out by looking at sectors on the disk. Also a real need exists to be able to tell when a file is created or updated (old stuff on the Geneve). I then put the date and hour in the file completely compatible with the Geneve date/time so a user is able to date his files on the TI and have any Geneve see the same dates and vice versa; the dates of any files dated on the Geneve can be readily seen on a TI99 now.

Next I wanted to let the user describe each file for documentation. I discovered that DSKU already did that, so I attempted to make these file/entry descriptions as nearly compatible with DSKU as possible. The screen constraints I had limited my descriptions to 29 characters, while I believe DSKU allows 35 (I apologize for that inconsistency). Of course, DSKU allows only one description per file. GEN/DIR allows a description for each entry name in an object file or one for each file that is not an object file. This is possible by having the descriptions both in the header sections and in a DV80 file on the disk.

The directory information allows the user to know whether an object file can be used in Extended BASIC or must be loaded with Editor/Assembler Opt. 3. When there is a PGM file, GEN/DIR tells the user whether it is an assembly program, a console BASIC or Extended BASIC program or data for another program (for example, TI-Artist pictures are DATA PGM files). A DV80 file of documentation about half the time needs to be printed by the FORMATTER. GEN/DIR tells the user if there are FORMATTER commands in the front of the file or not. It also displays on the screen a concise sector map showing which sectors each file is using.

The programmer information provides the user with memory requirements to run programs and object files, indicating whether they are absolute or relocatable loaded.

A year or so before I started writing GEN/DIR, I wanted to combine two programs into one, DISKFIXER and DISKO, and write a menu to select either. The work I went through to do this consisted in noting one was absolute addressed, the other

(See Page 9)

Feedback

Shortest way may not be user-friendliest

I have never written to the MICROpendium before, and perhaps I should be chastised for that, but the comments of Mr. Merle Vogt of Von Army, Texas, in the August User Notes may be an indication of what's wrong (if anything) with the TI community, and literally forces me to reply.

I don't know if Merle is related to my friend, Ed Machonis, father of Tinygrams, or not, but he seems to share a desire to shorten programs at the sacrifice of user friendliness, utility and other useful purposes.

I do not think anyone should complain about the "complexity" of a program that has user prompts and docs and other user friendliness, then go on to substitute another more complex problem (algorithm), which does less and actually takes more bytes, for the equivalent operational part. Arrays are not simple for most people.

If brevity is the soul of Mr. Vogt, then why not just the following?:

```
1 B=1
2 C=B+A :: A=B :: B=C :: PRINT C;
:: GOTO 2
```

Note that the above does not STOP at a mere 48 Fibonacci numbers. Notice, also, the better print format. I do not know why Merle chose that limit, since he did not choose to let the user pick the limit. I have very little use for authors who make such decisions for me. Like telling me which drive to put a disk in, instead of asking where it is.

Earl Raguse
Huntington Beach, California

Why 32 pages?

I've been wondering why MICROpendium has dropped down to 32 pages. It seems as if it has been like this for about the last six months.

I am not the only one who feels this way. Maybe you could answer this question in the next issue.

Joseph Stomiany
La Mirada, California

The amount of paid advertising, including classifieds, has dropped substantially

in recent months, with the result that it is not cost-effective to publish a larger issue. The reason you can get fatter magazines on other computers (as well as on non-computer topics) for a lower subscription price is their greater advertising volume (and higher advertising rates) which would be unrealistic for the TI market. In some cases, these magazines also have economies of scale from being part of much larger publishing concerns, as well.
— Ed.

Review gets response

Thank you for reviewing my new program, GENERIC DIRECTORY, in the August 1992 issue. I really felt the cover of the issue was more appropriate than intended since you were helping me to feel the world that the TI99 now has GEN/DIR (pronounced "gender"). I would like to clear up a few minor points that might cause some confusion.

In your review, you stated that it would be possible to display the disk directory in 80 columns, i.e. with a Geneve. Actually the program is written for TIMODE on the Geneve, and no matter how it is run it will have a 40-column screen. The directory written as a file is 80 columns and will display on the 80-column screen with the appropriate editor.

Also, there is a slight misunderstanding in point 5, "Delete File With Bad Sectors." This is not to delete the file called "BADSECTORS"; this option deletes any user file that contains bad sectors, and keeps the bad sectors "in use."

It would be worthwhile to give a brief comment about who would be interested in these two independent programs and what they would do for them. The directory program and the disk cleanup program are written primarily for the people who like to experiment or who like to do systems projects or who like to write programs in any language. I also find it useful when using programs I am not familiar with, such as those from a club's library. I would like to try to give you an idea of what each program can do for you.

DISK DIRECTORY PROGRAM

This program started as a simple directory program that would provide the user

with all the generic information about each file that I could manually (with some work) figure out by looking at sectors on the disk. Also a real need exists to be able to tell when a file is created or updated (old stuff on the Geneve). I then put the date and hour in the file completely compatible with the Geneve date/time so a user is able to date his files on the TI and have any Geneve see the same dates and vice versa; the dates of any files dated on the Geneve can be readily seen on a TI99 now.

Next I wanted to let the user describe each file for documentation. I discovered that DSKU already did that, so I attempted to make these file/entry descriptions as nearly compatible with DSKU as possible. The screen constraints I had limited my descriptions to 29 characters, while I believe DSKU allows 35 (I apologize for that inconsistency). Of course, DSKU allows only one description per file. GEN/DIR allows a description for each entry name in an object file or one for each file that is not an object file. This is possible by having the descriptions both in the header sections and in a DV80 file on the disk.

The directory information allows the user to know whether an object file can be used in Extended BASIC or must be loaded with Editor/Assembler Opt. 3. When there is a PGM file, GEN/DIR tells the user whether it is an assembly program, a console BASIC or Extended BASIC program or data for another program (for example, TI-Artist pictures are DATA PGM files). A DV80 file of documentation about half the time needs to be printed by the FORMATTER. GEN/DIR tells the user if there are FORMATTER commands in the front of the file or not. It also displays on the screen a concise sector map showing which sectors each file is using.

The programmer information provides the user with memory requirements to run programs and object files, indicating whether they are absolute or relocatable loaded.

A year or so before I started writing GEN/DIR, I wanted to combine two programs into one, DISKFIXER and DISKO, and write a menu to select either. The work I went through to do this consisted in noting one was absolute addressed, the other
(See Page 9)

BASIC

Chemical elements

By REGENA

I have had several requests over the years for a program to memorize the symbols for chemical elements. I have resisted because I thought that if you have a copy of the periodic table there would be no need for memorization. However, teachers still seem to insist students learn symbols and test several times to make sure students know symbols and the corresponding chemical elements.

This month's program can help a student study for such a memorization test. There are several options in the program. First, you can simply see a list of all the chemical elements (as of mid-1992). It will list the atomic number, the chemical symbol, the name of the chemical element and the atomic weight (1992 sources of information).

There are two types of quizzes — first, given the symbol, the user needs to type the name of the chemical element; and second, the name of the element is given and the user needs to type the symbol.

The quiz may consist of the first three lines of the periodic table (elements 1-18), or 40 common elements, or all 110 elements.

The 40 common elements are from my son's current list of common elements he needed to study this year. You may change the list by some program editing. Line 150 defines NCE, the number of common elements. The DATA statements in Lines 170-410 list the elements in numeric order, and each element has the symbol, the name of the element, the atomic element, then a flag number 1 or 0. The flag number is 1 if the element is to be included in the list of common elements and 0 if it is not. To put in your own list, change Line 150, then look carefully at the DATA statements and put in the correct flag numbers.

Most chemistry books suggest a list of common elements, but that list has changed over the years — my old high school book had a list of 40 elements, but several of them were different from my son's book.

You may notice that I use CALL KEY(0,K,S). There are also

instructions on the screen about whether the Alpha Lock key needs to be up or down. When you type the symbols, the Alpha Lock key needs to be up, and you need to use the Shift key for the capital letters. If you execute a CALL KEY (3,K,S), an INPUT statement will allow only capital letters. A CALL KEY (0,K,S) allows capital and small letters to be input.

I wasn't sure what type of scoring mechanism would be appropriate. I simply counted the number of guesses, and the number of correct elements and number of guesses is shown on the screen for each problem. At the end of the quiz, the total number of guesses is shown. The object would be to finish the quiz in a minimum number of guesses.

If an answer is incorrect, the correct answer is shown, and that element will appear again in the quiz. The quiz ends when all elements have been answered correctly.

Lines 560-600 are a subroutine to wait for the user to press the Enter key before the program continues.

Lines 610-680 are a subroutine to read in the data for the chemical elements. NJ is the number of elements. For the first three lines of the periodic table, NJ=18; for all the elements, NJ=110.

Lines 970-1220 are the subroutine for the quiz with the element given and the user needs to type the symbol.

Lines 1230-1320 are the subroutine to print the list of elements.

Lines 1330-1430 present the option for the type of quiz to be presented. Line 1440 branches for the number of elements in the quiz. Lines 1450-1480 are the programming for the quiz of the first three lines of the periodic table. Lines 1630-1660 are for the quiz of all the elements.

If you wish to save typing effort, you may receive a copy of this program by sending \$4 to REGENA, 918 Cedar Knolls West, Cedar City, UT 84720. Be sure to specify that you need "CHEMICAL ELEMENTS" for the TI and whether you want cassette or diskette.

CHEMICAL ELEMENTS

```

100 REM CHEMICAL ELEMENTS !1      ,NITROGEN,14.0067,1,O,OXYGEN      9415,0 !237
41                                  ,15.9994,1,F,FLUORINE,18.998      220 DATA Cr,CHROMIUM,51.996,
110 REM BY REGENA !071             4,1,Ne,NEON,20.179,1 !187      1,Mn,MANGANESE,54.9380,1,Fe,
120 CALL CLEAR !209                190 DATA Na,SODIUM,22.9898,1      IRON,55.847,1,Co,COBALT,58.9
130 OPTION BASE 1 !137             ,Mg,MAGNESIUM,24.305,1,Al,AL      332,1,Ni,NICKEL,58.69,1 !050
140 DIM A$(110),N$(110),W$(1      UMINUM,26.9815,1,Si,SILICON,      230 DATA Cu,COPPER,63.546,1,
10) !160                            28.0855,1 !204                        Zn,ZINC,65.39,1,Ga,GALLIUM,6
150 NCE=40 !194                    200 DATA P,PHOSPHORUS,30.973      9.72,0,Ge,GERMANIUM,72.59,0,
160 PRINT " ** CHEMICAL ELE        8,1,S,SULFUR,32.06,1,Cl,CHLO      As,ARSENIC,74.9216,0 !165
MENTS **": : : : !043              RINE,35.453,1,Ar,ARGON,39.94      240 DATA Se,SELENIUM,78.96,0
170 DATA H,HYDROGEN,1.0079,1      8,1,K,POTASSIUM,39.0983,1 !2      ,Br,BROMINE,79.904,1,Kr,KRY
,He,HELIUM,4.00260,1,Li,LITH      26                                  TON,83.80,1,Rb,RUBIDIUM,85.4
IUM,6.941,1,Be,BERYLLIUM,9.0      210 DATA Ca,CALCIUM,40.08,1,      678,0,Sr,STRONTIUM,87.62,1 !
1218,0,B,BORON,10.81,0 !171        Sc,SCANDIUM,44.9559,0,Ti,TIT      255
180 DATA C,CARBON,12.011,1,N      ANIUM,47.88,0,V,VANADIUM,50.

```

(See Page 11)

REGENA ON BASIC—

(Continued from Page 10)

```

250 DATA Y, YTTRIUM, 88.9059, 0
, Zr, ZIRCONIUM, 91.224, 0, Nb, NI
OBIUM, 92.9064, 0, Mo, MOLYBDENU
M, 95.94, 0 !077
260 DATA Tc, TECHNETIUM, (98),
0, Ru, RUTHENIUM, 101.07, 0, Rh, R
HODIUM, 102.906, 0, Pd, PALLADIU
M, 106.42, 0 !094
270 DATA Ag, SILVER, 107.868, 1
, Cd, CADMIUM, 112.41, 0, In, INDI
UM, 114.82, 0, Sn, TIN, 118.71, 1,
Sb, ANTIMONY, 121.75, 0 !074
280 DATA Te, TELLURIUM, 127.60
, 0, I, IODINE, 126.905, 1, Xe, XEN
ON, 131.29, 0, Cs, CESIUM, 132.90
5, 0, Ba, BARIUM, 137.33, 1 !175
290 DATA La, LANTHANUM, 138.90
55, 0, Ce, CERIUM, 140.12, 0, Pr, P
RASEODYMIUM, 140.908, 0, Nd, NEO
DYMIUM, 144.24, 0 !123
300 DATA Pm, PROMETHIUM, (145)
, 0, Sm, SAMARIUM, 150.36, 0, Eu, E
UROPIUM, 151.96, 0, Gd, GADOLINI
UM, 157.25, 0 !191
310 DATA Tb, TERBIUM, 158.925,
0, Dy, DYSPROSIUM, 162.50, 0, Ho,
HOLMIUM, 164.930, 0, Er, ERBIUM,
167.26, 0 !188
320 DATA Tm, THULIUM, 168.934,
0, Yb, YTTERBIUM, 173.04, 0, Lu, L
UTETIUM, 174.967, 0, Hf, HAFNIUM
, 178.49, 0 !051
330 DATA Ta, TANTALUM, 180.948
, 0, W, TUNGSTEN, 183.85, 1, Re, RH
ENIUM, 186.207, 0, Os, OSMIUM, 19
0.2, 0, Ir, IRIDIUM, 192.22, 0 !0
18
340 DATA Pt, PLATINUM, 195.08,
1, Au, GOLD, 196.967, 1, Hg, MERCU
RY, 200.59, 1, Tl, THALLIUM, 204.
383, 0, Pb, LEAD, 207.2, 1 !183
350 DATA Bi, BISMUTH, 208.980,
0, Po, POLONIUM, (209), 0, At, AST
ATINE, (210), 0, Rn, RADON, (222)
, 1, Fr, FRANCIUM, (223), 0 !011
360 DATA Ra, RADIUM, 226.025, 1
, Ac, ACTINIUM, 227.028, 0, Th, TH
ORIUM, 232.038, 0, Pa, PROTACTIN
IUM, 231.036, 0 !192
370 DATA U, URANIUM, 238.029, 1
, Np, NEPTUNIUM, 237.048, 0, Pu, P
LUTONIUM, (244), 0, Am, AMERICIU
M, (243), 0 !012
380 DATA Cm, CURIUM, (247), 0, B
k, BERKELIUM, (247), 0, Cf, CALIF
ORNIUM, (251), 0, Es, EINSTEINIU
M, (252), 0, Fm, FERMIUM, (257), 0
!220
390 DATA Md, MENDELEVIUM, (258
), 0, No, NOBELIUM, (259), 0, Lr, L
AWRENCIUM, (260), 0, Unq, UNNILQ
UADIUM, (261), 0 !215
400 DATA Unp, UNNILPENTIUM, (2
62), 0, Unh, UNNILHEXIUM, (263),
0, Uns, UNNILSEPTIUM, (262), 0, U
no, UNNILOCTIUM, ***, 0 !168
410 DATA Une, UNNILENNIUM, ***,
0, Uun, UNUNUNIUM, ***, 0 !188
420 CALL HCHAR(23, 3, 32, 28) !2
28
430 PRINT "CHOOSE:" !101
440 PRINT : "1 LIST ELEMENTS
" !082
450 PRINT : "2 QUIZ, TOP 3 T
ABLE LINES" !162
460 PRINT : "3 QUIZ, "; NCE; "C
OMMON ELEMENTS" !098
470 PRINT : "4 QUIZ, ALL ELE
MENTS" !140
480 PRINT : "5 END PROGRAM"
!170
490 CALL KEY(0, K, S) !187
500 IF (K<49)+(K>53) THEN 490
!001
510 CALL CLEAR !209
520 C1=K-48 !117
530 ON C1 GOSUB 1230, 1330, 13
30, 1330, 1670 !082
540 CALL CLEAR !209
550 GOTO 430 !254
560 PRINT : : "PRESS <ENTER>
TO CONTINUE" !211
570 CALL KEY(0, K, S) !187
580 IF K<>13 THEN 570 !049
590 CALL CLEAR !209
600 RETURN !136
610 C$="" !236
620 FOR J=1 TO NJ !215
630 C$=C$&CHR$(J) !209
640 READ A$(J), N$(J), WT$, FL
!086
650 PRINT : A$(J); " "; N$(J) !2
30
660 NEXT J !224
670 CALL CLEAR !209
680 RETURN !136
690 ON CH GOTO 700, 970 !124
700 PRINT "MAKE SURE THE <AL
PHA LOCK> KEY IS DOWN." !18
9
710 PRINT : "A CHEMICAL SYMBO
L WILL BE PRINTED. TYPE I
N THE NAME OF THE ELEMENT A
ND THEN PRESS <ENTER>."
!218
720 PRINT : : : : !112
730 NG=0 !076
740 SC=0 !077
750 FOR J=1 TO NJ !215
760 PRINT SC; "ELEMENTS": "NUM
BER OF GUESSES: "; NG: : : :
: !138
770 RANDOMIZE !149
780 E=INT(RND*LEN(C$)+1) !061
790 R=ASC(SEG$(C$, E, 1)) !170
800 PRINT A$(R): : : !223
810 INPUT E$ !251
820 NG=NG+1 !163
830 IF E$=N$(R) THEN 870 !190
840 PRINT : : "THE CORRECT EL
EMENT FOR "; A$(R); " IS "; N$(
R): : : !128
850 GOSUB 560 !130
860 GOTO 760 !073
870 PRINT : : "CORRECT": : : !
005
880 C$=SEG$(C$, 1, E-1)&SEG$(C
$, E+1, NJ) !148
890 SC=SC+1 !165
900 GOSUB 560 !130
910 NEXT J !224
920 CALL CLEAR !209
930 PRINT "THERE WERE"; NJ; "E
LEMENTS." !147
940 PRINT "YOU GUESSED"; NG; "
TIMES.": : : : !233
950 GOSUB 560 !130
960 RETURN !136
970 PRINT "RELEASE THE <ALPH
A LOCK> KEY SO IT IS 'UP'.": "
USE THE <SHIFT> KEY FOR": "CA
PITAL LETTERS." !225
980 PRINT : "THE NAME OF A CH
EMICAL": "ELEMENT WILL BE GIV
EN." !030
990 PRINT : "TYPE THE SYMBOL
THEN PRESS <ENTER>." : : : :
!171
1000 NG=0 !076
1010 SC=0 !077
1020 FOR J=1 TO NJ !215
1030 PRINT SC; "ELEMENTS": " N
UMBER OF GUESSES ="; NG: : :

