

Covering the TI99/4A, the Myarc 9640 and compatibles

MICROpendium

Volume 4 Number 9

October 1987

\$1.50

The Ugly Duckling

see page 10

Also:

M-Dos
Update

page 26

Database
Managers
Compared

page 32

Reviews
and
more



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Contents

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Table of Contents



Regena on BASIC

The Ugly Duckling.....Page 12

c99

Loops and arrays.....Page 20

Geneve 9640

Controlling the Myarc mouse from Extended BASIC...Page 24

M-DOS update

A schedule of upcoming product releasesPage 26

Checksum for program accuracy

This reprint from the LA TopIcs newsletter is Tom Freeman's method to help you avoid crashes.....Page 28

Forth tips

Lutz Winkler on sorting numbers quickly.....Page 30

Database managers compared

A search for the "perfect" database manager unearths several programs, all of which have positive and negative points....Page 32

Reviews

Fontwriter Page 37

Mechatronic 80-Column Card.....Page 39

Star NP-10 Printer.....Page 40

Newsbytes

Coming TI fairs, Asgard's fall catalog is out, and a company that will help you find the software you need.....Page 41

User Notes

A disk labeler, one line mortgage calculator and more..Page 43

Classified.....Page 46

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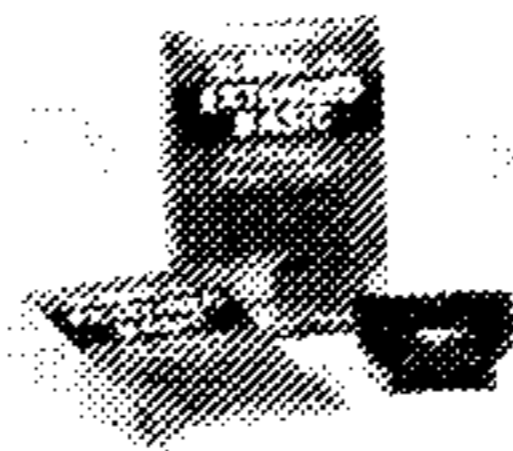
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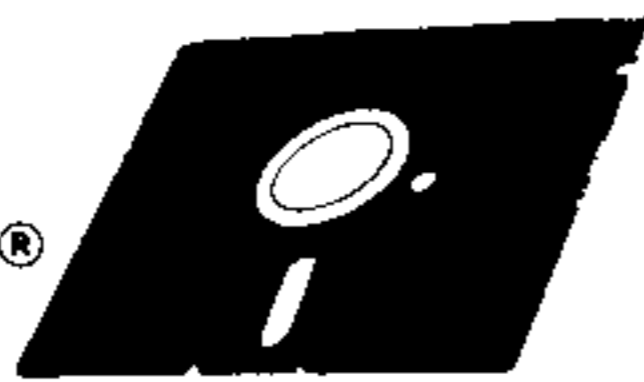
Here's the good news . . . the new Myarc Geneve Computer you've been hearing about is to be shipping by press time! Imagine a computer that is 99/4A compatible but has the speed and incredible graphics capabilities that even IBM, Amiga, and Atari ST owners would envy!

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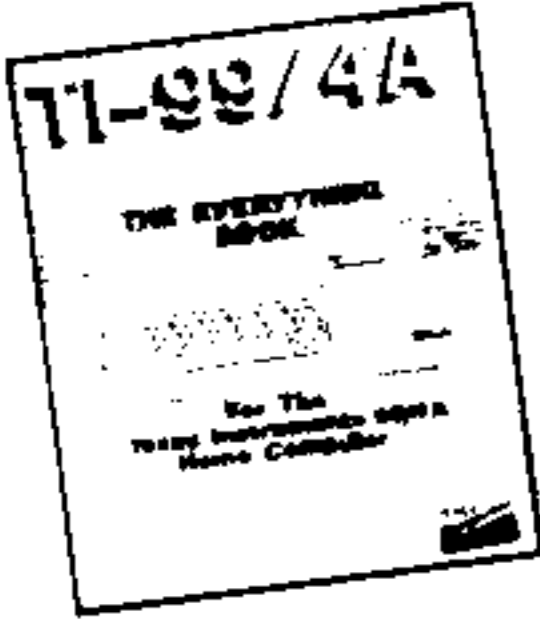