```

(See Page 12)

REGENA ON BASIC —

(Continued from Page 11)

```

: !249
1040 RANDOMIZE !149
1050 E=INT(RND*LEN(C$)+1)!06
1
1060 R=ASC(SEG$(C$,E,1))!170
1070 PRINT N$(R): : :!236
1080 INPUT "SYMBOL = ":S$ !2
25
1090 NG=NG+1 !163
1100 IF S$=A$(R) THEN 1140 !2
06
1110 PRINT : : "THE SYMBOL FO
R ";N$(R);" IS ";A$(R): : :!
017
1120 GOSUB 560 !130
1130 GOTO 1030 !089
1140 PRINT : : "CORRECT": : :
!005
1150 SC=SC+1 !165
1160 C$=SEG$(C$,1,E-1)&SEG$(
C$,E+1,NJ)!148
1170 GOSUB 560 !130
1180 NEXT J !224
1190 PRINT "THERE WERE";NJ;"
ELEMENTS." !147
1200 PRINT : "NUMBER OF GUESS
ES =";NG: : :!173
1210 GOSUB 560 !130
1220 RETURN !136
1230 PRINT "CHEMICAL ELEMENT
S": :!145
1240 RESTORE !148
1250 FOR J=1 TO 11 !107
1260 FOR K=10*(J-1)+1 TO 10*
(J-1)+10 !175
1270 READ A2$,N2$,W2$,FL2 !0
92
1280 PRINT :K;A2$;" ";N2$;"
";W2$ !249
1290 NEXT K !225
1300 GOSUB 560 !130
1310 NEXT J !224
1320 RETURN !136
1330 PRINT "QUIZ OF CHEMICAL
ELEMENTS" !077
1340 PRINT : : "CHOOSE:" !207
1350 PRINT : "1 GIVEN SYMBOL
, WRITE NAME" !043
1360 PRINT : "2 GIVEN NAME,
WRITE SYMBOL" !044
1370 PRINT : "3 END PROGRAM"
!168
1380 CALL KEY(0,K,S)!187
1390 IF (K<48)+(K>51) THEN 13
80 !124
1400 IF K=51 THEN 1670 !194
1410 CH=K-48 !140
1420 RESTORE !148
1430 PRINT : : : "... LOADING
INFORMATION ..." !085
1440 ON C1-1 GOTO 1450,1490,
1630 !252
1450 NJ=18 !137
1460 GOSUB 610 !180
1470 GOSUB 690 !004
1480 RETURN !136
1490 NJ=0 !079
1500 C$="" !236
1510 FOR J=1 TO 110 !156
1520 READ A1$,N1$,WT$,FL !07
4
1530 IF FL=0 THEN 1590 !130
1540 NJ=NJ+1 !169
1550 A$(NJ)=A1$ !190
1560 N$(NJ)=N1$ !216
1570 PRINT :A1$;" ";N1$ !218
1580 C$=C$&CHR$(NJ)!031
1590 NEXT J !224
1600 CALL CLEAR !209
1610 GOSUB 690 !004
1620 RETURN !136
1630 NJ=110 !179
1640 GOSUB 610 !180
1650 GOSUB 690 !004
1660 RETURN !136
1670 CALL CLEAR !209
1680 END !139

```

LGMA releases Backup Miser for Geneve

LGMA (Little Green Men Associates) Products has released Backup Miser, a hard disk backup utility for the Geneve 9640. The price is \$20.

Backup Miser runs under MDOS .97H and later versions of MDOS, and provides compressed backups of a hard disk to one or more floppy disks, according to the manufacturer.

Backup Miser utilizes the same type of LZW compression as ARC, the manufacturer says, and will compress any file that will fit on a floppy in compressed format.

According to the manufacturer, with Backup Miser a user can:

- Back up an entire hard disk to floppies in compressed format.
- Back up any directory or set of subdirectories to any number of floppies in compressed format.

- Back up a hard disk based on files that have changed since a certain date and time.

- Back up any files that match a wild-card pattern (e.g., all __C files).

- Set up six "ignore" patterns (e.g., skip all __X files).

- Back up to any floppy drive.

According to the manufacturer, Backup Miser provides extensive restoration options including:

- Completely restore a hard disk from floppies, including creating subdirectories.

- Restore a set of files to a temporary directory.

- Wild-card restorations (e.g. restore all __C files).

- Restore from any floppy drive.

Backup Miser supports all four floppy drive types, according to the manufactur-

er: single-sided, single density; double-sided, single density (normal TI controller); double-sided, double density; and double-sided, quad density.

Backup Miser is a GenBench Shell application and contains the same user interface as GenBench Shell.

The manufacturer says Backup Miser "remembers" file types and original directories for file restorations. Backup Miser supports the "pre-clean" method to gain optimal file compression, the manufacturer says, and provides on-line help capability.

System requirements are Geneve 9640 (no MEMEX required), Myarc Hard and Floppy Disk Controller and at least one floppy disk and one hard disk.

To order write LGMA Products, 5618 AppleButter Hill Rd., Coopersburg, PA 18036.

Asgard offers new memory system

Provides 128K of program memory

Asgard Software has released the Asgard 128K Memory System, which the company describes as the first advanced memory system for the TI99/4A designed to be used exclusively as memory for programs and data.

The company has also released a new invoice management program and updated several of its older programs.

The AMS functions as a 32K card with standard 4A software when installed in the Peripheral Expansion Box, according to the company. The company says it will not conflict with any hard or floppy disk controllers and is compatible with some RAMdisks. The card does not need to be configured and uses little power, according to Asgard.

Chris Bobbitt of Asgard says programs designed to work with the card can access up to 128K of CPU memory "simply and with a minimum of restrictions on program designs. Memory can be banked in 4K increments, within a few clock cycles, anywhere within the standard 32K memory space available to TI99/4A programs."

He says the design used by AMS is similar to that used in the TI99/8 computer and is accessible to programs written in assembly and GPL.

Example programs with source code as well as documentation are included with the device. The materials were prepared by software designers, Bobbitt notes. He says Asgard will provide necessary information for programming for any software developers who want to take advantage of the AMS' features.

Bobbitt says Asgard will provide "reasonably priced upgrades and even trade-in options" and will work to insure compatibility of software written for AMS with future developments.

The AMS requires a TI99/4A with a Peripheral Expansion Box and a disk systems. It is compatible with all disk controllers, all video cards, and some RAMdisks and memory cards, as well as virtually all other cards for the 4A, Bobbitt says. It is not guaranteed to function with the Myarc or CorComp RAMdisks or the

TI, CorComp or Myarc 32K cards. No problems have been encountered with Horizon RAMdisks, Bobbitt says.

To order, send a check or money order for \$119.95 (plus \$10 shipping and handling in North America, \$20 elsewhere for air mail). Allow 4-6 weeks for delivery. Programmers may receive a free packet containing programming information by sending a postcard to Asgard.

INVOICE MANAGEMENT

Asgard has released Invoice Management by Larry Tippett in its Asgard Business Software Series. The program, said to use a "what-you-see-is-what-you-get" approach, allows the user to enter mailing and payment information as well as information for retrieving the invoice later. Once entered, invoices can be stored and recalled singly or in groups. Invoice Management does all calculations, including sales tax and has a built-in four-function calculator, according to the manufacturer.

Invoices can be printed individually or in batches on pre-printed TOPS invoice forms, as Page Pro 99 files or as TI-Writer Formatter files. An option allows printing an envelope for the invoice. A tracking report may be printed for the user.

Invoice Management allows the user to use names and addresses stored in databases created with Asgard's Mail Room, as well as product codes and descriptions from Asgard's scheduled Inventory Management package. The program may be used on its own as well, the manufacturer says.

Invoice Management requires a TI99/4A or Myarc Geneve 9640, a disk system, expanded memory and Extended BASIC. Both 40- and 80-column versions are included. The 80-column version is compatible with both the Geneve and 80-column equipped 4As. A printer is recommended. Suggested retail price is \$14.95.

Asgard has released Tris-2 by Jim Reiss, a new version of Tetris for the TI99/4A and Myarc Geneve which the manufacturer says features improved graphics and "mutant" blocks. Mutant blocks are irregularly shaped and change

their pattern as they rotate and fall.

Tris 2 is available in cartridge for the TI99/4A of \$19.95 or on disk for the Geneve 9640 for \$9.95. Owners of the previous version of the cartridge can obtain an update for \$8 (\$5 with the return of their old cartridge.) Disk users can receive the update for \$4.

CLIPIX AND GOFER REVISED

Asgard has released revisions for Clipix and Gofer. Clipix, by Dan Gazsy, is a utility included with Pix Pro, Gofer and Page Pro Composer allowing the user to load Page Pro 99 pictures of any size and "clip" any portion and save it as another picture. It may also be purchased by itself for \$7.95. Gofer, also by Gazsy, features a version of Page Pro 99's Columnizer; utilities to modify "page format" files, perform batch conversions of TI-Artist instances to Page Pro 99 format and vice versa; and a batch converter for converting IBM PC PCX-format picture files into Page Pro 99 format. It sells for \$14.95. The revisions of Clipix and Gofer correct compatibility problems with the HFDC. HFDC users with prior versions of these programs may receive the updated versions by returning their program disks.

For information or to order, write Asgard Software, P.O. Box 10306, Rockville, MD 20859-0306. Add \$3 for shipping and handling on all software orders.

MIDI music offered to TI users groups

Harrison Software offers a 45-minute cassette of MIDI music for \$2 for the cost of materials and handling to any TI users group, according to Bruce Harrison of the company.

Harrison notes that the tape can be used for "demo" purposes to show off MIDI capabilities to the membership. The music on the cassette is all J.S. Bach music programmed by Dolores P. Werths and made on a MIDI instrument.

Officers of users groups may send \$2 for the cassette to Harrison Software, 5705 40th Place, Hyattsville, MD 20781.

THE ART OF ASSEMBLY — PART 20

The sounds of the TI

By **BRUCE HARRISON**
 ©1992, Harrison Software

One of the precious “free” gifts included in our beloved TI is the sound chip. This little jewel, with its three main voices and its “noise” generator, makes a wide variety of sound effects possible without any additional hardware required. Only two PC manufacturers have seen fit to include such capability: IBM in the now orphaned PCjr, and Tandy in their 1000 series of PCs. Both of those chose to use the exact same TI chip that’s in the 99/4A.

On the TI, one can make some very good sounds, and of course even music, from BASIC or Extended BASIC. Even though the sound is made in durations of 1/60 second, some really good music has been produced that way. (On the above-mentioned PCs, sounds in basic are timed in increments of 1/18.2 second, making decent music virtually impossible.)

In the Assembly realm, we have considerably more flexibility available than in the BASIC and XB realms. Here, we can choose not only what sounds we want, but can choose to time their durations in many ways, and even produce simulated “instrument” effects, like harpsichord, flute, snare drum, and so on. The techniques we’ve used to produce instrument effects could fill more than one installment of this series by themselves, and we’ll get to that one day, but for today we’ll concentrate on simpler uses for the “sound chip.”

THE SOUND LIST METHOD

Let’s start with a rather simple application, in which we want a noise or a series of musical notes to occur while something else is happening. TI provided an automatic sound processing capability in the VDP so that one could “have his cake and eat it too”. The VDP can be given a list of sounds to produce, and told to start making those, then the computer can go on with other business, looking for keystrokes from the keyboard, or looking for joystick inputs, sprite coincidences, and so on, while the sound list executes “on background”. That’s certainly a handy feature. It does require the instructions LIM1 2 and LIM1 0 to let the VDP continue its sound processing on an interrupt basis, but that’s a small price to pay for the capabilities that it gives us.

Sound lists may be placed in VDP Ram at the beginning of a program, and then activated when needed, without needing to be re-loaded.

The first part of today’s sidebar shows one such application, in which the sound lists for three different effects are pre-loaded early in a program and then activated when the program needs them. These particular lists are from the game Scud Busters. In that case, the “in flight” sound can be interrupted at any time by one of the “explosions” depending on what happens to the sprites that are in motion on the screen. The interruption process is very simple. Note that we need not stop the “in flight” effect, but just put the right addresses in place to start the explosion, and processing of the “in flight” effect stops. This will not always be the case, depending which generators were being used by the first sound being processed. There are a couple of “safe” ways of dealing

with that possibility. Perhaps the easiest is to put a “shut up” sound at the beginning of each sound list, with a duration of 1. That will shut down all four of the generators for 1/60th of a second before the new sound starts. You can also put “silence” bytes in your first “note” for the new sound to shut off any generators not used by that sound effect, and that will make an “instant” interruption of the previous sound effect. That’s the method used in our sidebar source code.

The explosion sound effects are allowed to run for their full duration in all cases, and serve thereby as timers to allow the user time to see the explosion screen display. We mentioned back in number 18 the potential use of sound lists as timers, and here is a practical example of that use.

Each sound list should end with a “zero duration” sound so that it will end without leaving a generator “hanging” when the intended sound ends. You’ll notice that each of the sound lists shown ends that way. The content part of a sound list is outlined well enough in the E/A book itself, but you will see some tricks used in our implementation that are not covered in the book. The list beginning at ENDSND, for example, includes a note for generator 3 in the bytes >C2 and >0E, but then sets that generator’s volume at silence by >DF. It then sets the noise generator to produce a noise subharmonic of the generator 3 note at maximum volume by sending >E3 and >F0 bytes. During the rest of the list, it alternates the noise generator’s response by sending bytes of >F5 and >F3 in successive “notes”. Also, the volume of the noise is decayed by changing the noise generator’s volume from >F0 down to >FA before the final line in the list, at which all generators are set to silence. This alternation of the “note” and decaying of volume creates a kind of “pulsing” explosion sound with two distinct noises heard while the volume decays. Of course this particular list was the result of a good deal of experimenting to get just the effect we wanted. The byte >E3 is equivalent to BASIC’s-4 sound, while the >E5 is equivalent to the BASIC-6 sound. Knowing that can let you use BASIC or XB to experiment with sounds before you try them in a sound list.

Of course if you’re going to do that, you must also bear in mind the relationship between durations in BASIC and Assembly sound lists. In this case, the BASIC and Extended BASIC books have lied to you. Those books indicate that you can specify sound durations in milliseconds. This is just not true. Any number of milliseconds you indicate up to and including 16 will produce exactly the same duration of sound, namely 1/60th of a second. Indicating 17 will get you 2/60ths, as will 18, 19, 25, or 30 milliseconds. The crossover point from one actual duration to the next is every 16.666... (sixes all the way across the page if you like) milliseconds. We’ll leave the math to you, but you can successfully experiment with your sounds in BASIC or XB as long as you remember that the real durations are in 1/60ths of a second, and translate into “milliseconds” for BASIC. We never said this would be easy!

(See Page 15)

THE ART OF ASSEMBLY—

(Continued from Page 14)

As it happens, the examples we've shown all involve use of the noise generator, not the musical voices of generators 1 through 3, but that shouldn't hinder your efforts if you understand the principles involved.

All of the above presupposes that you have an area of the VDP Ram memory that can remain available for the duration of your program. In this case, we simply assigned small blocks of VDP Ram at addresses >2050, >2100, and >2200 for our sound lists, then left those areas untouched during execution of the program. If our program had disturbed those areas, we would have had to reload our sound lists each time we wanted to use them. In most cases you'll find any address above >1000 will do, so long as you don't go beyond >37D7.

There will be cases where the sound list method won't do the job, and for that reason we'll now show at least one more method for "doing sound". Let's start with the assumption that you are using VDP Ram for some purpose that will preclude setting any of it aside for sound lists. You can still use them, but in a different manner. Unfortunately, these methods will not permit a true "background" process for sound, but will require timing loops of some kind in your own code.

DIRECT TO THE GENERATOR

You can send sound defining bytes directly to the sound chip at address >8400, then use your own method to time the durations. For openers, we'll consider a method that uses the exact same sound list as shown in the previous example, but will not load the sound list into VDP Ram. This method will still time the sounds in 1/60th second increments using the VDP Interrupt timer, but will do that timing in the "foreground" program.

As shown in the sidebar starting at label METH2, you'll need a pointer set to the beginning of the sound list. We've used R9 here, but any register that's handy will do. The first byte in the sound list is the number of bytes that constitute the "note" being sent. We take that first byte into R4 and then use R4 as a counter. Each of "count" bytes is then sent to the sound chip at address >8400. The byte immediately after the last "generator" byte is the duration, and here we've put that byte in R4, then right justified this number in that register. If that number is zero, we are at the end of the sound list, so we simply jump out of the sound section of code. Otherwise, we clear the VDP Interrupt counter, then simply start looping with a LIM1 2 and LIM1 0, and a comparison between R4 and the VDP Interrupt counter. As long as R4 is greater than the value in the counter, we keep repeating the loop. Once the counter gets equal to or more than R4, the sound "note" is finished, so we jump back to process the next "note" in the list. We have used the expression "note" here to mean a set of instructions passed to the sound chip, which includes both note values for the generators and volume val-

(See Page 18)

SIDEBAR 20

```

* TWO METHODS FOR USING SOUND LIST DATA TO PRODUCE SOUND EFFECTS
* FIRST CAN ALLOW SOUNDS TO PROCESS IN BACKGROUND WHILE THE PROGRAM
* PERFORMS OTHER ACTIONS
* CODE BY B. HARRISON
* PUBLIC DOMAIN
*
* THE FOLLOWING HAPPENS AT THE BEGINNING OF THE PGM, TO PRELOAD THE
* SOUND LISTS INTO THE VDP RAM AREAS
*
LI R0,>2050 POINT AT FIRST LIST AREA
LI R1,SNDDAT BEGINNING OF FIRST SOUND LIST
LI R2,ENDSND-SNDDAT LENGTH OF FIRST SOUND LIST
BLWP @VMBW WRITE THAT TO VDP RAM
A R2,R1 ADD LENGTH OF FIRST LIST
LI R0,>2100 POINT TO VDP RAM AREA FOR SECOND LIST
LI R2,LSOUND-ENDSND LOAD R2 WITH LENGTH OF SECOND LIST
BLWP @VMBW WRITE THAT
A R2,R1 ADD LENGTH OF SECOND LIST
LI R0,>2200 POINT AT ADDRESS FOR THIRD LIST
LI R2,BLANK-LSOUND LENGTH OF THIRD LIST
BLWP @VMBW WRITE THAT TO VDP RAM
* PROGRAM CONTINUES
*
* FOLLOWING CODE SECTION STARTS THE "IN FLIGHT" SOUND EFFECT FOR
THE PATRIOT
* WHEN THE PATRIOT MISSILE IS LAUNCHED
*
INFLT LI R10,>2200 POINT AT "IN FLIGHT" SOUND LIST
MOV R10,@>83CC MOVE THAT ADDRESS TO >83CC
SOCB @ONE,@>83FD TURN ON
MOVB @ONE,@>83CE VDP SOUND PROCESSING
COINC LIM1 2 ALLOW INTERRUPTS
LIM1 0 THEN SHUT THEM OFF
* A LOOP HERE LOOKS FOR SPRITE COINCIDENCE
* AND FOR THE SCUD TO REACH BOTTOM OF SCREEN
* DEPENDING WHICH HAPPENS, PROGRAM JUMPS TO EITHER CRASH OR CRASH2
*
CRASH
*
* CODE THAT PLACES GRND BURST EXPLOSION EFFECT ON SCREEN GOES HERE
*
LI R10,>2100 POINT AT VDP ADDRESS FOR "GROUND BURST"
EFFECT JMP CRASH1 THEN JUMP
CRASH2
*
* CODE THAT MAKES AN AIR BURST ON SCREEN GOES HERE
*
LI R10,>2050 POINT AT VDP ADDRESS FOR "AIR BURST"
EFFECT
CRASH1 LIM1 0 STOP INTERRUPTS FOR NOW
MOV R10,@>83CC PLACE SOUND LIST ADDRESS AT >83CC
SOCB @ONE,@>83FD THEN START
MOVB @ONE,@>83CE VDP SOUND PROCESSING
LIM1 2 PERMIT INTERRUPTS
SNDLOP MOVB @>83CE,R10 TIMING LOOP FOR THE SOUND
JNE SNDLOP CONTINUES LOOPING UNTIL SOUND LIST HAS
FINISHED
LIM1 0 DISCONTINUE INTERRUPTS
* PROGRAM CONTINUES WHEN EXPLOSION SOUND ENDS
*
* SECOND METHOD, USES "SOUND LIST" IN MAIN MEMORY, DOES NOT REQUIRE
USE OF
* VDP RAM FOR THE SOUND LIST
*
SOUND EQU >8400 DEFINE THE SOUND CHIP ADDRESS
*
*
METH2
LI R9,SNDDAT POINT AT "SOUND LIST" IN RAM
NXTNOT

```

DOLLAR DAYS

OUR LOWEST PRICES EVER ON THIS ENTIRE PAGE!

NEW LOWER PRICE!!!
\$4.95 Everything You Ever Wanted to Know about Disks with **The Explorer™**
 Inspect the innermost secrets of a TI-99/4A Disk
REPAIR, FIX AND EDIT!!



EXTRA VALUE WITH EACH COPY OF THE EXPLORER®, YOU WILL ALSO RECEIVE A FREE COPY OF HIDDEN POWERS OF THE DISK FIXER™, A MANUAL THAT WILL HELP YOU USE THE FULL POWERS OF THE EXPLORER™. ALSO INCLUDED IS A FREE COPY OF DISK MANAGER 1000, A FULL FEATURED DISK MANAGER PROGRAM.

Word processing that works

99-WRITER II TI-Writer Without The Cartridge!

99-WRITER II 57 PAGE MANUAL INCLUDED \$4.95
99/4A AUTO SPELL-CHECK \$4.95

SPECIAL!! PURCHASE 99 WRITER II & AUTO SPELL-CHECK FOR THE ONE LOW PRICE OF.....\$9.95

The Oscar™ Software Library
SAVE A complete home and family software library for the 99/4A ONLY \$4.95 Plus S&H



ALL 28 PROGRAMS ON DISK OR CASSETTE WITH PRINTED INST. SPECIFY DISK OR CASSETTE!!

TITLES INCLUDE:
 Match - Find the pairs of numbers hidden behind the computer's doors.
 Four In A Row - Be the first to make a row of four.
 Parchesi - A race to the finish line.
 ROI - Return On Investment.
 Loan Amortization - How much principal and interest will you pay on a loan?
 Speller - A Spelling and Typing Tutor and a game of memory.
 Alphabet House - Build your own house with your alphabet skills.
 Reading Planner - How rapidly should you increase the distance you run?
 Word Habits - Keep reading and writing habits up with current demands.
 Amulet - Search the ravens' building in and the previous Amulet.
 Categories - Climb - Solve addition problems to make your categories over the wall.
 Financial Quiz - Check the pulse of your pocketbook.
 IRR - Internal Rate of Return.
 Math Challenge 1 - Put your mathematical skills against the computer or a friend.
 Star Count - Use logic skills to spring open a box of shining stars.
 Health Assessment - How are your current health practices affecting your life expectancy?
 The Law and You - A look at how laws affect your daily activities.
 Speedreading - Train your eyes to take in more words per second.
 Program In Basic - Eases the choice of learning in program.
 Code Master - This uses the secret code and the mouse.
 Room to Move - How can the little boxes with wheels move?
 NPV - Net Present Value.
 Payback Period - Payback Period.
 Billion Darts - Build your skills with the computer and the mouse.
 States 'N' Capitals - Can you name more capital cities than your opponent?
 First Aid - Burns - How should you react in an emergency from a state?
 Triangle Solutions - This makes math friends for your practice applications.
 Sentence Tutor - Practice breaking down sentences into their essential elements.

Attention Hobbyists & Gadget Lovers: Tex Comp has a limited supply of brand new Oscar DataBar readers in factory sealed cartons (complete with cable for the TI 99/4A) & packs of assorted bar code software. Complete package. No Warranties. **\$2.95** when purchased together with the above offer - Cannot be purchased separately.

NEW ONLY \$4.95 AMA MAILING LIST

This program enables your TI-99/4A Home Computer to maintain a name and address data base of as many as 32767 names (dependent on your disk system), with full control of each name including adding, changing, and deleting names. Other capabilities include:

- Category and Group Assignment
- Printing of a master mailing list, labels and envelopes for all names or selected names
- Comprehensive name selection and sub-selection by all types of information stored on each name
- Built in TI-WRITER interface
- Complete file management capabilities including the ability to merge two mailing list files into one
- Assembly Language speed

Whatever your mailing list needs or desires may be, the AMA Mailing List program will provide you with the computerized tool to accomplish the task quickly and efficiently.

TEX+COMP
 P.O. Box 33084, Granada Hills, CA 91344
 VISA AND MASTERCARD HOLDERS CALL DIRECT: (818) 366-6631

TERMS: All prices F.O.B. Los Angeles. For fastest service use cashiers check or money order. Personal checks take ten days to clear. Add 3% shipping & handling (with a \$3 minimum). Add 1% Add \$3 if paying by Visa or Mastercard. Prices and availability subject to change. Include street address for UPS delivery. California orders add 6.9% sales tax. Canada, Hawaii, Alaska and overseas shipping extra.

WATCH YOUR SAVINGS GROW DURING DOLLAR DAYS

BACKUP YOUR DISKS with "NIBBLER"



\$4.95 BONUS: WE ALSO INCLUDE A COPY OF TURBO THE FASTEST 99/4A DISK COPY PROGRAM FORMATS AS IT COPIES AT SUPER SPEED!

BUSINESS MANAGER Save big on home office needs
YOU CAN BUSINESS
 A COMPLETE SYSTEM FOR THE HOME OFFICE OR SMALL BUSINESS
 PERFECT FOR DISTRIBUTORSHIPS (I.E. AMWAY, AVON, SHAKLEE)
 CHURCH AND FRATERNAL ORGANIZATIONS, AND REAL ESTATE AGENTS!
 ALL THREE PROGRAMS AT ONE SUPER LOW PRICE... ONLY \$7.95+S&H.

Order Entry & Invoicing
 The Point of Sale subprogram will generate a printed invoice for you immediately after entering all order and customer data or after the Batch Entry option when you require a permanent disk record of your invoices. Either option will work with the Inventory Control program to keep your inventory up to date and automatically print out back ordered items on your invoices.

Mail List
 This program stores up to 1,000 names and addresses. Adding, deleting or changing listings is a simple task, and you can design your own format for printing labels. You can also search lists and generate labels and/or reports from any one of nine different fields. This program will work with Order Entry & Invoicing to update your list when billing out to new customers. 32K memory and additional driver are optional. Required: Extended BASIC RS232C printer.

Inventory Control
 This program will enable you to keep track of up to 1,000 items. Once stored on disk, items can be located by record number, stock number or description, and displayed or printed out for your review.

work smarter, not harder

PRICE BREAKTHROUGH! BITMAC Graphics Program \$4.95

BITMAC IS BACK AT A NEW LOW SHAREWARE PRICE OF \$4.95. WE SOLD 100+ OF THIS FANTASTIC GRAPHICS PROGRAM AT ITS ORIGINAL PRICE OF \$19.95. WE HAVE JUST BOUGHT OUT THE ENTIRE INVENTORY OF THIS PROGRAM FROM A MAJOR DISTRIBUTOR AND HAVE INCLUDED IT IN OUR COLLECTION OF \$4.95 FAIRWARE & SHAREWARE DISKS COMPLETE WITH ALL ORIGINAL DOCUMENTATION AND THE BONUS "PRINT PACK" DISK WITH BANNER & SIGN MAKING UTILITIES.

BITMAC is a comprehensive graphics program for the TI-99/4A. It lets you draw on the screen in any position and in any color. You can print ANYWHERE, even on the side of existing text. You can print text sideways, upside down, or MAC will give you all the things like SIGN your name, make perfect circles ANYWHERE, draw lines from any point of the screen to any other point, make perfect rectangles in EXACTLY the position you want them and much more.

BITMAC has provisions for multiple windows and even a second computer input! If you have a second computer such as an IBM PC, an Apple Macintosh, even an IBM 3270 main frame, there are provisions for your second computer to create graphics with BITMAC!

BITMAC has an amazing slide presentation for group meetings and print the graphics! Give hours of "doodling" pleasure, create, have, be mechanical, drawing, dash floppies, and many other uses.

BITMAC with a second computer, can plot scientific data, statistical data, computer generated graphics, analog sampled data and more about anything your second computer can throw at BITMAC!

BITMAC also has a BUILLEAN user input you use NASA enhanced graphics and a wealth of computer enhancements techniques that lend real power to your ability to manipulate and manipulate graphics.

Fully compatible with both TI and Compaq Disk Controller Cards. NOTE: Compatible only with Epson, Star or other fully Epson compatible dot matrix printers.

BITMAC often has an input that allows you to print at the function key. Nothing was spared in making BITMAC easy and simple to use.

\$34.95 We're about to change the way you look at your computer
ANNOUNCING A BREAKTHROUGH
 WITH THE NEW NMQ COLOR TELEVISION VIDEO INTERFACE FOR YOUR TI 99/4A

NOW YOU CAN ENJOY THE VIVID & CLEAR COLOR SCREEN DISPLAYS ON YOUR COLOR TELEVISION THAT HAVE ONLY BEEN OBTAINABLE ON A COLOR MONITOR. NOW YOU CAN GET THAT MONITOR SHARP PICTURE ON YOUR TELEVISION SET WITH THE NMQ VIDEO INTERFACE SYSTEM.

UNLIKE THE ORIGINAL TI RF MODULATOR SUPPLIED WITH YOUR COMPUTER, THIS NEW ELECTRONIC UNIT NOT ONLY CONVERTS YOUR COMPUTER DISPLAY TO CHANNEL 3 OR 4, BUT ALSO PROCESSES, AMPLIFIES AND ENHANCES IT TO GIVE YOUR COMPUTER VIDEO TRUE MONITOR QUALITY. THE SYSTEM COMES COMPLETE WITH ALL CABLES AND A BUILT-IN AC POWER SUPPLY. WORKS WITH ANY COLOR TV SET. THIS IS AN UPGRADE WHICH PRODUCES RESULTS THAT YOU CAN SEE!

THE NMQ VIDEO INTERFACE ALSO WORKS GREAT WITH OTHER HOME COMPUTERS, VIDEO GAMES, CAMCORDERS, AND VCR UNITS. COMES COMPLETE WITH A 99/4A MONITOR CABLE, A SHIELDED CABLE AND EASY TO FOLLOW HOOK-UP INSTRUCTIONS. COMPLETE SYSTEM ONLY \$34.95 +S&H

NEW LOW PRICE TI-FORTH \$12.95
 REQUIRES EDITOR/ASSEMBLER
 FORTH DEMO DISK: THIS DISK CONTAINS A VAST ASSORTMENT OF MUSIC AND GREAT COLOR GRAPHICS WRITTEN IN FORTH. E/A \$4.95
 FORTH SOURCE CODE: COMPLETE SOURCE CODE ON TWO DISK SIDES. \$4.95
 FORTH TUTOR: A GREAT FREEWARE DISK THAT TEACHES YOU FORTH. \$4.95

(818) 366-6631
 ORDER BY PHONE 24 HOURS A DAY 7 Days a Week!
CHARGE IT WE ACCEPT VISA OR MASTERCARD

TEX+COMP DOLLAR DAYS

WATCH YOUR SAVINGS GROW DURING DOLLAR DAYS

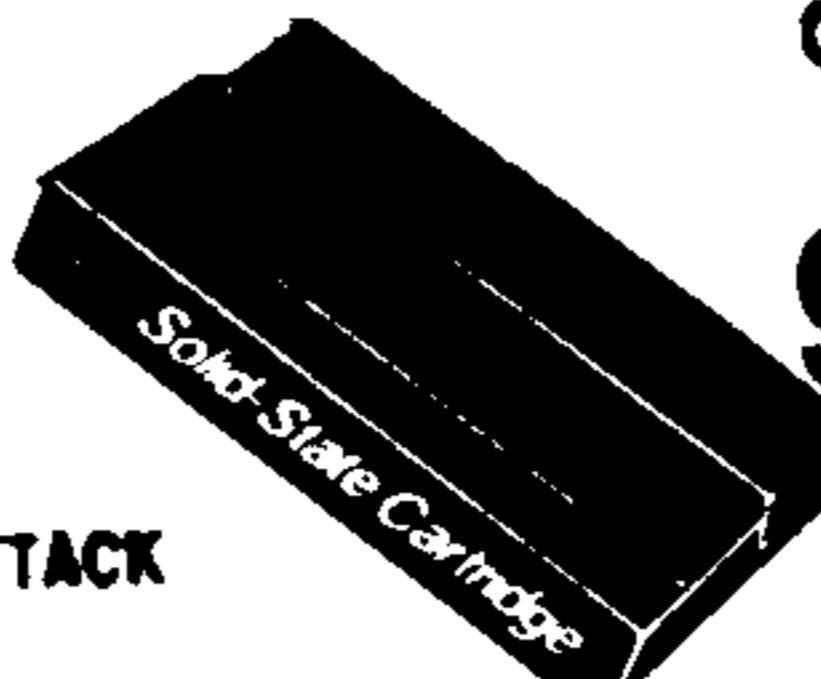
SOFTWARE SUPER SALE!

AS LOW AS \$1.95

EACH!!

WHEN BUYING TEN OR MORE OR BUY ANY AMOUNT AT ONLY \$2.95 EACH.

- | | |
|------------------------------------|---|
| PHM 9027 ADDITION & SUBTRACTION I | PHM 9016 TAX INVESTMENT RECORD KEEPING*** |
| PHM 9028 ADDITION & SUBTRACTION II | PHM 9022 PERSONAL REAL ESTATE |
| PHM 9093 MILLIKEN DIVISION | PHM 9028 HUNT THE WUMPUS |
| PHM 9091 MILLIKEN SUBTRACTION | PHM 9031 THE ATTACK |
| PHM 9051 NUMERATION II | PHM 9220 MICROSURGEON |
| PHM 9094 MILLIKEN INTEGERS | PHM 9057 MUNCHMAN |
| PHM 9110 MINUS MISSION | PHM 9110 CRISHOLM TRAIL |
| PHM 9029 MULTIPLICATION I | PHM 9210 SUPER DEMON ATTACK |
| PHM 9002 EARLY LEARNING FUN | PHM 9034 HUSTLE |
| PHM 9003 BEGINNING GRAMMAR | PHM 9035 TERMINAL EMULATOR II |
| PHM 9082 READING FLIGHT | PHM 9052 TOMBSTONE CITY |
| PHM 9056 ALPINE | PHM 9100 LOGO II* → Plus \$4 additional shipping & handling |
| PHM 9044 PERS. REPORT GENERATOR** | PHM 9065 EDITOR ASSEMBLER |
| PHM 9089 TI INVADERS | PHM 9010 PHYSICAL FITNESS |
| PHM 9194 JAWBREAKERS II | PHM 9140 MUNCHMOBILE |
| PHM 9043 READING FUN | |



99¢ BOOK BLOWOUT!!!

PUBLISHER'S CLEARANCE ON BOOKS FOR THE 99/4A BUY FIVE OR MORE BOOKS FOR ONLY 99 CENTS EACH + s&h. BUY ANY AMOUNT LESS THAN 5 FOR ONLY \$1.49 EACH + s&h.