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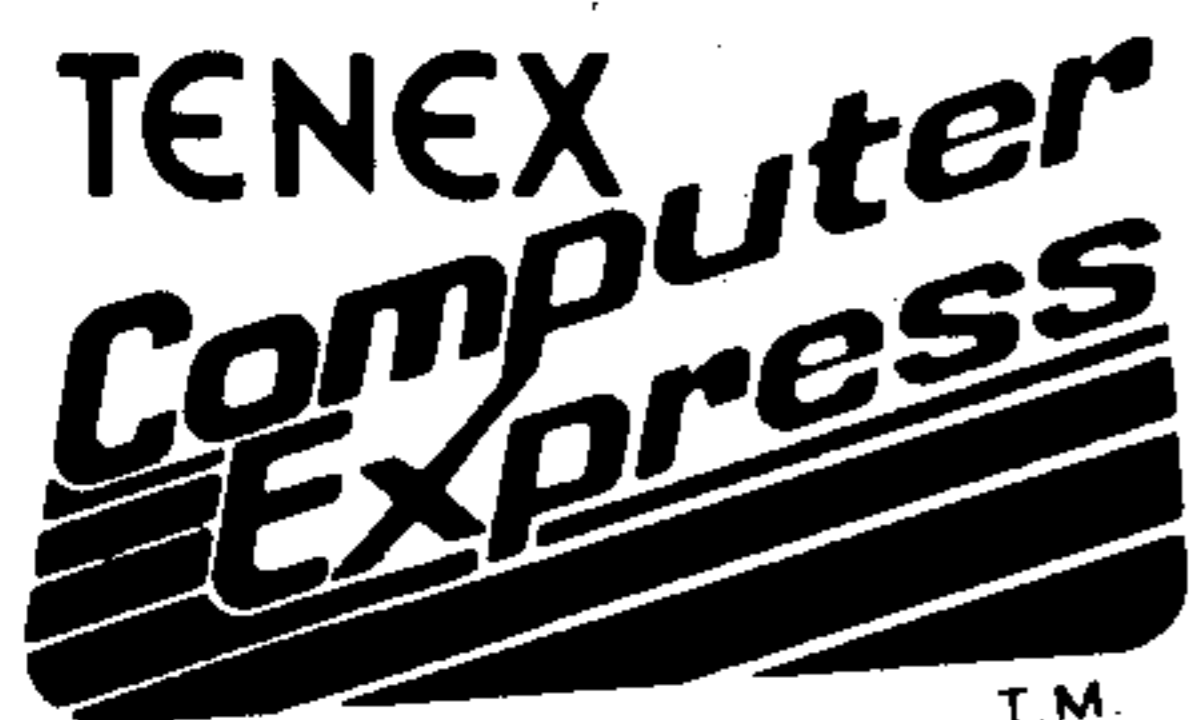
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Comments

That list of monitors . . .

There are days.... A number of readers have pointed out that a column I wrote in the July edition was supposed to mention the names of several monitors that are compatible with the 9640. Guess what? I left the monitors out of the article. Without further ado, here's the list (which isn't comprehensive, I'm sure):

- Magnavox 8-CM515 and 643
- Zenith 131
- Commodore Amiga 1080
- Sony RGB (most of them)
- NEC Multi-sync
- BMC monochrome
- Magnavox Pro 80

FREWARE DISCONTINUED

MICROpendium is no longer going to support Freeware. However, we will continue to support User Supported Software. Freeware, as opposed to commercial software, is a misnomer in most cases. Most software authors want something in return for their programming efforts and you'll find that many of our Freeware listings state as much. We've tried to walk a fine line, allowing up to \$5 as a requested donation but balking at \$6. It's silly of us to continue with this arbitrary condition. In the future, we'll be publishing lists of User Supported Software which includes software that is not commercial in nature. (If it is carried in a catalog we consider it to be commercial). The amount, if any, that authors request is up to them. If a buyer doesn't like what he receives then he will need to take it up with the author. We will simply act as a conduit for information regarding User Supported Software.

WE'RE EXPANDING GENEVE COVERAGE

We're going to expand our coverage of the Myarc 9640 over the next few months. But we're not going to do it at the expense of our coverage of the TI99/4A. What it means is that we'll be printing more pages in every issue.

However, to do this we're going to have to obtain second class mailing privileges. This means that we won't be able to offer a choice of first class mailing. The problem with first class postage is that the cost is based on the weight. The greater the weight, the higher the cost. This limits the number of pages we can afford to publish. The cost of second class mail, as well as third class, isn't based on the actual weight of an item. The cost itself is much lower, one-fifth or one-sixth the cost of first class. And delivery is much better than third class. Virtually all periodicals circulated through the mails, from USA Today to TIME, are by second class permit.

Before those with first class subscriptions get upset, let me assure you that we will credit first class subscribers with the additional amount by adding one or two issues to their

subscriptions, depending on how many issues remain on the subscription. Anyone who has a problem with this may write us and we will issue refunds on the postage or subscription.

We think by going to second class we'll be able to provide a bigger and better product. These changes — more Geneve coverage and second class mailing — will take place over the next three months.

WON'T WORK WITH THE GENEVE

Readers have been reporting difficulty with operating some cartridge-based 99/4A software on the Geneve. The list includes Plato software, Q*Bert, Pole Position, Buck Rogers, Ms. Pac Man, Slymoids, Early Reading, Moonsweeper, Jungle Hunt and TI Chess.

QUESTIONS AND SOME ANSWERS

A reader has requested information about obtaining a screen dump program that will work with an Axiom GP-TI700 multi-color printer. Anyone with suggestions is encouraged to write to MICROpendium and we will forward this information to the reader.

In the future, we're going to publish reader questions along with the Feedback items. We will include the reader's name and mailing address so that readers who can answer these questions may do so directly. So, continue with the questions, and those we can't answer we'll put in print.

MISCELLANEOUS INPUT

Clint Pulley (TI7395) has released an 80-column utility for his c99. The utility is designed for use with the Myarc 9640.

Tom Wynne, who lives in the Seattle, Washington area, is working on software for a video digitizer and titling package for use with the 9640. Queen Anne Computer Shoppe, 6102 Roosevelt Way, Seattle, WA 98114, will be marketing the package. The PEB card with software is expected to be priced in the \$1,000 range. The output is considered to be of "broadcast quality." Video digitizers are used to create video titles and special effects. Systems used by television stations cost upwards of \$25,000.

TI-SIG has been saved, for the time being. The Source Telecommunications service threatened to drop the TI-SIG from its list of services pending the response it received from users. Not surprisingly, TI users by and large said they'd disconnect from The Source if the TI-SIG was dropped. Sysop Blaine Crandell reported to users that The Source has agreed to continue the TI-SIG. However, Crandell emphasizes that this decision is only a reprieve. If the TI-SIG doesn't continue to grow, or if current users don't spend more time on-line, The Source may decide to cancel the SIG.

Crandell is asking for help from users to improve the service so as to attract new members and increase connect time.

—JK

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Feedback

Tax form response underwhelming

I had hoped to have received some offers of help in producing 1987 Tax Forms. I did all the '85 forms by myself. There are many new changes to the '87 forms. I had hoped to get users in each state to help and trade efforts. The response has been underwhelming.

I use my computer for business and to earn a living. My time is better spent in getting new customers than building '87 tax templates. It looks like TI users will have to depend on freeware by retired people. I have tried to teach Multiplan, but find few people willing to put out the effort. This makes for a small base for my templates. I sent out 20 free promo disks four months ago. I figured they would multiply. Perhaps the subject of taxes is not something people want to face.

I am now using an IBM. I do not like the machine nor have I found the software to be that much better. I just could not rewrite programs at this stage of my life. I had to get an IBM to be accepted by my clients. I also needed a faster spreadsheet program. The time I spent on Multiplan allowed me to be able to use the IBM without having to learn a new spreadsheet program. I am having a hard time with this computer. It does not have good graphics either. I tell people if they don't know how to use Multiplan then they don't need a new computer, because they have not shown the desire to learn, and will need the Big Blue programs if they don't use the same programs on their TI.

I have yet to find accounting packages that are as easy to use as TI programs. I have not found a monthly budget program within any accounting package like Budget Management Accounting, which builds and numbers a chart of accounts and produces a 12-month actual and budget report plus monthly variances. This program also automatically numbers the check entries and provides the opposite entry to checking as well as providing a running bank balance.

The TI people were not willing to look at an accounting program, but they would look at every checkbook program that came out. TI owners are mostly home

computer owners. TI never had a good business base and thus never kept up with the other computers. I also needed stock programs, and you can see that this is also a weak area for TI. I think that many people are leaving TI for the wrong reasons. They don't need an IBM like I do, but they now want to collect programs that they will never use, like they did for their TI. People are born collectors and they tend to flock.

James Sleeth
El Cajon, California

Rocketman correction

Thank you for printing the review (Aug. '87) for Rocketman. (I hope) with the program, more people will want to reconcile to the penny every month.

I'm probably the only one that noticed, but there was no continuation of the write-up on page 40. Also, the sixth paragraph on the left column, second sentence, should read: It then gives a final readout with the checkbook data on one side and the bank statement data on the other side of the screen.

John W. Rowles
El Sobrante, California

The continuation was on page 46. Sorry about that—Ed.

Vendors praised

I am writing to sing the praises of all the TI vendors who provide such excellent support after the sale of their product. The most recent incident came to light after my purchase of a Horizon RAM Disk. The people at Horizon Computing, most especially Ron Gries, are outstanding.