- GAMES TI'S PLAY
 THE ELEMENTARY TI
 COMPUTER PLAYGROUND (TI)
 INTRO TO ASSEMBLY LANGUAGE
 PROGRAMS FOR THE TI COMPUTER
 USING & PROGRAMMING THE 99/4A
 STARTER PACK I
 STARTER PACK II
 GAME WRITERS PACK I
 GAME WRITERS PACK II

Special Purchase

DONKEY KONG
 featuring Mario
 \$4.95 (regular \$9.95)

ALSO INCLUDED ARE THE FOLLOWING ARARISOFT MODULES:
 DEFENDER, PROTECTOR II, PICNIC PARANOIA

*ADD AN ADDITIONAL \$4.00 EACH ON THESE THREE TITLES DUE TO WEIGHT
 ** FOR USE WITH PERSONAL RECORD KEEPING, *** HARD DRIVE REQUIRED
 PERSONAL RECORD KEEPING AVAILABLE AT \$14.95

\$4.95 Per Disk **NEW BONUS**
 SAVE AS MUCH AS 33%
 BUY FIVE DISKS GET ONE FREE
 BUY TEN DISKS GET THREE FREE
 BUY FIFTEEN DISKS GET FIVE FREE

- DISKETTE PROGRAMS**
- | | |
|---|------|
| PHD 5009 Music Skills Trainer | 4.95 |
| PHD 5011 Computer Music Box | 4.95 |
| PHD 5018 Market Simulation | 4.95 |
| PHD 5030 Speak & Spell II (Ex-Basic req.) | 4.95 |
| PHD 5031 Speak & Math (TE-II req.) | 4.95 |
| PHD 5042 Spell Writer (TE-II req.) | 4.95 |
| PHD 5026 Bridge Bidding I | 4.95 |
| PHD 5039 Bridge Bidding II | 4.95 |
| PHD 5041 Bridge Bidding III | 4.95 |
| SPECIAL** BRIDGE BIDDING I, II & III | 9.95 |
| PHD 5020 Music Maker Demo (use with module) | 4.95 |
| PHD 6010 Mystery Melody (stop the music quiz) | 4.95 |

- CASSETTE PROGRAMS***
 *See disk versions for requirements (i.e. TE-II)
- | | |
|---|------|
| PHT 6009 Music Skills Trainer | 4.95 |
| PHT 6010 Mystery Melody | 4.95 |
| PHT 6011 Computer Music Box | 4.95 |
| PHT 6018 Market Simulation | 4.95 |
| PHT 6031 Speak & Math | 4.95 |
| PHT 6042 Spell Writer | 4.95 |
| PHT 6026 Bridge Bidding I | 4.95 |
| PHT 6039 Bridge Bidding II | 4.95 |
| PHT 6041 Bridge Bidding III | 4.95 |
| SPECIAL** BRIDGE BIDDING I, II & III | 9.95 |
| PHT 6020 Music Maker Demo (use with module) | 4.95 |

- MANAGEMENT AND BUSINESS**
- DISKETTE PROGRAMS**
- | | |
|--|------|
| PHD 5001 Mailing List (upgraded version) | 4.95 |
| PHD 5003 Personal Financial Aids | 4.95 |
| PHD 5021 Checkbook Manager | 4.95 |
| PHD 5022 Finance Manager | 4.95 |
| PHD 5024 Inventory Management | 4.95 |
| PHD 5027 Invoice Management | 4.95 |
| PHD 5029 Cash Management | 4.95 |
| PHD 5038 Lease/Purchase Decisions | 4.95 |
| PHD 5075 TI/Multiplan upgrade disk | 4.95 |

- CASSETTE PROGRAMS**
- | | |
|-----------------------------------|------|
| PHT 6003 Personal Financial Aids | 4.95 |
| PHT 6038 Lease/Purchase Decisions | 4.95 |

HOME ENTERTAINMENT

- DISKETTE PROGRAMS**
- | | |
|---|------|
| PHD 5002 TI-TREK (TE-II req. for speech) | 4.95 |
| PHD 5010 Mystery Melody | 4.95 |
| PHD 5015 Oldies But Goodies I | 4.95 |
| PHD 5017 Oldies But Goodies II | 4.95 |
| ***SPECIAL Oldies But Goodies I & II | 7.95 |
| PHD 5025 Sat. Night Bingo (Ex-Basic & Speech) | 4.95 |
| PHD 5037 Draw Poker (Ex-Basic) | 4.95 |

- CASSETTE PROGRAMS**
- | | |
|---|------|
| PHT 6002 TI-TREK (TE-II req. for speech) | 4.95 |
| PHT 6010 Mystery Melody | 4.95 |
| PHT 6015 Oldies But Goodies I | 4.95 |
| PHT 6017 Oldies But Goodies II | 4.95 |
| ***SPECIAL Oldies But Goodies I & II | 7.95 |
| PHT 6026 Sat. Night Bingo (Ex-Basic & Speech) | 4.95 |
| PHT 6037 Draw Poker (Ex-Basic) | 4.95 |

COMPUTER PROGRAMMING AIDS

- DISKETTE PROGRAMS**
- | | |
|--|-------|
| PHD 5007 Teach Yourself 99/4A Basic | 4.95 |
| PHD 5019 Teach Yourself Extended Basic | 4.95 |
| PHD 5004 Programming Aids I | 4.95 |
| PHD 5005 Programming Aids II | 4.95 |
| PHD 5077 Programming Aids I, II, III | 9.95 |
| PHD 5067 Beginning Basic Tutor | 4.95 |
| PHD 5076 Text to Speech (Ex-Basic Speech) | 4.95 |
| PHD 5098 TI Forth & manual (Ed/Assem req.) | 19.95 |
| PHD 5078 TI Forth Demo Disk (Ed/Assem) | 4.95 |
| PHD 5079 TI Forth Source Code (2 disks) | 4.95 |

- CASSETTE PROGRAMS**
- | | |
|--|------|
| PHD 6006 Programming Aids I | 4.95 |
| PHD 6007 Teach Yourself 99/4A Basic | 4.95 |
| PHD 6019 Teach Yourself Extended Basic | 4.95 |
| PHT 6067 Beginning Basic Tutor | 4.95 |

MATH AND ENGINEERING

- specify disk or tape with order
- | | |
|--------------------------------|------|
| Math Routine Library | 4.95 |
| Electrical Engineering Library | 4.95 |
| Graphing Package | 4.95 |
| Structural Engineering Library | 4.95 |
| AC Circuit Analysis | 4.95 |
- ***SPECIAL--ALL 5 OF THE ABOVE ON DISK OR TAPE--17.95

SUPER BUY!
\$4.95

SPECIAL PACKAGE AND PRICING ON THE ADVENTURE SERIES...

SPECIAL PACKAGE AND PRICING ON THE ADVENTURE SERIES... ON DISK OR CASSETTE (specify)

THE COMPLETE SCOTT ADAMS SERIES I (ADVENTURELAND, PIRATE ISLAND, THE COUNT MISSION IMPOSSIBLE, VOODOO CASTLE, STRANGE ODYSSEY, MYSTERY FUN HOUSE, PYRAMID OF DOOM, GHOST TOWN, SAVAGE ISLAND I, SAVAGE ISLAND II, AND GOLDEN VOYAGE PLUS KIMMY MONHEART BONUS ADVENTURE

ONLY \$12.95 FOR ALL 13.

THE SCOTT ADAMS ADVENTURE SERIES II (THE MULK, SPIDERMAN, BUCKAROO BANZAI, AND THE BORGNER OF CLAYMORQUE CASTLE PLUS 2 BONUS ADVENTURES

ONLY \$9.95 FOR ALL 8

COMMAND MODULE FOR ABOVE ADVENTURES (reg. \$9.95) ONLY 95 CENTS WITH EITHER OF THE ABOVE SERIES

HINT BOOK FOR ALL OF THE ABOVE SCOTT ADAMS ADVENTURES ONLY 95 CENTS WITH EITHER OF THE ABOVE SERIES.

ADVENTURE EDITOR
 NOW WRITE AND EDIT YOUR OWN GAMES FOR THE TI ADVENTURE MODULE!

TEX+COMP is proud to announce the 99/4A Adventure Editor... an all-new program which allows you to write your own adventure programs - Scott Adams move over! This disk or cassette based program allows:

- Any existing adventure for the Adventure command module to be edited, altered, listed, and copied from any storage medium to any other storage medium (i.e. tape to disk or vice versa)
- New adventure games can be created freely using a template game as a start up step. These games can be converted using the full power and capabilities of the TI Adventure command module.

The program is written for Mini-Memory or Editor Assembler command modules (cassette or disk) and offers a full screen editor and a special easy to use mnemonic language called A.P.L. (Adventure Programming Language) and comes with a complete and detailed 75 page manual.

TEX+COMP is also organizing a new TI Adventuring Users Group, which will allow low cost exchange of user written adventures between members.

Available NOW From TEX+COMP **NEW LOW PRICE**
 Specify Mini-Memory (Cassette) or Editor Assembler (Disk) versions



TEX+COMP

P.O. Box 33084, Granada Hills, CA 91344

VISA and MASTERCARD HOLDERS CALL DIRECT:
 (818) 366-6631

ti
 AUTHORIZED DEALER

ORDER BY PHONE **(818) 366-6631**
 24 HOURS A DAY
 7 Days a Week!

THE ART OF ASSEMBLY—

(Continued from Page 15)

ues for those generators. As we've mentioned before in this series, the duration here for any one note may not exceed 255, or >FF, which makes a note last 4 1/4 seconds.

There is one trick required to use the direct method. We'll pass that along without knowing why it's so: At the very beginning of the program, before loading your own workspace, you must execute a MOV R11,@ANYWRD instruction. ANYWRD here means just that. You can move R11 to >8300, for example, or to some word location in your own data section. You won't need it again, but if you don't execute that MOV instruction before loading your own workspace, the direct method will not work properly. Please don't ask why this is so. It just is!

Since this method uses the VDP Interrupt counter to time the durations of the notes, the same duration values that were used when we placed the sound list in VDP Ram will work. As before, the last "note" must have a duration of zero to signal that we're at the end of a sound list. We recommend a "note" like this be the last in the list:

```
BYTE 4,>9F,>BF,>DF,>FF0
```

That will "shut down" all four generators in the chip by setting each to a silent volume level.

The code shown for this method can also be set up as a subroutine starting at label NXTNOT, with an RT instruction at label SNDEX. Then one could play different sound lists by:

```
LI    R9,SNDLST
BL    @NXTNOT
```

The subroutine will modify the values in R9 and R4, but will leave all others alone.

MORE EXOTIC METHODS

There are other ways to do the sounds, and once you've crossed the bridge into sending bytes directly to the sound chip, you can do things that were impossible in the "sound list" method. We'll just touch on those today.

First, let's suppose that 1/60th second is too long a duration for you. You want a succession of very swift notes to play, like the strumming of a guitar or lute, or you want some noise like automatic weapons firing in rapid succession. These cases are where the real power of the "direct" method comes into play. Instead of timing durations with the VDP Interrupt timer, you can construct a simple delay loop of your own, and use a word value instead of a byte to do the timing. This way, you can make incredibly short sounds and incredibly long ones without strain, since the "duration" can run from 1 through 65,535, and the amount of time each loop takes can be tailored to your own needs by inserting "time wasters" into the loop. One of our favorites is to do a DIV operation within the timing loop. That wastes time very nicely, and can be used for other purposes related to the sound you're creating. The SRC instruction can also be used for this purpose, and it will serve well.

We of course have used this third method for our "As-

```

MOV B *R9+,R4      GET THE "COUNT" BYTE INTO R4
SRL  R4,8          RIGHT JUSTIFY IN R4
JEQ  SNDEX         IF ZERO, GET OUT OF PROCESS
MOVSND
MOV B *R9+,@SOUND  MOVE A SOUND DEFINING BYTE TO THE CHIP
DEC  R4           DECREMENT COUNT OF BYTES IN THIS NOTE
JNE  MOVSND       IF NOT ZERO, REPEAT PROCESS
MOV B *R9+,R4     ELSE GET THE "DURATION" BYTE INTO R4
SRL  R4,8          RIGHT JUSTIFY IN R4
JEQ  SNDEX         IF ZERO, THIS IS END OF SOUND LIST, SO GET
OUT
CLR  @>8378       ELSE CLEAR THE VDP INTERRUPT COUNTER
SNDDOP
LIMI 2           ALLOW INTERRUPTS BRIEFLY
LIMI 0           THEN SHUT THEM OFF
C    R4,@>8378    COMPARE R4 TO VDP INTERRUPT COUNT
JGT  SNDDOP       IF R4 IS GREATER, WE'RE NOT FINISHED WITH
THIS NOTE
JMP  NXTNOT       ELSE WE ARE FINISHED, GO BACK FOR NEXT
NOTE
SNDEX
* PROGRAM CONTINUES HERE
*
* IN DATA SECTION, THREE SOUND LISTS
* FIRST MAKES "AIR BURST", SECOND "GROUND BURST", THIRD IS "IN
FLIGHT"
*
SNDDAT
BYTE 5,>9F,>BF,>DF,>E5,>F2,3
BYTE 2,>E5,>F0,9
BYTE 2,>E5,>F2,8
BYTE 2,>E5,>F4,6
BYTE 2,>E5,>F6,4
BYTE 2,>E5,>F8,2
BYTE 2,>E5,>FA,1
BYTE 1,>FF,0
ENDSND
LSOUND BYTE 7,>9F,>BF,>C2,>0E,>DF,>E3,>F0,3
BYTE 2,>E5,>F0,15
BYTE 2,>E3,>F2,3
BYTE 2,>E5,>F2,12
BYTE 2,>E3,>F4,2
BYTE 2,>E5,>F4,10
BYTE 2,>E3,>F6,2
BYTE 2,>E5,>F6,8
BYTE 2,>E3,>F8,1
BYTE 2,>E5,>FA,6
BYTE 4,>FF,>DF,>BF,>9F,0
LSOUND BYTE 5,>E4,>F0,>9F,>BF,>DF,12
BYTE 1,>F1,10
BYTE 1,>F3,8
BYTE 1,>F5,7
BYTE 1,>F8,6
BYTE 1,>FC,5
BYTE 1,>FF,0
BLANK DATA 0          DATA SECTION CONTINUES HERE

```

sembly Music" products, and have been able to fine tune the response of the generators to simulate musical instruments of various kinds. We made changes to the volumes and notes on the generators while a "note" was playing. Thus an instrument like a piano or harpsichord could be simulated by using an exponential decay in volume during each note played. Barry Boone has carried that concept even farther with his SOUND F/X product, to produce spectacular effects and even spoken words in a recognizable voice without a speech synthesiser.

Next month we'll go on with this subject, revealing some of our "trade secrets" used in the Assembly Music that we are known for. That will include at least one of our most advanced "instrument" subroutines.

EXTENDED BASIC (plus)

Puzzles pegged

By BARRY TRAVER

©1992 by Barry Traver

I'm back! It's your puzzle-peg pal with some solutions for you. If last month's peg-puzzle program has been driving you crazy, making you lose your marbles (or pegs?) so to speak, you'll be glad to hear that this month's column has the answers for you. Actually, we'll be adding two types of solutions to last month's program.

First, you'll find puzzle solutions to the specific puzzles contained in the program. If you didn't find solutions of your own, here are solutions to the English puzzles: traditional (including traditional, square, pinwheel, and wall endings), Latin cross, Greek cross, square, pinwheel, wall, fireplace, pyramid of Chefren, pyramid of Cheops, Tiffany lamp, tilted square, pentagon, and Davis jump. And likewise

there are solutions to the French puzzles: traditional (including twelve guards, apostles, letter E, final score, lonely cross, and world endings), double-cross, five crosses, octagram, and corner to opposite corner.

Second, you'll find assembly solutions to the slow displays of the earlier version of the program. The file JUMPPEG/S, which provides assembly language versions for the BDDEF, BOARD, ENGLSH, FRENCH, GRAB, and MARK Extended BASIC subprograms in last month's version. I think you'll be impressed by the speed improvement as a result of our extending our XB by substituting these CALL LINKs for the earlier CALLs.

By the way, if you had trouble with "The World" puzzle, it wasn't your fault. A minor bug found its way into the code: line

980 should have read C\$,E\$=WO\$ rather than C\$,E\$=W\$. You may want to fix that error in last month's program. (It will automatically be repaired in this month's program, since I have included a corrected line 980 in the JUMPPEG/M MERGE file.

Next month, I hope to explain what I regard as some interesting features of the code, but for this month, I'll content myself with explaining what you should do to make the new improved version of the program. (If you subscribe to the MICROpendium disks, all the work will have been done for you!)

I'll assume that you saved last month's program as JUMP-A-PEG. This month you should (in Extended BASIC) enter the code for JUMPPEG/M, and save it to disk like this:

(See Page 20)

D. Wright Stuff for your TI

Tested DISK DRIVES

Full Height \$20 1/2 Height \$40

Y-Cables \$6 signal \$4 power

2 Half Ht w/cables \$80

please indicate which disk controller you use

Quiet P-Box Fans \$12

Modified 99/4A (kbd & video) \$30

99/4A External Power Supply \$5

P-Box (empty) \$70

w/32k, TI Dsk Ctlr, FHDS Floppy \$110

External Drive Cases w/pwr supply

Floppy Dsk \$40 Hard Dsk \$60

99/4a keyboards \$2.50ea 5/\$10

Custom cables made!

send check or money order to

Del & Darla Wright**185 N. Post Rd.****Indianapolis, IN 46219****317-895-1765**

minimum order \$10

Free shipping in Continental USA

HORIZON COMPUTER

NEW!

HORIZON 4000 RAM DISK

Up to 8 MB single layer

Built In RAMBO & PHOENIX

RAMDISK BARE BOARD, Manual, ROS 8.14b	\$65.00
ZERO K Kit, above and parts, NO MEMORY	\$125.00
128K Kit	\$155.00
256K Kit	\$185.00
384K Kit	\$215.00
512K Kit	\$245.00
1 MB Kit	\$355.00
1.5 MB Kit	\$465.00
2 MB Kit	\$575.00

ADD \$30 FOR ASSEMBLY ON RAMDISK AND PGRAM

128K Memory Chips NOW \$30 512K Memory Chips NOW \$110

PGRAM Kit	\$150	PGRAM + Kit	\$180
PGRAM CLOCK	\$20	PGRAM Upgrade	\$30
HORIZON MOUSE	\$40	DIGI-PORT	\$40
MEMEX 504K	\$225	GENMOD	\$100
AVPC ROM FIX	\$CALL	MG EPROM	\$35

NEW!

SCSI Hard & Floppy Disk Controller Card \$170.00

(Call for availability and information)

BUD MILLS SERVICES
166 DARTMOUTH DRIVE
TOLEDO, OHIO 43614-2911
CALL (419)-385-5946 voice
(419)-385-7484 BBS

Prices subject to change without notice
Call for latest pricing.
OHIO residents ADD 6% sales tax.
FREE SHIPPING TO U.S. AND CANADA

EXTENDED BASIC PLUS—

(Continued from Page 19)

SAVE DSK1.JUMPPEG/M, MERGE

Next enter the following three commands:

OLD DSK1.JUMP-A-PEG
MERGE DSK1.JUMPPEG/M
SAVE DSK1.JUMPPEG/M2

Next you should (in the Editor/Assembler) enter the code for JUMPPEG/S and assemble it to create the file JUMPPEG/O. (Important: be sure not to choose the "C" option, because Extended BASIC can work only with UNcompressed object code.) After you have done that, make sure that ALSAVE (from a previous issue of MICROpendium) is also on your main disk in drive one, and then enter the following commands in Extended BASIC:

```
NEW
CALL INIT
CALL LOAD("DSK1.JUMPPEG/O")
CALL LOAD("DSK1.ALSAVE")
CALL LINK("SAVE")
100 REM
```

MERGE DSK1.JUMPPEG/M2
SAVE DSK1.JUMPAPEG2

The result will be a new, improved version of the peg puzzle program with some embedded source code for faster display routines plus data for the solutions to specific puzzles. Until next month, enjoy!