After receiving my Horizon RAM Disk I discovered it wouldn't work. I went through the excellent documentation three times and finally resorted to calling one of the two help numbers included in the docs. I talked to Ron and he immediately offered to call me back so that I wouldn't have to pay for the long distance call. Talk about knowing how to set the tone. No doubt he sensed my frustration at not being able to set up the RAM disk, but to be sensitive and professional enough to even think of the additional cost that the phone call

would incur was really appreciated.

At any rate, it turned out that my disk probably got X-rayed or something in the shipping because the resident operating system was garbled. Mr. Gries not only told me how to cure the problem, he stayed on the telephone for the 20 or so minutes it took to lead me through the testing and correction process, then topped the conversation off by giving me some helpful tips not covered in the already excellent documentation.

I have had similar contacts with the folks at MG. Craig Miller and his staff have always been extremely helpful, courteous and professional in their dealings with customers. I can't say enough about how this kind of support is appreciated.

The point of it all is this: support after the sale of a product is just as important to me as the product itself. Horizon Computing and MG obviously agree with me. Their support is convenient and timely because they provide telephone support so I don't have to write a letter and wait days or weeks for a reply, it is professional and accurate (they obviously know their products) and it is courteous. I simply cannot ask for anything more from any vendor. Horizon Computing and MG offer it all. Excellent products, backed by excellent support. In my opinion, they set the standards that others should strive for in meeting the demands of a competitive marketplace.

Bill Gaskill
Grand Junction, Colorado

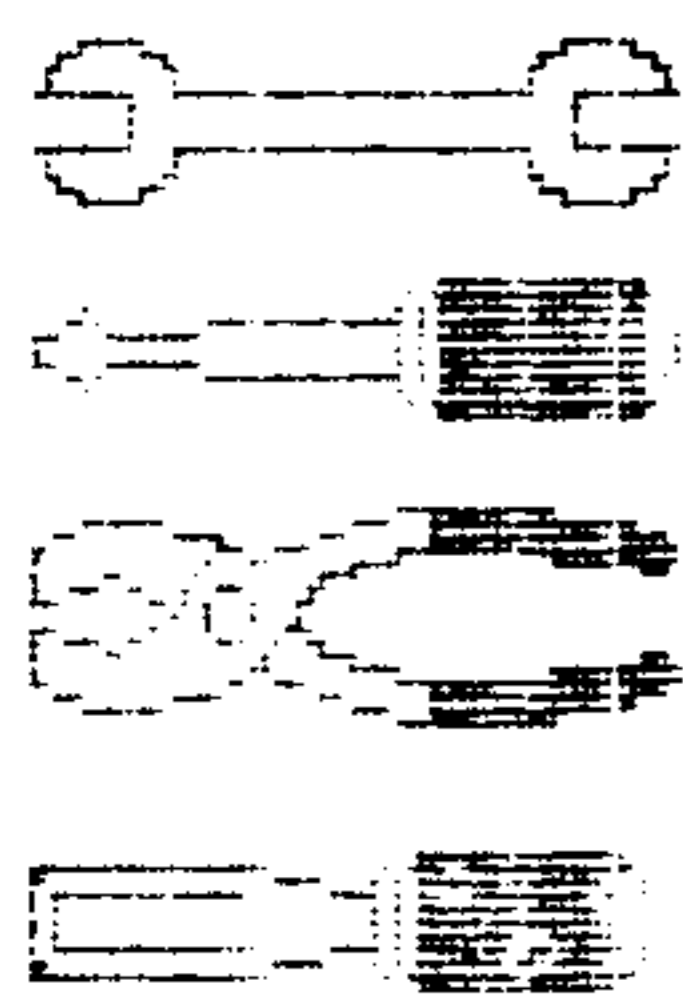
Yes and no to query

In the Feedback section of the June '87 MICROpendium, John H. Truitt asked if anyone had found a way to use the Dragonslayer Spell-Check with the Myarc 512K card. The answer is both yes and no.

I have a Myarc 512K card without the 128K Eprom, and the modified Dragonslayer works very well and extremely fast. However, for some reason my modification will NOT work with a card containing the 128K Eprom. I have no idea why this is the case, but it happens.