JUMPPEG/M

```
1 CALL CLEAR :: CALL SCREEN(15) :: GOTO 10
2 DATA
5 M$,M1$,M2$,N,N$,O,O$,P$,Q,Q$,R,R$,S,S$,T$,TC,U,U$,V,V$,W,W$,WO$,X,X$,Y,Y$,Z,Z$
6 CALL GCHAR :: CALL HCHAR :
: CALL INIT :: CALL KEY :: C
ALL LINK :: CALL LOAD
10 CALL INIT :: CALL LOAD(8196,63,248) :: CALL LOAD(16376,65,32,32,32,32,255,48) :: CALL LINK("A")
150 DISPLAY AT(18,1):"CENTER OF THE BOARD.": " IF A PEG JUMPS OVER MORE": "THAN ONE
```

```
PEG DURING A TURN,": "THAT SEQUENCE OF JUMPS IS"
580 CALL CLEAR :: CALL LINK("BDDEF") :: CALL LINK("BOARD") :: X=K-64 :: IF K=80 THEN Z=0 :: GOTO 610
790 CALL KEY(3,K,S) :: IF S<1 THEN 790 ELSE IF K<65 OR K>69 THEN 790 ELSE CALL CLEAR :: CALL LINK("BDDEF") :: CALL LINK("BOARD")
870 DISPLAY AT(24,1):" " :: C$=H$ :: Y=1 :: GOSUB 1830 :: CALL LINK("MARK",C$) :: GOTO 1040
910 CALL KEY(3,K,S) :: IF S<1 OR K<65 OR K>71 THEN 910 ELSE CALL CLEAR :: CALL LINK("BDDEF") :: CALL LINK("BOARD") :: CALL LINK("FRENCH")
980 E=6 :: B$="THE,WORLD" :: C$,E$=WO$ :: GOSUB 1700 :: GOTO 990
1010 DISPLAY AT(24,1):" " ::
```

(See Page 21)

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION <small>Required by 39 U.S.C. 3685</small>		
1A Title of Publication MICROpendium	1B PUBLICATION NO. 003547	2 Date of Filing 9/29/92
3 Frequency of Issue Monthly	3A No. of Issues Published Annually 12	3B Annual Subscription Price \$25.00
4 Complete Mailing Address of Known Office of Publication (Street, City, County, State and ZIP+4) (Do not print P.O. Box 1343, Round Rock, TX 78680-1343)		
5 Complete Mailing Address of the Headquarters or General Business Office of the Publisher (Do not print P.O. Box 1343, Round Rock, TX 78680-1343)		
6 Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor (Do not print P.O. Box 1343, Round Rock, TX 78680-1343)		
7 Owner (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given. If the publication is published by a nonprofit organization, its name and address must be stated.) (Do not print P.O. Box 1343, Round Rock, TX 78680-1343)		
8 Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages or Other Securities (If there are none, so state)		
9 For Completion by Nonprofit Organizations Authorized to Mail at Special Rates (39 U.S.C. 3692-3696). The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes must be stated.		
10 Extent and Nature of Circulation (See instructions on reverse side)		
A. Total No. Copies (Net Press Run)	2925	2700
B. Paid and/or Requested Circulation	619	554
1 Sales through dealers and carriers, street vendors and counter sales		
2 Mail Subscriptions (Paid and/or requested)	1632	1426
C. Total Paid and/or Requested Circulation (Sum of 10B1 and 10B2)	2251	1985
D. Free Distribution by Mail, Carrier or Other Means (Samples, Complimentary, and Other Free Copies)	91	59
E. Total Distribution (Sum of C and D)	2342	2044
F. Copies Not Distributed	582	656
1 Office use, left over, unaccounted, spoiled after printing		
2 Return from News Agents	1	0
G. TOTAL (Sum of E, F1 and 2—should equal net press run shown in A)	2925	2700
11 I certify that the statements made by me above are correct and complete		

HARRISON SOFTWARE FALL CLEARANCE PRICES REDUCED TO CLEAR INVENTORY GAMES

SCUD BUSTERS was \$14.95 NOW \$8.00
CODE BREAKERS was \$14.95 NOW \$8.00
WORD PROCESSOR — NOT COMPATIBLE WITH GENEVE was \$14.00 NOW ONLY \$10.00

MIDI MASTER MUSIC

by Johann Sebastian Bach
ANNA MAGDALENA'S NOTEBOOK
SOURCE OR MEM-IM (SPECIFY) — NOW ONLY \$10.00
TWO-PART INVENTIONS & THREE-PART INVENTIONS \$10.00 EACH OR BOTH FOR \$15.00

by various other composers:
BITS AND PIECES POTPOURRI — POPULAR CLASSICAL WORKS A STEAL AT \$5.00 FOR 10 GREAT PIECES. INCLUDES "ALFRED HITCHCOCK'S THEME"
17th AND 18th CENTURY LUTE MUSIC — RARE WORKS ANOTHER STEAL — 10 DELIGHTFUL PIECES FOR \$5.00

CAKEWALK MUSIC FOR PC OWNERS
EARLY MUSIC CONCERT — BYRD, MORLEY, HENRY VIII, et al A LOAD of Cakewalk pieces for \$10.00
BITS AND PIECES FOR CAKEWALK — VARIOUS COMPOSERS INCLUDES WORKS OF MANY FAMOUS COMPOSERS ANOTHER STEAL AT \$10.00

All prices include S&H, good through 30 November 1992 order NOW from:
Harrison Software
5705 40th Place
Hyattsville, MD 20781

EXTENDED BASIC PLUS—

(Continued from Page 20)

```

C$=H$ :: Y=1 :: GOSUB 1850 :
: CALL LINK("MARK",C$):: GOT
O 1040
1030 CALL LINK("MARK",E$)::
DISPLAY AT(23,1):" HERE'S WH
AT YOU'RE AFTER!" :: GOSUB 2
030 :: DISPLAY AT(23,1):"":"
" :: CALL LINK("MARK",C$)
1050 DISPLAY AT(24,1):"SHOW
A SOLUTION? (Y/N) N" :: R=2
4 :: C=25 :: GOSUB 1930 :: D
ISPLAY AT(24,1):"" :: IF N T
HEN 520
1060 IF CHR$(K)="N" THEN V=0
:: GOTO 1310 ELSE V=1
1070 IF C$=X$ AND E$=R$ THEN
RESTORE 3010 ELSE IF E$=S$
THEN RESTORE 3040 ELSE IF E$
=Z$ THEN RESTORE 3070 ELSE I
F E$=W$ THEN RESTORE 4000
1110 IF C$=LT$ THEN RESTORE
4020 ELSE IF C$=G$ THEN REST
ORE 4040 ELSE IF C$=FP$ THEN
RESTORE 4060 ELSE IF C$=J$
THEN RESTORE 4080
1150 IF C$=K$ THEN RESTORE 5
000 ELSE IF C$=LM$ THEN REST
ORE 5020 ELSE IF C$=U$ THEN
RESTORE 5040 ELSE IF C$=P$ T
HEN RESTORE 6010
1190 IF C$=D$ THEN RESTORE 6
030 ELSE IF E$=V$ THEN RESTO
RE 7010 ELSE IF E$=A$ THEN R
ESTORE 7040 ELSE IF E$=LE$ T
HEN RESTORE 8000
1230 IF E$=FS$ THEN RESTORE
8030 ELSE IF E$=LO$ THEN RES
TORE 8050 ELSE IF E$=WO$ THE
N RESTORE 9000 ELSE IF C$=Q$
THEN RESTORE 9020
1270 IF C$=FX$ THEN RESTORE
9040 ELSE IF C$=O$ THEN REST
ORE 9060 ELSE IF C$=L$ THEN
RESTORE 9090
1300 READ M$ :: M$=" "&M$
1400 ! This line is not need
ed.
1410 IF A=24 AND U=7 THEN U=
17 :: GOTO 1350
1600 CALL LINK("GRAB",T$)::
IF F<>L THEN M=M+1
1710 IF Z=0 THEN IF C$=X$ TH
EN GOSUB 1850 :: CALL LINK("
ENGLSH")ELSE IF C$=F$ THEN G
OSUB 1830 :: CALL LINK("FREN
CH")
1720 IF Z THEN IF X<11 THEN
CALL LINK("ENGLSH")ELSE CALL
LINK("FRENCH")
1730 CALL HCHAR(3-2*FR,3,32,
11):: CALL HCHAR(5-2*FR,3,32
,11):: CALL LINK("MARK",C$):
: IF Z OR Y THEN RETURN
2999 ! DATA FOR SOLUTIONS
3000 ! ENGLISH TRADITIONAL
3010 DATA 46-44,65-45,57-55,
54-56,52-54,73-53,43-63,75-7
3-53,35-55,15-35,23-43-63-65
-45-25,37-57-55-53,31-33,34-
32,51-31-33,13-15-35
3020 DATA 36-34-32-52-54-34,
24-44
3030 ! ENGLISH SQUARE
3040 DATA 46-44,25-45,37-35,
34-36,57-37-35,45-25,43-45,6
4-44,56-54,44-64,23-43,31-33
,43-23,63-43,51-53,43-63,41-
43,15-35,14-34
3050 DATA 13-33,75-55,74-54,
73-53
3060 ! ENGLISH PINWHEEL
3070 DATA 42-44,23-43,44-42,
24-44,36-34,44-24,46-44,65-4
5,44-46,64-44,52-54,44-64,31
-33,51-31,15-35,13-15,57-55,
37-57,73-53
3080 DATA 75-73
3090 ! ENGLISH WALL
4000 DATA 46-44,43-45,41-43,
64-44-42,24-44,45-43-41,999
4010 ! LATIN
4020 DATA 45-25,43-45,55-35,
25-45,46-44
4030 ! GREEK
4040 DATA 54-74,34-54,42-44-
64,46-44,74-54-34,24-44
4050 ! FIREPLACE
4060 DATA 45-25,37-35,34-36,
57-37-35,25-45,46-44-64,56-5
4,64-44
4070 ! CHEFREN
4080 DATA 53-55-35,33-53,63-
43,44-42,35-33,23-43,42-44
4090 ! CHEOPS
5000 DATA 54-74,45-65,44-42,
34-32-52-54,13-33,73-75-55-5
3,63-43-23-25-45,46-44
5010 ! LAMP
5020 DATA 36-34,56-54,51-53-
33-35-55,65-45,41-43,31-33-5
3-55-35,47-45,44-46,25-45,46
-44
5030 ! TILTED
5040 DATA 55-75,35-55,42-44,
63-43-45-65,33-35-37-57-55-5
3-51-31-33-13-15-35,75-55,74
-54-56-36-34,24-44
6000 ! PENTAGON
6010 DATA 53-51,32-52,51-53,
44-42,23-43,42-44,63-43,25-2
3,45-25,43-45,55-35-33-13-15
-35-37-57-55-53,74-54,53-55,
65-45,46-44
6020 ! DAVIS
6030 DATA 57-55,54-56,52-54,
73-53,43-63,37-57-55-53,35-5
5,15-35,23-43-45-25,13-15-35
,31-33,36-56-54-52-32,75-73-
53,65-63-43-23-25-45
6040 DATA 51-31-33-35-55,999
7000 ! FRENCH TWELVE
7010 DATA 46-44,25-45,44-46,
47-45,26-46,24-44,32-34,44-2
4,14-34,22-24,64-44,56-54,44
-64,74-54,66-64,42-44,63-43,
44-42,41-43
7020 DATA 62-42,43-41,34-14,
45-47,54-74
7030 ! FRENCH APOSTLES
7040 DATA 42-44,63-43,51-53,
31-51,33-31,53-33,23-43,35-3
3-53,14-34,44-24,46-44,26-46
,24-26,47-45,66-46,54-56,46-
66,74-54
7050 DATA 75-55,45-65,53-55,
55-75
7060 ! FRENCH LETTER E
8000 DATA 42-44,62-42,54-52,
73-53,52-54,41-43,22-42,43-4
1,34-32,54-34,56-54,75-55,54
-56,74-54,46-44,26-46,34-36,
13-33,14-34
8010 DATA 15-35,47-45,66-46,
45-47
8020 ! FRENCH FINAL
8030 DATA 64-44,52-54,33-53,
54-52,66-64,46-66,44-46,24-4
4,26-24,46-26,14-34,22-24,34
-14,42-22,62-42,64-62
8040 ! FRENCH LONELY
8050 DATA 24-44,36-34,55-35,
25-45,33-35,53-33,23-43,56-3
6-34,73-53,65-63,53-73,51-53

```

(See Page 22)

MY-BASIC

WHILE...WEND and more

By JIM UZZELL

©1992 DDI Software

This month's demos are based on the proverb "A picture is worth a thousand words."

Even though WHILE...WEND is a simple program, it allows a new routine that isn't available to Tiers. The routine displays on-screen what happens when you use PRINT using a comma — PRINT X\$,.

The second demo displays information about designing characters in the graphic modes of MY-BASIC and provides formulae for determining the pixel location that equates to DISPLAY AT or HCHAR or VCHAR when using the drawing commands, such as CALL POINT.

The third demo is a routine that can be added to a program to display a perpetual calendar (through 1999).

All of these programs were created using MY-BASIC V2.99A, MDOS .97H and a Magnavox (8CM515) analog monitor in RGB mode.

WHILE...WEND

```
1 !WHILE...WEND
100 CALL GRAPHICS(3,3)
110 CALL TCOLOR(4,14)
120 DISPLAY AT(13,10):" USING WHILE...WEND TO ILLUSTRATE PRINT WITH A COMMA ";
130 CALL TCOLOR(15,0)
140 FOR D=1 TO 7 :: READ D$(D)
```

```
150 IF D=3 THEN CALL TCOLOR(4,14)
160 DISPLAY AT(15+D,15):D$(D);
170 IF D=6 THEN CALL TCOLOR(15,0)
180 NEXT D
190 X=0 :: A=1 :: DIM B$(0,16)
200 WHILE X<17
210 READ B$(I,X) :: PRINT B$(I,X),
220 CALL TCOLOR(15,X) :: X=A+X
230 WEND
240 CALL TCOLOR(16,6) :: END
250 DATA "100 CALL GRAPHICS(3,3) :: CALL TCOLOR(15,0)"
260 DATA "110 X=0 :: A=1 :: DIM B$(0,16)"
270 DATA "120 WHILE X<17"
280 DATA "130 READ B$(I,X) : : PRINT B$(I,X), "
290 DATA "140 CALL TCOLOR(15,X) :: X=A+X"
300 DATA "150 WEND "
310 DATA "160 CALL TCOLOR(16,6) :: END "
320 DATA "USE OF PRINT ", "WITH A COMMA ", "CAUSES A TAB ", "OF 15 CHARS ", "BUT ONLY ", "ALLOWS 13 ", "CHAR STRING ", "EXCEPT FOR ", "6th TAB WHICH"
330 DATA "IS 10 CHARS ", "12
```

```
34567890123", "1234567890", "or 14x5+10=80", "total chars",
'''
0 917 1313 1239 5025 1
238 1653 1965 1708 1967
604 1546 839 1924 1803
515 1674 3116 2104 1407
2493 2373 1077 2237 469
8 4030 4644 439 TOTAL 545
48
```

CHR DESIGN

```
1 !CHR DESIGN
100 CALL GRAPHICS(3,3)
110 CALL TCOLOR(12,12) :: CLS
111 CALL CHAR(97,"00007C405C5050500000FC00DC5050500000FC00FC000000")
112 CALL CHAR(100,"0000F010D050505050505C407C00000005050DC00FC000000")
113 CALL CHAR(103,"50505050505050505050D010F0000000050505C405C505050")
114 CALL CHAR(106,"5050DC00DC5050505050D010D0505050")
120 CALL TCOLOR(2,12) :: DISPLAY AT(22,23):"aaaaaaaaaaaacccccccccccccccccccccccc"; :: DISPLAY AT(23,23):"g"; :: DISPLAY AT(23,56):"g"; :: CALL TCOLOR(9,12)
122 DISPLAY AT(23,24):"UNDER
(See Page 23)
```

EXTENDED BASIC PLUS—

(Continued from Page 21)

```
, 32-52, 53-51
8060 ! FRENCH WORLD
9000 DATA 42-44, 22-42, 24-22, 63-43, 33-53, 65-63, 62-64, 42-62, 26-24, 46-26, 34-36, 55-35, 36-34, 53-55, 56-54
9010 ! DOUBLEX
9020 DATA 54-52-32, 22-42, 33-53, 41-43-63, 74-54, 62-64, 45-65, 54-74, 66-64, 74-54, 35-33, 54-34, 33-35, 47-45-25, 14-34, 26-24-44
9030 ! FIVEX
9040 DATA 64-62, 44-64, 74-54, 46-66-64-44-46, 47-45, 24-26-46-44-24, 14-34, 42-22-24-44-42, 41-43, 62-42-44
9050 ! OCTAGRAM
9060 DATA 53-51, 32-52, 51-53, 54-52, 74-54, 44-42, 52-32, 22-42, 41-43, 24-22, 43-23, 22-24, 62-64-44, 34-54, 14-34, 66-64-44, 56-54, 35-33, 54-34
9070 DATA 33-35-55, 47-45, 55-35, 25-45, 26-46-44
9080 ! CORNER
9090 DATA 57-37, 45-47, 55-57, 75-55, 26-46, 34-36, 37-35, 32-34-36, 54-56, 57-55, 52-54-56, 15-35, 14-34, 13-33, 74-54, 73-53, 34-32-52, 62-42
9100 DATA 54-52, 51-53, 36-34-54-52-32, 47-45, 66-46-44-42, 41-43, 22-42, 43-41, 31-51
```