For those with cards like mine, the conversion is very easy:

1-Copy Dragonslayer's UTIL1 and
(See Page 10)



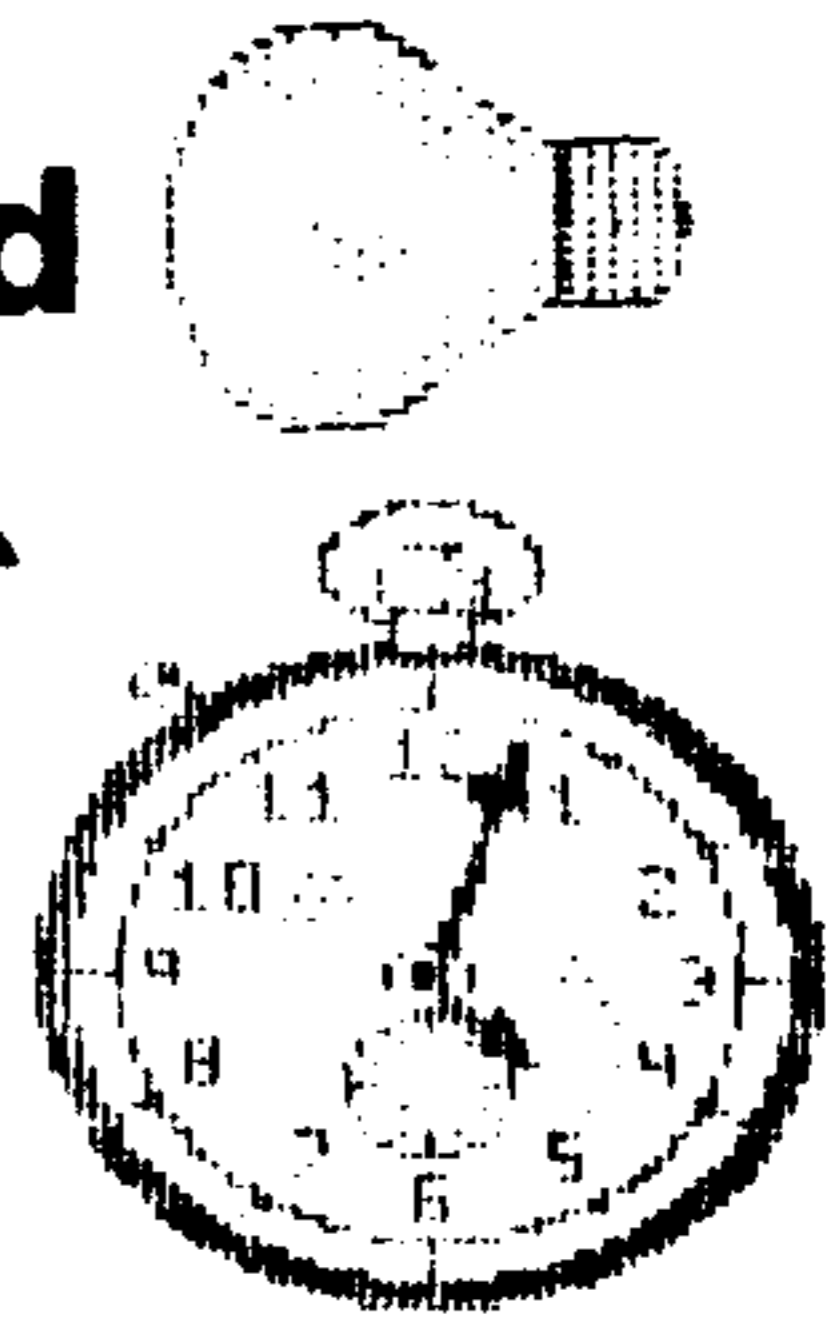
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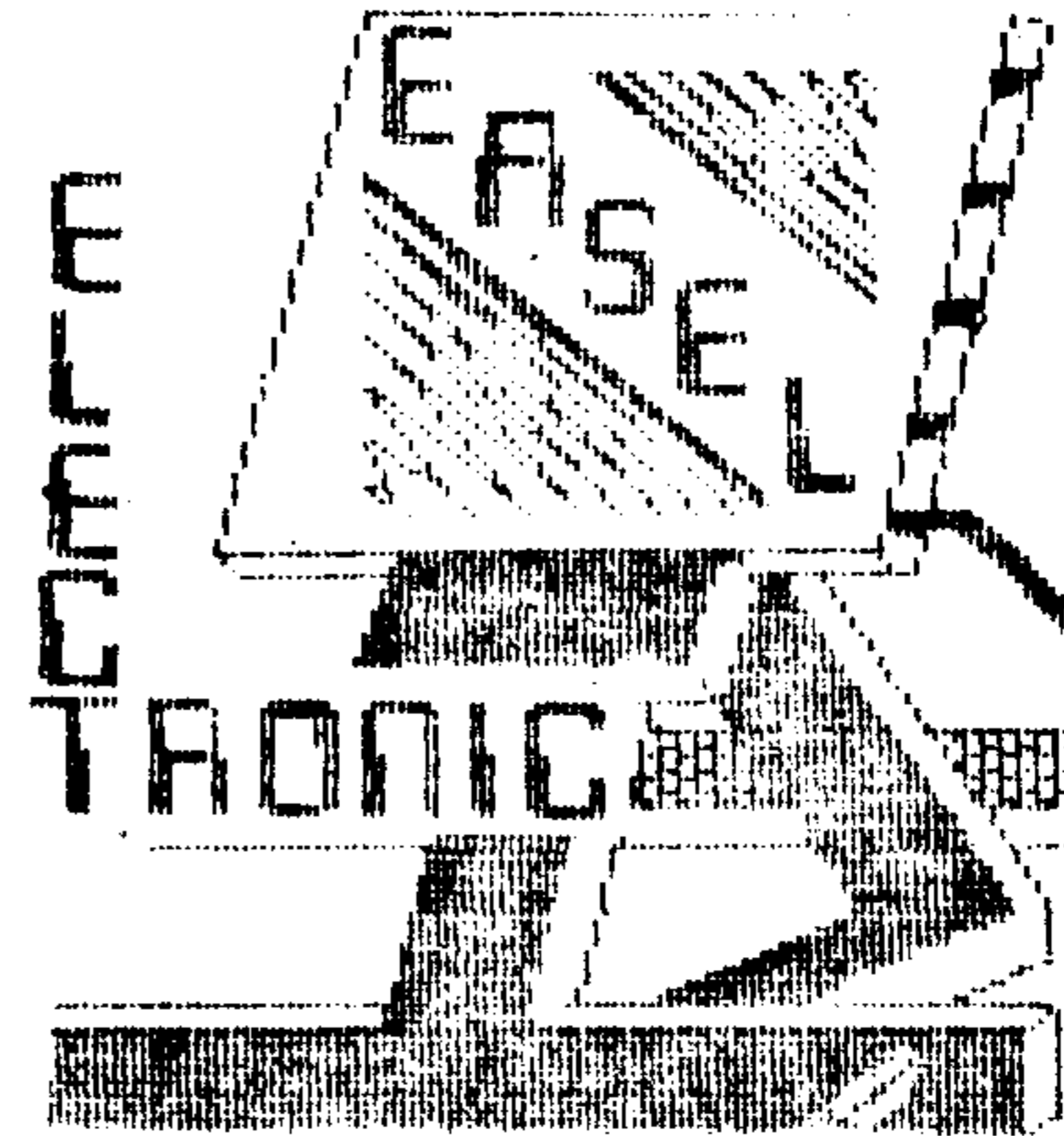
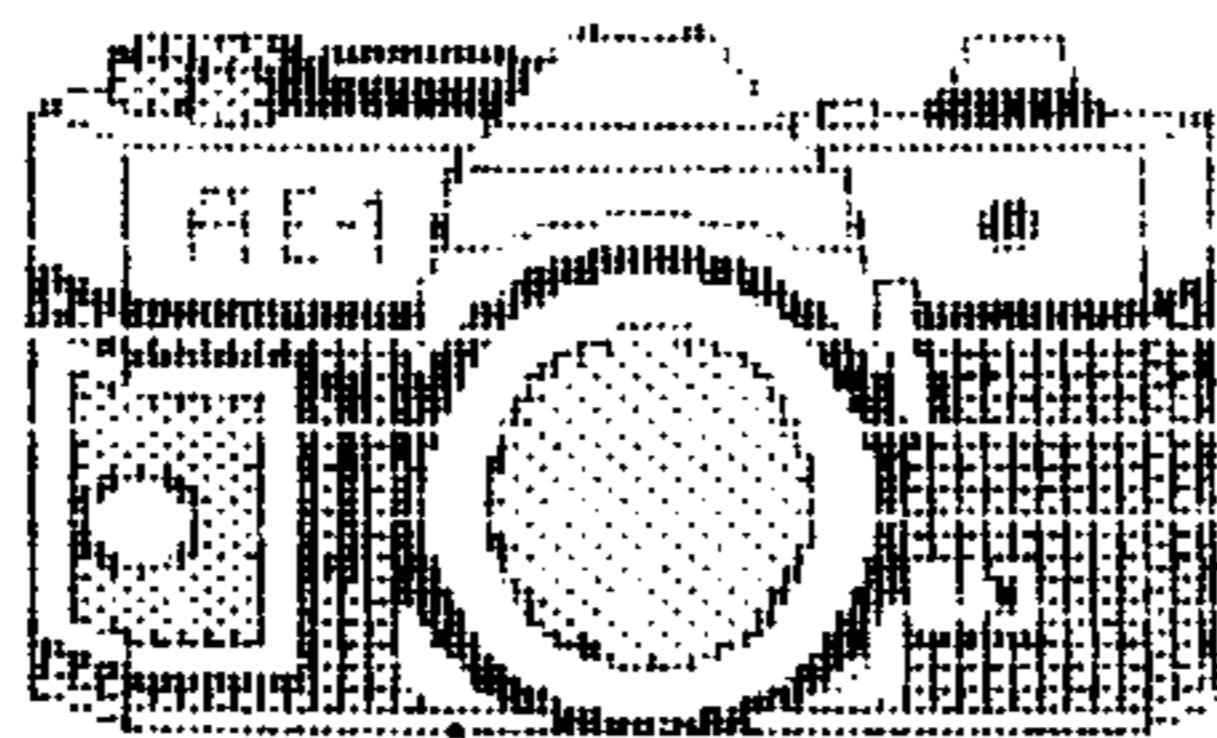
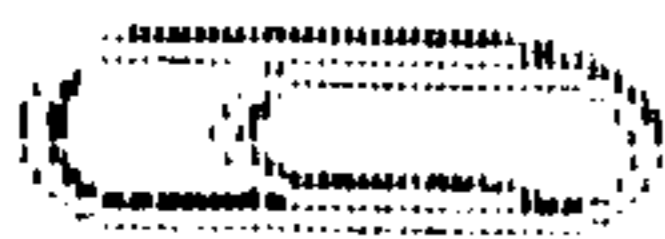
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Feedback