MY-BASIC—

(Continued from Page 22)

```

STANDING GRAPHIC CHARACTERS"
;
125 CALL TCOLOR(2,12) :: DIS
PLAY AT(24,23):"cccccccccccc
ccccccccccccccccccccch"; ::
CALL TCOLOR(6,16) :: DISPLAY
AT(24,63):" DDI SOFTWARE ";
130 FOR X=3 TO 9 :: CALL TCO
LOR(4,14) :: DISPLAY AT(X,6)
:"o";
140 CALL TCOLOR(16,6) :: DIS
PLAY AT(X,7):"ooooo";
150 CALL TCOLOR(16,7) :: DIS
PLAY AT(X,12):"xx";
160 NEXT X
170 CALL TCOLOR(4,14) :: DIS
PLAY AT(10,6):"oooooo";
180 CALL TCOLOR(16,7) :: DIS
PLAY AT(10,12):"xx";
190 CALL TCOLOR(4,14) :: DIS
PLAY AT(3,15):"o"; :: CALL T
COLOR(16,13) :: DISPLAY AT(3
,17):"=THE SPACE BETWEEN CHA
RS BOTH VERT AND HORIZ IN GR
APHICS MODE";
200 CALL TCOLOR(16,6) :: DIS
PLAY AT(5,15):"o"; :: CALL T
COLOR(16,13) :: DISPLAY AT(5
,17):"=SPACE TO DESIGN A NOR
MAL CHAR & SPACE USED BY DEF
AULT CHAR SET";
210 CALL TCOLOR(16,7) :: DIS
PLAY AT(7,15):"x"; :: CALL T
COLOR(16,13) :: DISPLAY AT(7
,17):"=SPACE NOT AVAILABLE U
NDER ANY CIRCUMSTANCE IN GRA
PHICS MODE";
220 CALL TCOLOR(4,14) :: DIS
PLAY AT(9,15):"o"; :: CALL T
COLOR(16,6) :: DISPLAY AT(9,
16):"o";
230 CALL TCOLOR(16,13) :: DI
SPLAY AT(9,18):"=SPACE AVAIL
ABLE FOR GRAPHIC DESIGNS";
240 CALL TCOLOR(12,12) :: CA
LL VCHAR(3,6,32,7) :: CALL H
CHAR(10,6,32,6)
250 R=12 :: C=10 :: CALL TCO
LOR(2,9) :: DISPLAY AT(R,C):
"o"; :: CALL DCOLOR(16,13)
260 RO=(R*8)-7 :: CO=((C-1)*
6)+18 :: CALL POINT(1,RO,CO)
270 REM FORMULA FOR GRAPHICS
(1,2) RO=(ROW*8)-7 CO=(

```

```

(COL-1)*8)+18
280 REM FORMULA FOR GRAPHICS
(2,2) RO=(ROW*8)-7 CO=(
(COL-1)*6)+10
290 CALL TCOLOR(16,2) :: DIS
PLAY AT(12,12):"THE CHAR O I
LLUSTRATES SPACE BETWEEN AND
BELOW EACH CHAR ";
300 DISPLAY AT(13,28)INVERT
:"PRESS ANY KEY TO CONTINUE"
;
310 CALL KEY(0,K,S) :: IF S=
0 THEN 130
320 CALL HCHAR(3,7,32) :: CA
LL TCOLOR(12,12) :: CALL HCH
AR(13,28,32,25)
330 FOR X=3 TO 9 :: CALL TCO
LOR(4,14) :: DISPLAY AT(X,6)
:"o"; :: NEXT X
340 CALL TCOLOR(4,14) :: DIS
PLAY AT(10,6):"oooooo";
350 DISPLAY AT(14,12):"THE D
OT IN THE TOP LEFT CORNER OF
THE CHAR O IS THE ";
360 DISPLAY AT(15,12):"CALL
POINT COMMAND USING THIS FOR
MULA TO PLACE A PIXEL ";
370 DISPLAY AT(16,12):"THE E
QUIVALENT OF A DISPLAY AT OR
HCHAR, VCHAR ";
380 CALL TCOLOR(16,6) :: DIS
PLAY AT(3,7):"o"; :: CALL TC
OLOR(4,14)
390 DISPLAY AT(17,12):"RO=(R
OW*8)-7 :: CO=((COL-1)*6)+18
GRAPHICS MODE 3,3 ";
400 DISPLAY AT(18,28)INVERT
:"PRESS ANY KEY TO CONTINUE"
;
410 CALL KEY(0,K,S) :: IF S=
0 THEN 320
420 CALL TCOLOR(12,12) :: CA
LL HCHAR(18,28,32,25) :: CAL
L TCOLOR(16,9)
430 DISPLAY AT(18,19):"AND C
AN BE USED TO HIGHLIGHT A CH
ARACTER.";
440 CALL DCOLOR(9,13) :: RO=
(12*8)-7 :: C=21 :: FOR R=12
TO 19 :: CO=((C-1)*6+17) ::
CALL POINT(1,RO,CO) :: RO=R
O+1 :: NEXT R
450 FOR C=137 TO 142 :: CALL
POINT(1,96,C) :: NEXT C

```

```

460 FOR R=90 TO 94 :: FOR C=
139 TO 141 :: CALL POINT(1,R
,C) :: NEXT C :: NEXT R
470 DISPLAY AT(19,28):"PRESS
ANY KEY TO EXIT";
480 CALL KEY(0,K,S) :: IF S=
0 THEN 480 :: CALL TCOLOR(12
,12) :: CALL HCHAR(19,28,32,
21)
490 CALL TCOLOR(16,6) :: END
0 841 1313 1722 3636 3
636 3598 2833 6007 4270
3701 6022 3581 3626 314
9 2880 622 3267 2892 47
53 4741 4751 4739 4764
4729 4772 665 5026 93 4
003 4641 92 3136 4091 4
051 5054 1400 3680 2166
3994 4247 3266 4872 512
7 4780 3915 4530 3686 2
168 4018 4095 4350 2724
2993 4606 2891 4618 329
1681 TOTAL 201833

```

CALENDAR

```

1 !CALENDAR
100 CALL CLEAR
110 CALL GRAPHICS(2,2)
120 DIM DA(12),MO$(12),TB(12
)
130 RESTORE 140 :: FOR I=1 T
O 12 :: READ DA(I),MO$(I) ::
TB(I)=TB(I-1)+DA(I) :: NEXT
I
140 DATA 31,JANUARY,28,FEBRU
ARY,31,MARCH,30,APRIL,31,MAY
,30,JUNE
150 DATA 31,JULY,31,AUGUST,3
0,SEPTEMBER,31,OCTOBER,30,NO
VEMBER,31,DECEMBER
160 M1=VAL(SEG$(DATE$,1,2))
:: YB=1900+VAL(SEG$(DATE$,
7,2)) :: DAY=VAL(SEG$(DATE$,
4,2))
170 IF INT(YB/4)*4=YB AND NO
T (INT(YB/100)*100=YB AND IN
T(YB/400)*400<>YB) THEN DA(2
)=29
180 DI=(YB-1501)+INT((YB-150
1)/4)+INT((YB-1)/400)-INT((Y
B-1)/100) :: DAY1=DI+1-(INT(
DI/7)*7)
190 FDM=TB(M1-1)+DAY1 :: DTD
=TB(M1-1)+1 :: IF M1>2 AND D
(See Page 24)

```

Vendor display space sets record at Oct. 31 Chicago Faire

More vendor space has been requested than ever this year for the TI International World Faire Weekend Oct. 31, according to Hal Shanafield of the Chicago Users Group.

The Chicago Users Group sponsors the Faire, scheduled for the Holiday Inn Elk Grove at 1000 Busse Rd. (Rt. 83) in Elk Grove Village, Illinois.

Admission to the Faire, held from 9 a.m. to 6 p.m., is \$4. A social mixer will be held from 8 p.m. to midnight Oct. 30, with an admission charge of \$5.

Following the Faire, a cocktail party will be held poolside 6:30-7:30 p.m., with dinner from 7:30 to 10:30 p.m., admission \$15. Since the Faire will be on Halloween, organizers say participants may attend in

costume, and they suggest that attendees come as their favorite TI software. Reservations for the cocktail party/dinner are requested. To make reservations, call (708) 864-8644.

A partial list of vendors includes 9640 News, Competition Computer Solutions, Harrison Software, Bud Mills Services/Western Horizon Technology, Ramcharged Computers, CaDD Electronics, MICROpendium, Genial TRAVeIER, Oasis Pensive Abacutors, MS Express Software, L.L. Conner Enterprises, Crystal Software, D. Wright Stuff, Rave 99 and Disk 'N Dat.

Shanafield says he expects more vendors, but notes that some "always wait until the last minute."

A double or single room at the hotel is \$50 (includes breakfast). Tracking code for the Faire is I.W.F. Telephone number for the Holiday Inn Elk Grove is (708) 437-6010.

For further information, call (708) 864-8644 (voice) or (708) 862-0182 (BBS, 300-2400 baud, msg to 162), or write Hal Shanafield, 2515 Marcy, Evanston, IL 60201.

The Chicago fair will be followed by Milwaukee's fair 9 a.m. to 5 p.m. Nov. 1 at the Quality Inn at 5311 Howell Ave., Milwaukee, Wisconsin. Admission is \$2, or \$1 in advance. For information, write W99CC, P.O. Box 2723, Appleton, WI 45911, or call (414) 535-0133.

Newsbytes

HUG TIBBS off the air

Richard Lumpkin of the Houston Users Group says that the group's HUG TIBBS is "off the air" at (713) 495-7868 because of the sysop's new job.

"We may not put it back up," Lumpkin adds.

The group may be contacted c/o Lumpkin

at 11610 Inga Lane, Houston, TX 77064.

0790.

VAST UG gets new mailing address

The VAST (VALley of the Sun TI User Group) has a new mailing address, P.O. Box 25576, Tempe, AZ 85285-5576.

BBS number for the group is (602) 233-

TI BBS operates 24 hrs in Oklahoma

The Orphanage BBS, (918) 288-6708, operates 24 hours a day on a TI99/4A with four 5.25-inch floppies, a Horizon RAM (See Page 26)

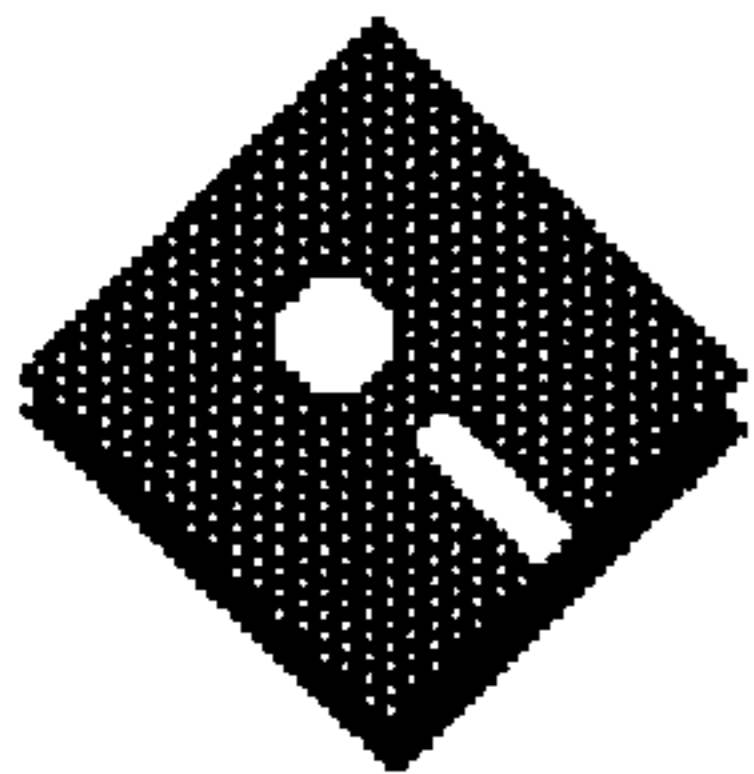
MY-BASIC—

(Continued from Page 22)

```
A(2)=29 THEN FDM=FDM+1 :: DT
D=DTD+1
200 IF FDM>7 THEN FDM=FDM-7
:: GOTO 200
210 CALL TCOLOR(4,14) :: DIS
PLAY AT(10,6):" CALENDAR
"; :: CALL T
COLOR(2,15)
220 FOR H=1 TO 8 :: CALL HCH
AR(10+H,6,32,29) :: NEXT H
230 MOY$=MO$(M1)&" "&STR$(YB
) :: DISPLAY AT(11,20-(LEN(M
```

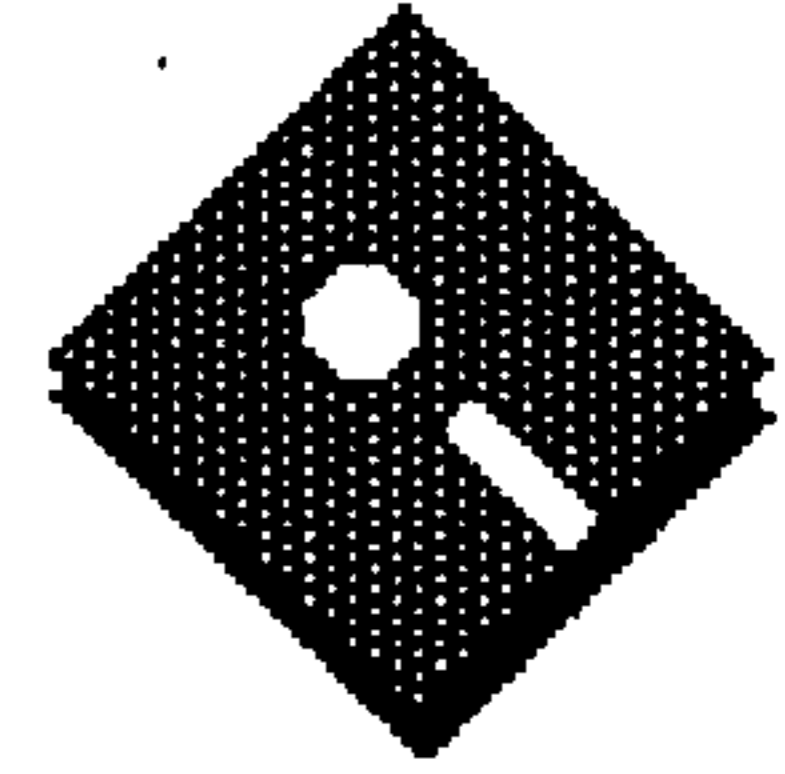
```
OY$)/2)):" ";MOY$;" "; :: DI
SPLAY AT(12,6):" Su Mo Tu
We Th Fr Sa ";
240 FOR H=1 TO DA(M1)
250 IF FDM>7 THEN FDM=1 :: W
1=W1+1
260 IF H=DAY THEN CALL TCOLO
R(4,14) :: DISPLAY AT(13+W1,
(8-LEN(STR$(H)))+(FDM-1)*4)S
IZE(LEN(STR$(H))+1):H :: FDM
=FDM+1 :: CALL TCOLOR(2,15)
:: GOTO 280
```

```
270 DISPLAY AT(13+W1,(8-LEN(
STR$(H)))+(FDM-1)*4)SIZE(LEN
(STR$(H))+1):H :: FDM=FDM+1
280 NEXT H
290 CALL TCOLOR(16,6) :: END
0 716 852 1312 1532 44
87 424 4005 4753 4557 4
93 4709 432 4402 697 45
71 683 2314 4150 928 30
52 4449 3045 1194 1987
4757 4177 4709 169 609
1679 TOTAL 75844
```

MICROpendium

DISK SALE



If you've been waiting for a sale on MICROpendium program disks, this is it! For a limited time (through Nov. 15, 1992) Series 1, 2, 3 4 and 5 disks are available for a special price. (Series 5 disks are mailed

monthly starting with the November 1992 edition, programs from April 1992 through October 1992 will be mailed as soon as the order is placed.)

MICROpendium disks

SERIES #	REGULAR PRICE	SALE PRICE	YOU SAVE	DISCOUNT
Series 1 (Apr. '88-Mar. '89)	\$25.00	\$15.00	\$10.00	40%
Series 2 (Apr. '89-Mar. '90)	\$25.00	\$15.00	\$10.00	40%
Series 3 (Apr. '90-Mar. '91)	\$25.00	\$15.00	\$10.00	40%
Series 4 (Apr. '91-Mar. '92)	\$25.00	\$15.00	\$15.00	40%
Series 5 (Apr. 92-Mar. 93)	\$40.00	\$25.00	\$15.00	38%

But that's not all, if you order more than one series, you get an additional discount.

Series 1-4	\$100.00	\$50.00 for all four	\$50.00	50%
Any 3 from Series 1-4	\$75.00	\$37.50 for three	\$37.50	50%
Any 2 from Series 1-4	\$50.00	\$25.00 for two	\$25.00	50%
Any 1 from Series 1-4 + Series 5	\$65.00	\$32.50.00 for two	\$32.50	50%
Any 2 from Series 1-4 + Series 5	\$90.00	\$45.00 for three	\$45.00	50%
Any 3 from Series 1-4 + Series 5	\$115.00	\$57.50.00 for four	\$57.50	50%
Series 1-4 + Series 5	\$140.00	\$70.00 for all five	\$67.00	50%

(Circle the items you want to order)

ACT NOW — THIS SALE ENDS NOV. 15, 1992

Customer information

Name _____

Address _____

City _____

ST _____ ZIP _____

Please circle the items above and return this entire page (or a copy of it) with a check or money order in payment.

TOTAL REMITTED _____

(U.S. Funds only)

Disk shipping information

Postage is included for any disk sales to U.S. addresses. **Canadian delivery:** add \$2.00 for each series of disks for airmail delivery, \$1.50 for surface. **Overseas delivery:** add \$3.50 for each series of disks for airmail delivery; add \$2.00 for each series for surface

FOR CREDIT CARD ORDERS

Credit Card No. _____

Credit Card: MC Visa Exp. Date _____
(Circle One)

Signature _____

(credit card orders only)

MICRO-REVIEWS

Football '92, Address ~ Labels and Stor Mor

By STAN KRAJEWSKI

Ratings for the software reviewed in this column are based on the Star system that follows.

★ Leave it alone, back to the drawing board.

★★ Needs improvements, but workable.

★★★ A good program, worth trying.

★★★★ Send your money and buy it.

NOTE: If the Geneve 9640 is NOT specifically mentioned in system requirements of any column I write, the program is TI99/4A compatible only.