(Continued from Page 8)

UTIL2 programs onto a fresh disk.

2—Using a disk sector editor (I use the one on Funnelweb) go into sector 022. Change "DSK1.UTIL2" to "DSK3UTIL2." (I call my RAM disk DSK3. If you use another number, put that in.)

3—Go into sector 02B. Near the bottom of the screen you'll see "DSK1.DICT1." Change it to "DSK3.DICT1."

4—Copy these modified UTIL1 and UTIL2 files to the RAMdisk. No changes need be made to the dictionaries. Simply copy them directly from the Dragonslayer disk to your RAM disk.

That's it! You'll be amazed how fast the spell-checker works now. For added speed, copy the text file you wish to check directly to the RAMdisk.

Robert Gillis
Boston, Massachusetts

Advice on printers

In the August 1987 issue a letter by Elton Schooling told of his woes in making TI-Artist and other screen dump programs "behave" with his Seikosha (Axiom) GP-550 printer.

Most screen dumps "read" the screen in the way an Epson (or compatible) printer like the graphics data sent to the printer. Epson and Seikosha printers have differing escape codes for enabling Graphics mode (Escape (27), "K" or "L" vs. Escape (27), "G"). Also, the dot pattern the printer "sees" and prints is directly opposite in the Seikosha.

The newer SP series Seikosha printers are preferred as they are Epson compatible. Perchance Mr. Schooling can obtain one from Lyco Marketing (read *Computer Shopper*) for about \$150 plus shipping and unload his GP-550 on some unsuspecting IBM owner (as I've done with a GP-250A).

Rick Fallstrom
Spanaway, Washington

Coloring pictures

I was working with Travis Watford's program MAX-RLE, and loaded some pictures I obtained from a local BBS. To my surprise I found out that I could add back-

ground and foreground colors to these (videotext) pictures found on CompuServe, etc.

To do such, first load the pictures you want to view, then use the number keys 1-0 to change background color, and the Shift/Number keys 1-0 together to change the foreground color. You can also use the E, D, G, A, F and B keys to obtain other color combinations. Those pictures really come to life.

I believe these can be saved as Graphx, TI-Artist, DF128 or DV/80 files and possibly printed out as such. However, I can't get a printout of any pictures that I have; all I get is miscellaneous garbage with PIO.CR. However, since I lack the documentation for MAX-RLE, I wonder if any user out there knows the sequence to print out all of these pictures. There are probably hundreds of RLE (run-length encoded) pictures of various people out there on many bulletin boards. So far I have obtained almost 20.

Arthur Hazboun
Harbor City, California

More information on Dragonslayer

CW4 John H. Truitt's question in the June '87 Feedback about loading DICT1 and 2 from his RAMdisk prompted me to pass along this tip.

Since I don't own a RAMdisk, I'm not sure if it will help him but it does allow moving the DICT1 and 2 default disk drive of 1 to another drive. With three drives I keep the TI-Writer disks in drive 1, work disk in drive 2 and DICTs in drive 3.

Here's how to change drive number. Copy UTIL2 of Dragonslayer spelling checker to a blank disk. With a disk editor locate sector 23 (the second sector of UTIL2). Locate bytes B5 through BE which read 44 53 4B 31 2E 44 49 43 54 31 (DSK1.DICT1). Change byte B8 to the appropriate drive number desired in HEX. Rewrite sector to disk and load DICTs in new default drive from now on.