★★★★

TOUCHDOWN-92

Just about everyone wants to be able to predict the future at one time or another. This program helps make that possible in one of the most popular sports in the USA. System requirements are Geneve 9640 or TI99/4A, 32K RAM, disk system, Extended BASIC and a printer (optional).

Contrary to its name, Touchdown-92 is not for 1992 only. This program has a wide range of options making it very versatile. To start with, the initial startup screen lets you change drives and use batch or single

file types plus other options. After your hardware changes you have the choice of running the program or choosing the documentation. The documentation option is well done because you can just use the screen or use the printer option. Default is PIO but another device can be used by entering it. Once into the running program the main menu displays: Load Ratings, Update Ratings, Save Ratings, Predictions, File Options, Conference Standings, Ratings Ranking, Names & Abbreviations, Initialize Data. Keypresses are kept simple by just pressing the first letter of each option. I unconsciously do this with most programs anyway and wished others would incorporate this option. Also the cursor has been redesigned to resemble a football. Even after quitting the program you may keep the football cursor in BASIC as long as you don't reboot.

At any time from the main menu you may change the disk or data filename before each option. The load ratings are already initialized for 1992. You update this file weekly. It contains the date, week number and teams' win/loss records. Ratings are calculated to such factors as home and away, momentum, win/loss records

and the seasons' total points scored.

Conference Standings displays the entire league by the various divisions and shows win/loss record. Names & Abbreviations will list all abbreviations and the team names beside it. Both American and National Conference will be displayed. A print-out option at this point is also available.

This programs' features are too numerous to continue and contains features I would have liked to see in POLLSTER. Touchdown-92 comes on a SS/SD disk and sells for \$10 including S&H. Although you can initialize the Ratings file prior to a new season, annual updates will also be made available by the author each year for \$5. Send to: Gene Hitz, Program Innovators, 4122 Glenway, Wauwatosa, WI 53222.

★★★

ADDRESS- LABELS

Yet another address label maker. This is a down and dirty label maker anyone can run. It is being offered as Fairware, making it very affordable.

(See Page 27)

Newsbytes

(Continued from Page 24)

card (1.2 megs) and Packard-Bell 2400 plus modem, according to Harold May, sysop.

The Sperry, Oklahoma, board has been on line almost two years and uses S&T software, written by Scott Stasiowski and Tim Tesch, Mayo says.

He says the board supports "all the popular transfer protocols" as well as Mass-Transfer multiple downloads. It has a gameroom with five games, including Murder Motel.

Mayo says he has more than 500 files for downloading, but only four drives.

"After I get my hard drive, they will all be on line," he says. "If you don't see what you want, just ask for it."

He notes that the board supports 40 and

80 columns.

Regena to welcome Fest West visitors

According to the newsletter of the TI SLAVes (Salt Lake and Valley) and Ogden TI Users Groups, MICROpendium BASIC columnist Regena will hold an open house Feb. 11 and 12 at her home in Cedar City, 250 miles south of the Fest West site in Salt Lake City. Fest West "North" '93 is scheduled for Feb 13 and 14 at the Howard Johnson Hotel, 122 West S. Temple, Salt Lake City, UT 84101.

She invites fairgoers to stop in on either open house date and says, "If it's cold, snowy weather, a crock pot of soup will be

ready for you."

She says she can assist with skiing plans at Brian Head. For details, write Regena, 918 Cedar Knolls West, Cedar City, UT 84720.

The Howard Johnson Hotel has rates of \$55 for two persons and \$62.50 for three or four persons. Fair organizers say to state you are calling for reservations for Fest West "North." Phone numbers for the hotel are (801) 521-0130; toll-free, 1-800-366-3684; fax, (801) 322-5057.

For further information, write the Fest West "North" '93 Committee, 1396 Lincoln, Apt. B, Ogden, UT 84404, or call the Salt Flats BBS, (801) 394-0064, 24 hours, 300, 1200 or 2400 baud.

MICRO-REVIEWS—

(Continued from Page 26)

System requirements are Geneve 9640 or TI99/4A, 32K RAM, Extended BASIC and a printer. This program also requires the small 2x7/16-inch labels that are four across on the sheet.

As you autoload this program from XB you will see the first menu. 1-Address Labels 2-Documentation. The docs are brief as this program does not need much documentation. By pressing 1 you will enter the main menu. Pressing 1 again will let you input data for the label. There are three lines. On line 1, enter your name. On line 2, enter your address. On line 3, enter your city, state and Zip. After you enter your data, press enter and "Y" for the Input Correct prompt. This takes you to the printer selection. Press 1 for Epson, Star or Gemini, 2 for Panasonic KX-PI090. After that you have a choice of Print Labels or Label Alignment. Label Alignment will print three rows of characters four across, as the label would appear. You are then ready to print your labels. Next it will ask you "Number of Rows." A row in this case is four labels printed across the sheet.

This program operates easily and uses simple number keypresses. You should print all the labels you need the first time as this program does not save your data.

You can print up to 396 labels at a time by keying in the maximum 99-line limit. You may also contact the author regarding any problems, or with suggestions for enhancements.

For Address Labels on a SS/SD disk, send to Ron Prewitt, 6429 South Fife, Tacoma, WA 98409. A Fairware contribution of \$5 is recommended.

★ ★ ★

STOR MOR

System requirements are Geneve 9640 or TI99/4A, 32K RAM, disk drives and Extended BASIC.

Extended BASIC users will find this utility invaluable. Stor Mor can take available bytes from XB "program" space and make available more "stack" space or vice versa. Now your program strings do not need just the "stack" VDP RAM space for storage. You can now bring in an unlimited number of strings from a disk file. Included are programs to utilize both low and high memory and to pre-load the assembly routines for the program to free up Extended BASIC.

Once the assembly routines are installed, moving strings is as easy as a Call Link to initiate. Call Link("SETHI",x) tells the routine how many strings you

want to stash into high memory. Other Call Links are SETLO, PUTHI, PUTLO, GETHI and GETLO. You can see by the first three letters of the command, that you set, place and recall strings by these Call Links. The last two letters are the memory you're going to call, high or low. Two other Call Links can be used to look up how many bytes you have open.

There is virtually no limit to the number of strings you can stash. Source code is included on disk for those who are interested in the workings of this utility. There is an ALSAVE process that when MERGED will bring along the assembly routine and place it in low memory when you load your Extended BASIC program. Error handling covers everything from crashing the computer to overwriting.

The cost of this SS/SD disk is \$6, available from Harrison Software, 5705 40th Place, Hyattsville, MD 20781.

If you would like your software or hardware reviewed in this column, you may send it to: Stan Krajewski, Route 6, Box 568-15, Live Oak, FL 32060. If you would like it returned, please include postage. If you need to call me for any reason, you may reach me at (904) 364-7897 E.S.T.

Drawing Master V1.3

Unusual features make this fairware program a four-star bargain

By STAN KRAJEWSKI

The following review was originally submitted for MICRO-Reviews but is being published separately because of its length. The grading system is the same used in MICRO-Reviews.—Ed.

★ ★ ★ ★

THE DRAWING MASTER V1.3

This is a new program from France, by a member of the FANATI '99 user group, calling himself King Turambar. Originally created in April 1991 with Version 1.2, it

was last updated in September 1991 with Version 1.3. Because he wanted to share his program with as much of the TI world as possible, he used a French-to-English dictionary to create this American version. I have to compliment him, as the documentation is very understandable.

System requirements are Geneve 9640 or TI99/4A, 32K RAM, disk drive and the Editor/Assembler, Mini-Memory or TI-Writer cartridge. Do you need joysticks or a mouse? Not with this one. Your lines will be drawn for you by using the predefined

options within this program.

If you have a Geneve or TI with RGB capability, it will greatly enhance this program. This program first starts off with an explosion of colorful dots on a black screen, which swirl around to form the author's name, then a colorful title of the program. While the title words are on screen they are continually moving with different shades of the same colors. And we thought the TI only had 16 colors! While this is going on, a real-time sideways scroll from

(See Page 28)

DRAWING MASTER—

(Continued from Page 27)

right to left is thanking the author's support people for their help on creating this program. This is a demo you have to see. You can leave this demo at any time by pressing the space bar.

Another loading program on disk called HURRY bypasses the demo which loads the program. Some other fine features are: The arrow cursor changes color as it moves with each key press so you can see it, no matter what color you're working on. FCTN E and X can be used to modify the arrow cursor speed without having to return to the window. You may even save the files in a compacted format.

Upon entering the program, you are looking at the main menu using a 64-character screen. Pressing either Functions, Peripherals or Colors will bring up windows with the function or modes for either of these sections. It isn't marked, but you press the 1, 2 or 3 key for this.

This program's many functions make it a useful tool, and it is compatible with TI Artist if you load and save it according to the documentation. So far I seen it load only files with a __P or __C suffix. The entire program loads into memory, making the functions and windows display at lightning speed. Pressing FCTN 9 brings you back to the Main selection at any time. Pressing Enter after each selection selects your choice and erases the window. Using a function in changing parameters, it then returns to the original window for further selections.

The functions used by each selection are as follows:

1. FUNCTIONS:

Mode — selects Draw or Erase.

Invert — Inverts on and off dots on a rectangular area.

Dots — creates dots.

Lines — creates another window with:
Segments — lets you create the two points for your line to be drawn.

Vertical Axis — Draws a vertical line.

Horizontal Axis — Draws a Horizontal line.

2-Axis — Draws both lines, using your arrow as a center.

Continuous Segments — Draws a continuous line.

Fixed Origin Segments — You give the center, and then the extremities (same as in the Rays command in TI-Artist).

Bit O Axis — Draws vertical axis in the 0 byte of the screen(to avoid the bleeding of colors).

Beeps — turns on and off.

Rectangles — Creates them.

Confirmations — Enables/disables the ask for confirmation after every function.

Arrow Speed — select one of five speeds.

Parameters — Displays the modes you have selected.

Next — Brings up the rest of the window with Zoom, Triangle, Letters (small, big, 64 columns), Surface Erase, Surface Move, Surface Copy, Magnify, Reduce, Define Brush, Put Brush, Predefine Characters, Redefine Characters, Coordinates, Size of Dots(1 to 64 pixels), Surface fill, Curves.

2. PERIPHERALS — Lets you save, load or catalog a disk.

3. COLORS include: Change Foreground Color, Background Color, Border, Swap 2-Colors, Replace 1-Color, Set Foreground, Set Background, Clear Points Color, Light Background Color.

Because this is a new program (one year old), some features I mentioned in the Next menu are not finished yet. The program will not crash, but simply return you to the main menu. I thoroughly recommend that we show this author some interest so he will be inspired to complete everything in the Functions Menu, maybe even program a Instance feature. I have experienced only minor problems. When loading a picture file, I had to load one of the compressed

picture files first. If I didn't do this first, the picture file would be hidden under the background. I would ask for the one of the compressed I/V254 files when ordering. There are 51 sectors free so a file for this purpose would fit. You can also create a screen and save it in compressed format for this purpose. Another way is to load a __P and a __C Artist file. Also I kept wanting to press the first letter of the functions in the menu, instead of 1, 2 or 3. I also did not see a function for a hard copy.

As you can tell, I am pretty excited about this program, and want to tell you all its fantastic features. When I first received this program in the mail, I was wondering, "another artist program?" But this one is a breed unto itself. I was able to load Picture files I had, create color with the Set Foreground and Set Background feature to any part of the picture I wanted, and resave it.

The author states, "Even if this program doesn't seem to be very good, it allows very surprising effects when used and understood."

Now for the best news: Drawing Master is released as Fairware. Everyone may copy it and freely keep one or several copies, without informing the author. Users are asked to send the author anything they want as a contribution. Just to see the Demo alone would be worth sending for it. From reading the docs and reading the scroll in the demo, I see that King Turambar has a good sense of humor. As he states in the docs, "Did you really think my name was King Turambar?"

This program is available from Laurent Peron, "La Feuillade" No. 10, St Front de Pradoux, 24400 Mussidan France.

User Notes

Using model paint makes disk ID easier

This comes from Michael Zinkovich, of Orange City, Florida. He writes:

I have found a way to write directly on the 5.25-inch disk sleeve. The stick on label that came with the disks either peeled off or rolled on the corners. The writing on the labels seemed so small that it was

hardly worth the trouble.

Here's what you can do to improve things:

Buy yourself a Gloss Paint Marker by Testors. They specialize in the paint for plastic models. My best color is silver, but gold has also been tried with similar success. Red and blue are not reflective enough. They cannot be seen on the black background. I have not tried white. The

(See Page 29)

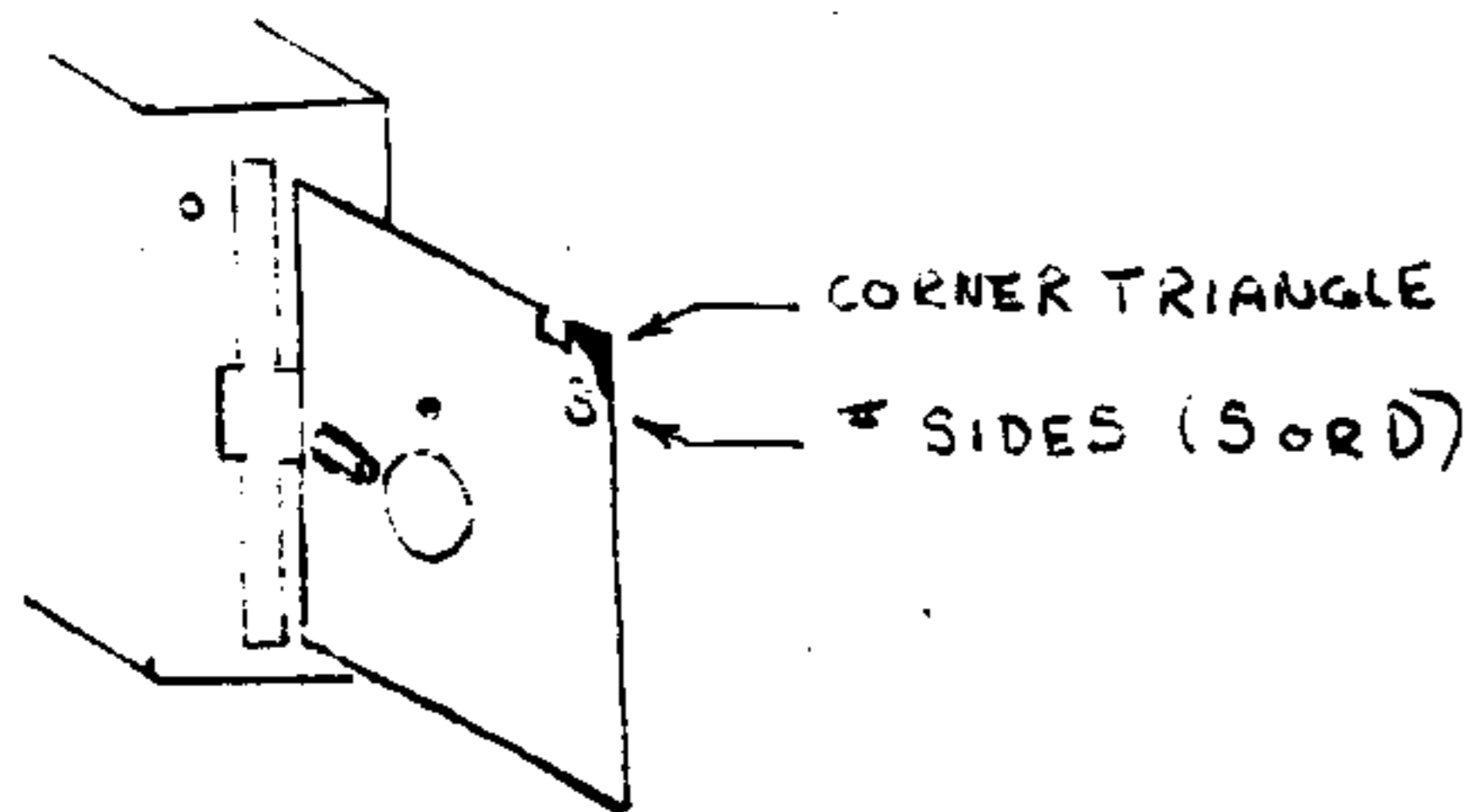
User Notes

(Continued from Page 28)

first color I bought I found at Toys-R-Us. The second I found at Wal-Mart. Look in the model paint area.

Paint a triangle on the corner of the disk that faces you when placing the disk in the drive. Then you will always know the disk is facing the right way.

Lastly, you may wish to put a "S" or a "D" next to the painted triangle. You will then know at a glance whether the disk is single- or double-sided.



What sprites can do

This comes from W.L. Shepard of Liverpool, New York. He writes:

I wrote this program for a friend to show the many commands that can be used by sprites. It has no practical use, but I thought it may be of interest to others.

Lines 240-270 set 16 sprites in random motion

Line 290 stops a sprite and determines its location.

Line 300 calculates its location in respect to another spot.

Line 310 sets the sprite in motion toward that spot.

Line 320 loops until the sprite is near the spot.

Line 330 stops the sprite and moves it to the precise spot.

Line 350 loops for the first four sprites.

Lines 360-390 repeat this process for the next 12 sprites.

The result sets the 16 sprites in a pattern.

```
100 !***** !
245
110 !* * !
055
120 !* RANDOM MOTION * !
078
130 !* BY * !
```

```
146
140 !* W.L. Shepard * !
157
150 !* * !
055
160 !***** !
245
170 !This is a useless progr
am that is fun to watch. Try
it,you will like it !241
180 GOTO 220 :: CL,HIT,I,K,L
X,LY,MX,MY,N,N2,NX,S,SN,SW,T
OT,X,Y,Y2,Z :: CALL KEY :: C
ALL LOCATE !246
190 CALL CLEAR :: CALL SCREE
N(5):: FOR I=1 TO 12 :: CALL
COLOR(I,16,5):: NEXT I !237
200 CALL KEY :: CALL LOCATE
:: CALL MOTION :: CALL POSIT
ION :: CALL SCREEN :: CALL S
OUND :: CALL SPRITE :: CALL
MAGNIFY !252
210 CALL CHARSET :: CALL DEL
SPRITE :: CALL COINC :: CALL
VCHAR :: CALL COLOR :: CALL
CHAR :: CALL CHARPAT :: CAL
L CLEAR :: !@P- !068
220 CALL CLEAR :: CALL SCREE
N(2):: FOR I=1 TO 8 :: CALL
COLOR(I,16,2):: NEXT I !187
230 CALL CHAR(64,"FFFF00FFFF
F00FFF"):: CALL MAGNIFY(2)!0
27
240 CL=3 :: RANDOMIZE :: FOR
I=1 TO 16 :: CALL SPRITE(#I
,64,CL,193,INT(RND*20)+1,RND
*120-20,RND*120-20)!174
250 CL=CL+1 !151
260 IF CL>15 THEN 420 !033
270 NEXT I !223
280 LY=50 :: LX=75 :: SN=131
:: FOR I=1 TO 4 !170
290 CALL MOTION(#I,0,0):: CA
LL POSITION(#I,Y,X)!122
300 MY=LY-Y :: MX=LX-X :: TO
T=MAX(1,ABS(MY)+ABS(MX))!115
310 CALL MOTION(#I,MY*50/TOT
,MX*50/TOT)!255
320 CALL COINC(#I,LY,LX,20,H
IT):: IF HIT=0 THEN 320 !011
330 CALL MOTION(#I,0,0):: LY
=LY+0 :: LX=LX+15 :: CALL LO
CATE(#I,LY,LX)!016
```

```
340 CALL SOUND(-100,SN,0)!12
6
350 SN=SN+34 :: NEXT I !083
360 IF NX=1 THEN 380 ELSE IF
NX=2 THEN 390 ELSE IF NX=3
THEN 400 !171
370 NX=1 :: LY=66 :: LX=75 :
: FOR I=5 TO 8 :: GOTO 290 !
076
380 NX=2 :: LY=82 :: LX=75 :
: FOR I=9 TO 12 :: GOTO 290
!123
390 NX=3 :: LY=98 :: LX=75 :
: CL=4 :: FOR I=13 TO 16 ::
GOTO 290 !127
400 DISPLAY AT(24,8):"REPEAT
?(Y/N)" !146
410 CALL KEY(0,K,S):: IF K=8
9 THEN 450 ELSE IF K=78 THEN
430 ELSE 410 !149
420 CL=3 :: GOTO 270 !041
430 CALL CLEAR :: END !222
440 @P+!081
450 CALL DELSPRITE(ALL):: CA
LL CLEAR :: NX=0 :: GOTO 220
!082
```

Error caught

This comes from Don Shorock, of Great Bend, Kansas. He writes:

Jack Sughrue caught an error on my MIS.EDUC.03 disk in the program called STATES50. It is easy to fix, so I'd appreciate

(See Page 30)

Software for the 99/4A & 9640

- Entertainment
- Home/Business
- Graphics
- Desktop Publishing
- Utilities & Aids
- Peripherals

SEND FOR A FREE CATALOG

Asgard Software
P.O. Box 10306
Rockville, MD 20849

User Notes

(Continued from Page 29)

ciate it if you'd tell all of your readers how to do it.

The problem is that the adjacency of Massachusetts and New Hampshire was left out (in one direction, at least).

The fix is on line 350. It reads:

```
350 DATA Maine,B6s8u3,New Hamp-
shire,C6A2s8u3,Vermont, etc.
```

The error is in the data element between New Hampshire and Vermont. Insert D4 and make it read:

```
350 DATA Maine,B6s8u3,New Hamp-
shire,C6A2s8u3D4,Vermont. The pro-
gram still takes only 14 sectors. That's
good as there are no blank sectors on this
disk.
```

Although I am currently working on getting an AIRTAXI out to the Apple world, I haven't forgotten the TI and will soon be releasing a disk full of material that is currently in use at the Central States Scout Museum in Larned, Kansas. There is one program for that disk that is incomplete, but when it is finished I'll be putting it out for the whole TI community. There

will be one catch. All proceeds will be going to the museum and not to me. I think it should be of interest to everyone, though, because of the programming. The museum's TI is locked in a wooden cabinet and all access is through joysticks only!

Solution to Geneve heat problems

This comes from I.J. Atrill of North Vancouver, British Columbia. He writes:

You have had a number of articles dealing with heat-related lockups on the Geneve. Not too long ago I started to experience problems of this nature myself. More obvious, however, was the fact that I would be returned to the title swan after booting, could not load GPL and my clock was "running amuck." It took a little while to notice, but I eventually found that whenever I had problems, the 999r, 9938, EPROM, lowever D&V RAM and regulators were very hot. My first theories were that a regulator had gone bad, or that the heat from the regulators, due to their

close proximity, were "baking" the other components. Wrong!

After much testing, replacing the regulators and swapping several of the components, it was eventually discovered that the problem was not originating on the board at all. The culprit turned out to be overvoltage coming out of the wall. After repeated testing over a week, I recorded a low of 127 to a high of 137 volts. Doesn't sound like much, does it?

Well, as a matter of fact, that 10+ volt rise was enough to increase the bus voltages in excess of 50 percent. That's why the regulators were getting so hot and the regulators were in turn baking the other components, whether that had anything to do with the other symptoms or not. A request that the power company correct the problem brought a solution at that point.

The question which remained was — how does one guard against this sort of thing? Your computer could be melting away and you wouldn't even know you had a problem. Oh, sure, if you have a volt-

(See Page 31)

1992 TI FAIRS

MARCH

T.I.C.O.F.F. (TI Computer Owners' Fun Faire — The IBM & Clone Owners' Fun Faire), 9 a.m.-4 p.m., March 14, Roselle Park High School, Roselle Park, New Jersey, \$5. Contact Robert Guellnitz, Roselle Park Public Schools, 185 West Webster Ave., Roselle Park, NJ 07204, (908) 241-4550 (voice) or (908) 241-8902 (BBS).

APRIL

Northeast Computer Fair, April 4, Waltham High School, Waltham, Massachusetts, sponsored by TI99/4A User Group of the Boston Computer Society. Contact Ron Williams, 14 East St., Avon, MA 02322.

Dutch Annual TI-Fair, April 25, Utrecht, The Netherlands, sponsored by Dutch TI-Usergroup. Contact Drs. Erik C. van Wette, Hantinkhoek 39, 7546 AD Enschede, The Netherlands, phone: 31-53-778723.

Ottawa TI Fest, 10 a.m.-4 p.m., April 25, Merivale High School, 1755 Merivale Rd., Nepean, Ontario, Canada. Contact Ottawa Users Group c/o Bill Gard, 3489 Paul Anka Dr., Ottawa, Ontario, Canada K1V 9K6; (613) 523-9396 (home); (819) 994-8856 (work); (819) 994-8873 (work, attn. DSE 2).

MAY

TI Orphan Reunion, 10 a.m.-5 p.m. May 9, Innisfail Lions' Hall, Innisfail, Alberta, Canada. Contact Fred Kessler, Box 20, Sundre, Alberta, Canada, T0M 1X0, (403) 638-3916.

TI99/4A Users Group, UK, Annual Meeting, May 16, Princess Anne Training Centre, 10 Trinity St., Derby (Derbyshire, England). Contact Stephen Shaw, 10 Alstone Rd., Stockport, Cheshire England SK4 5H.

Multi User Group Conference, May 15-16, Ohio State University Lima Campus. Contact Lima 99/4A Users Group, P.O. Box 647, Venedocia, OH 45894 or phone Dave Szimpl (419) 228-7109 or Charles Good (419) 667-3131 evenings.

SEPTEMBER

State of Washington TI Convention, Sept. 19, South End Pool Center, 402 E. 56th, Tacoma, Washington. Contact Jim Tomkins, (206) 756-0934.

OCTOBER

7th Internationale TI-Computer-Treffen, Oct. 9-11, Wiesbaden, Germany. Contact Horst Wiese, Eleonorenstr. 6, DW-6200, Wiesbaden, Germany. Please enclose International Reply Coupons (can be bought at U.S. Post Office).

Chicago International World Faire, Oct. 30-31, Elk Grove Holiday Inn, Elk Grove Village, Illinois. Contact Chicago Users Group, c/o Hal Shanafield Jr., 2515 Marcy Lane, Evanston, IL 60201-1111, or (708) 864-8644.

NOVEMBER

Milwaukee TI Faire, Nov. 1, Quality Inn, 5311 Howell Ave., Milwaukee, Wisconsin. Contact W99CC, P.O. Box 2723, Appleton, WI 54911 or (414) 535-0133.

TI-Faire, Nov. 28-29, Ashfield Boys High School Hall (next to Western Suburbs Leagues Club), Liverpool Road, Ashfield, NSW, Australia. Contact TISHUG (Australia) Limited, P.O. Box 1089, Strawberry Hills, NSW 2012, Australia.

1993 TI FAIRS

FEBRUARY

Fest West "North" 93, Feb. 13-14, Howard Johnson Hotel, Salt Lake City, Utah. Contact Fest West "North" 93 Committee, 1396 Lincoln Apt. B, Ogden, UT 84404 or Salt Flats BBS, (308) 394-0064.

This TI event listing is a permanent feature of MICROpendium. User groups and others planning events for TI/Geneve users may send information for inclusion in this standing column. Send information to MICROpendium Fairs, P.O. Box 1343, Round Rock, TX 78680.

User Notes

(Continued from Page 30)

meter you could check the voltage each time you fire it up. But I needed a better solution. And I think I found it.

What I did was to completely remove the regulators from the board. These were remounted inside the PEB, on top of the power supply, under the lid. The idea was place them so that they would have no effect on the Geneve board no matter how hot they got. All that metal above the PEB power supply makes one heck of a heat sink. Also, as the heat dissipates directly through the metal to the fan, you can feel the increase in heat being exhausted.

To re-connect the regulators to the board, I made a detachable harness, in two pieces. I used 90 degree header pins on the board itself and brought the wires up to a 12-pin header plug. This I epoxied behind where the battery mounts. Once the regulators were mounted over the power supply, I made up the other half of the harness. This has the wires attached directly to the regulators, but the other end goes to a 12-pin header. This fits into the header plug I added to the Geneve card. After covering the harness with shrink tubing and trimming the clamshell to clear the header plug, it looks like a factory installation.

How well does it work? I can actually feel how much more heat gets thrown out of the PEB. I can demonstrate it by covering the fan with one hand while touching the metal next to the regulators. Within a minute or two you can feel the metal start to heat up. Remove the hand blocking the fan and in less than a minute the heat dissipates. Nothing else in the box gets cooled that effectively. What's more, even if the regulators did get hot, that heat won't be transferred to the Geneve circuit board.

Why a "harness?" I didn't want to get the wires mixed up and I wanted it neat as well. I also decided that a two-piece harness (and plug) was a good idea because I didn't want to have to keep un-bolting regulators everytime I wanted to remove the card from the PEB. By using the 90 degree header pins I also made it a simple matter to remove the harness from the Geneve card. That means that whenever I want to work on the card I won't have any wires, regulators or heat sinks in my way.

Classified

Policy

The cost of classified advertising is 25 cents per word. Classified display (i.e., special formatting or graphics) is \$9 per column inch. Classified advertisements must be paid in advance. Classified advertisers may request a category under which they would like their advertisements to appear, but the final placement decision is the responsibility of the publisher.

Classified deadlines will be kept open for as long as practical. For the purpose of classified advertising deadlines, any classified ad received later than the first day of any month cannot be assured of placement in the next edition. We will do our best to include every advertisement that is submitted in the earliest possible edition.

The publisher offers no guarantee that any advertisement will be published in any particular issue. Any damages that result either from errors in copy or for failure to be included in any particular edition will be limited to the amount of the cost of the advertisement itself. The publisher reserves the right to reject any advertisement.

The advertiser may elect to publish the advertisement in subsequent editions at the same charge, payable prior to publication. The deadline for carryover classifieds is the same as for new advertising.

In submitting an ad, please indicate whether you would like a refund if it is not published in the requested edition or whether you would like us to hold it for the next edition. Cancellations and refunds cannot be made after the second day of the month.

Send classified advertising to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

SOFTWARE

TI-PD PUBLIC DOMAIN AND FAIRWARE

600 DISKS just \$1.50 EACH! And orders for 8 or more disks are postpaid.

Thousands of programs selected from the best from the U.S., Canada, Australia, England, Germany, Holland and Belgium. FAIRWARE IS OFFERED BY AUTHOR'S WRITTEN PERMISSION ONLY. Disks as full as possible, arranged by exact category, BASIC programs converted to X BASIC, assembly programs with X BASIC loader, disks with autoloader by full program name.

Send \$1.00 (deductible from first order) for 20-page catalog listing all programs and authors. Catalog also available on disk.

TIGERCUB SOFTWARE, 156 Collingwood Ave., Whitehall, OH 43213. v9/11

Buy and Sell Used Software/Hardware

National Used Software Club has buyers looking for TI products, as well as sellers. More than 100 TI items are listed for sale. The membership fee is only \$15/year and entitles you to buy or sell computer items via the NUS/HC database. You will also receive FREE our newsletter (mailed every eight weeks). If you don't buy or sell anything during the term of your membership we will refund your annual fee. **For a free, no-obligation information packet**, write to NUS/HC, P.O. Box 1343, Round Rock, TX 78680.

MISCELLANEOUS

ENORMOUS TI99/4A INVENTORY. CATALOGS \$2.00. BRAATZS COMPUTER SERVICES, 719 E. BYRD ST., APPLETON, WI 54911. 1-414-731-3478.

10/9

GAMES EDUCATIONAL HARDWARE—TI99/4A

CALL OR WRITE FOR FREE CATALOG:
JOY ELECTRONICS, INC; P.O. BOX 542526
DALLAS, TEXAS 75354-2526
(800) 527-7438, OUTSIDE DALLAS AREA
(214) 243-5371, DALLAS AREA

9/10

ALL THIS FOR THE CC40

80 col printer	\$80.00
CC40 Computers 6K.....	55.00
CC40 Computers 18K	80.00
Electrical Engineering package (cart)	20.00
Finance Packages (cart. & book).....	10.00
Games #1	10.00
Hexbus Interface Manual.....	10.00
Mathematics Package (cart. & book).....	20.00
Modem 300 baud	50.00
Pascal Package (cart & book).....	50.00
Power Supply for CC40 and periph.	15.00
Printer Plotter	50.00
Printer Plotter 4 color (pen set).....	15.00
Program Cartridges (blanks) 8K RAM...25.00	
RS232	50.00
RS232 serial printer cable.....	15.00
RS232 with parallel printer cable	75.00
RS232 parallel printer cable	20.00
Statistics Package (cart & book).....	20.00
Wafertape Drive User's Manual	10.00
Word Processor (cart & book)	20.00
....(also has modem program)	
... S&H 10% Minimum \$3 214-821-9274	
.Jim Leshar, 722 Huntley, Dallas TX 75214	

The ONLY monthly devoted to the T199/4A

Subscriptions

- 12 issues, USA, \$25
- 12 issues, Mexico, \$30.25
- 12 issues, Canada
- 12 issues, other countries, \$32.50
- 12 issues, other countries, surface mail, \$30.00
- 12 issues, other countries, air mail, \$42.00

Outside U.S., pay via postal or international money order or credit card; personal checks from non-U.S. banks will be returned

Address Changes

Subscribers who move may have the delivery of their most recent issue(s) delayed unless MICROpendium is notified six weeks in advance of address changes. Please include your old address as it appears on your mailing label when making an address change.

Check each item ordered (or list on separate page) and enter total amount here _____

Check/MO (Check one)

Exp. Date _____

Card No. _____

Minimum credit card order is \$9

Signature _____

(required on credit card orders)

No sales tax on magazine subscriptions. Texas residents add 7.75% sales tax on other items, including back copies and disk subscriptions.

Mail to: MICROpendium, P.O. Box 1343, Round Rock, TX 78680

Name _____

Address _____

City _____

State _____ ZIP _____

The set of numbers on the left of your mailing label indicates the cover date of the last issue on your subscription.

Disks, etc.

- Back issues, \$2.50 each. (List issues) _____

No price breaks on sets of back issues. Free shipping USA. Add 30 cents, single issues to Canada/Mexico. Other foreign shipping 50 cents single issue surface, \$1.60 air mail. Write for foreign shipping on multiple copies.

- 110 Subprograms (Jerry Stern's collection of 110 XB subprograms, 1 disk), \$6.00
- TI-Forth Disks (2 disks, req, 32K, E/A, no docs, \$6.00)
- 1988 updates of TI-Writer, Multiplan & SBUG (2 disks), \$6.00
- Disk of programs from any issue of MICROpendium between April 1988 and the present, \$4.00
- CHECKSUM and CHECK programs from October 1987 issue (must have magazine to use), \$4.00
- MICROpendium Index (2 SSSD disks, 1984-1991, Ext. BASIC req.), \$6.00
- MICROpendium Index II (8 SSSD disks - 1 for each year 1984-1991, XB req.) \$24.00
- MICROpendium Index II with MICROdex 99 (10 SSSD disks, XB req., \$30.00)
- MICROdex 99 (for use with MICROpendium Index II, 2 SSSD disks, XB req.), \$10.00

MICROdex99 by Bill Gaskill is a program to allow users of MP Index II to modify their index entries as well as add entries. MICROdex 99 supports many other functions, including file merging, deletion of purged records, record counting and file browsing.

Magazine holders (12/set — add \$1 shipping/order), \$3

GENEVE DISKS (SSSD unless specified)

- MDOS .97h (req. SSDD or larger, used with MBASIC), \$4.00
- MDOS 1.14F (req. for MBASIC), \$4.00
- Myarc BASIC 2.99A, \$4.00
- MY-Word V1.21, \$4.00
- Menu 80 (specify floppy or hard disk version(s), SETCOLR, SHOWCOLOR, FIND, XUTILS, REMIND, \$4.00)

GENEVE PUBLIC DOMAIN DISKS

(These disks consist of public domain programs available from bulletin boards. If ordering DSDD specify whether Myarc or CorComp.)

	SSSD	DSSD	DSDD
<input type="checkbox"/> Series 1	\$9.00	\$7.00	\$5.00
<input type="checkbox"/> Series 2	\$9.00	\$7.00	\$5.00
<input type="checkbox"/> Series 3	\$9.00	\$7.00	\$5.00
<input type="checkbox"/> Series 4	\$9.00	\$7.00	\$5.00
<input type="checkbox"/> Series 5	\$9.00	\$7.00	\$5.00
<input type="checkbox"/> Series 6	\$9.00	\$7.00	\$5.00

Foreign residents, please inquire regarding shipping costs.

SECOND CLASS

A T EXPIRES 1/93
 CHARLES GOOD
 P.O. BOX 647
 VENEDOCIA OH 45694