While editing sector 23, I also changed bytes 70 and B2 to the same drive number. This changes the error messages, should you forget to load the DICTs, to read correctly. The two error messages for

loading DISK A and B are located at bytes 59 to 71 and 9B to B3.

Keep up the great support for a super machine. Your magazine and a couple of user group newsletters are all the contact I have with fellow Tiers here in Germany.

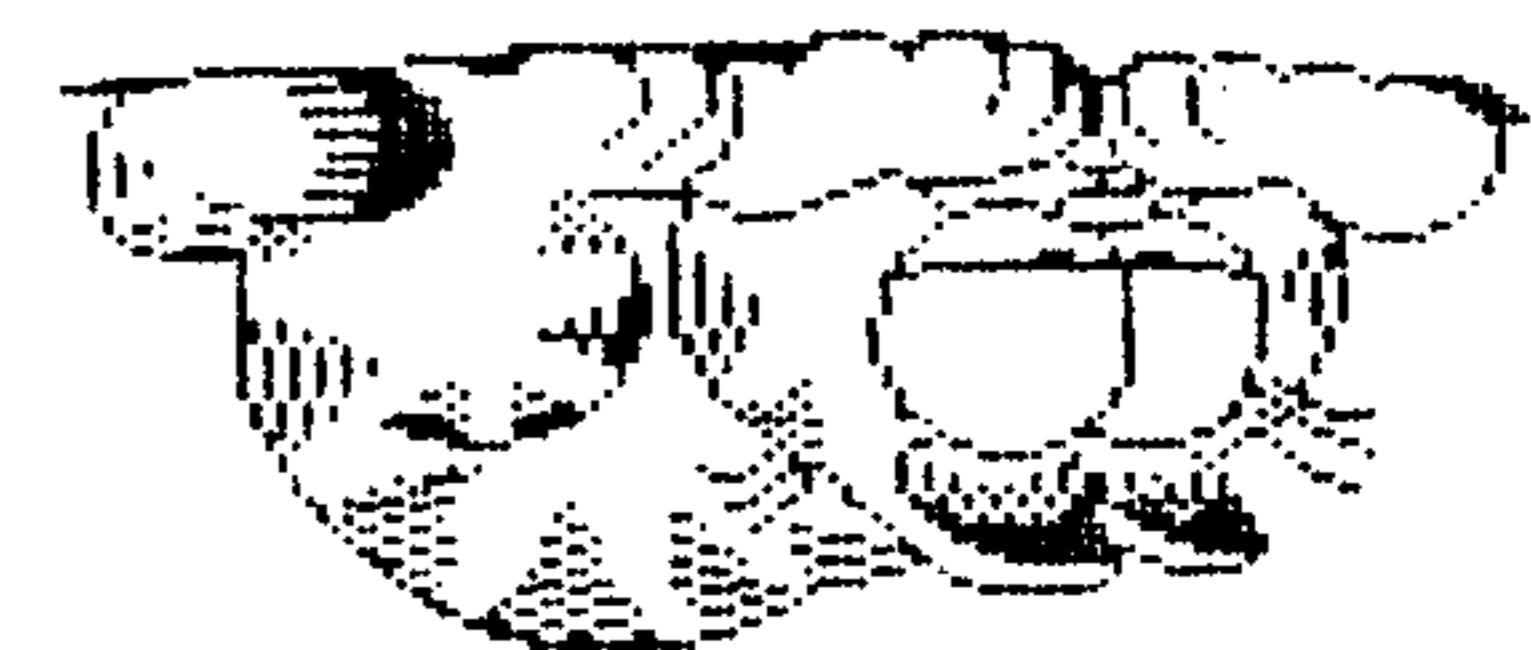
CW3 Orval D. Givens
APO, New York

Thanks. Actually, we have quite a few readers in West Germany — it comes in next after the United States, Canada and Australia in terms of the number of issues distributed.—Ed.

Upside-down art

Recently we (the Almonte 99er Users Group) noticed a program to rotate TI-Artist Instances and wondered if it was common knowledge that Instances could be saved UPSIDE-DOWN or MIRROR or BOTH. TI-Artist assumes that the user is logical and defines the top lefthand corner of the saved instance as the first corner (fire button) of the box drawn around the area to be saved as an instance. For fun, just start the box from one of the other three less logical corners, and presto.

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Combined with rightside-up graphics in opposite corners they make excellent party invites when folded in four.

It's also fun to mix graphics with a word processor for the added power.

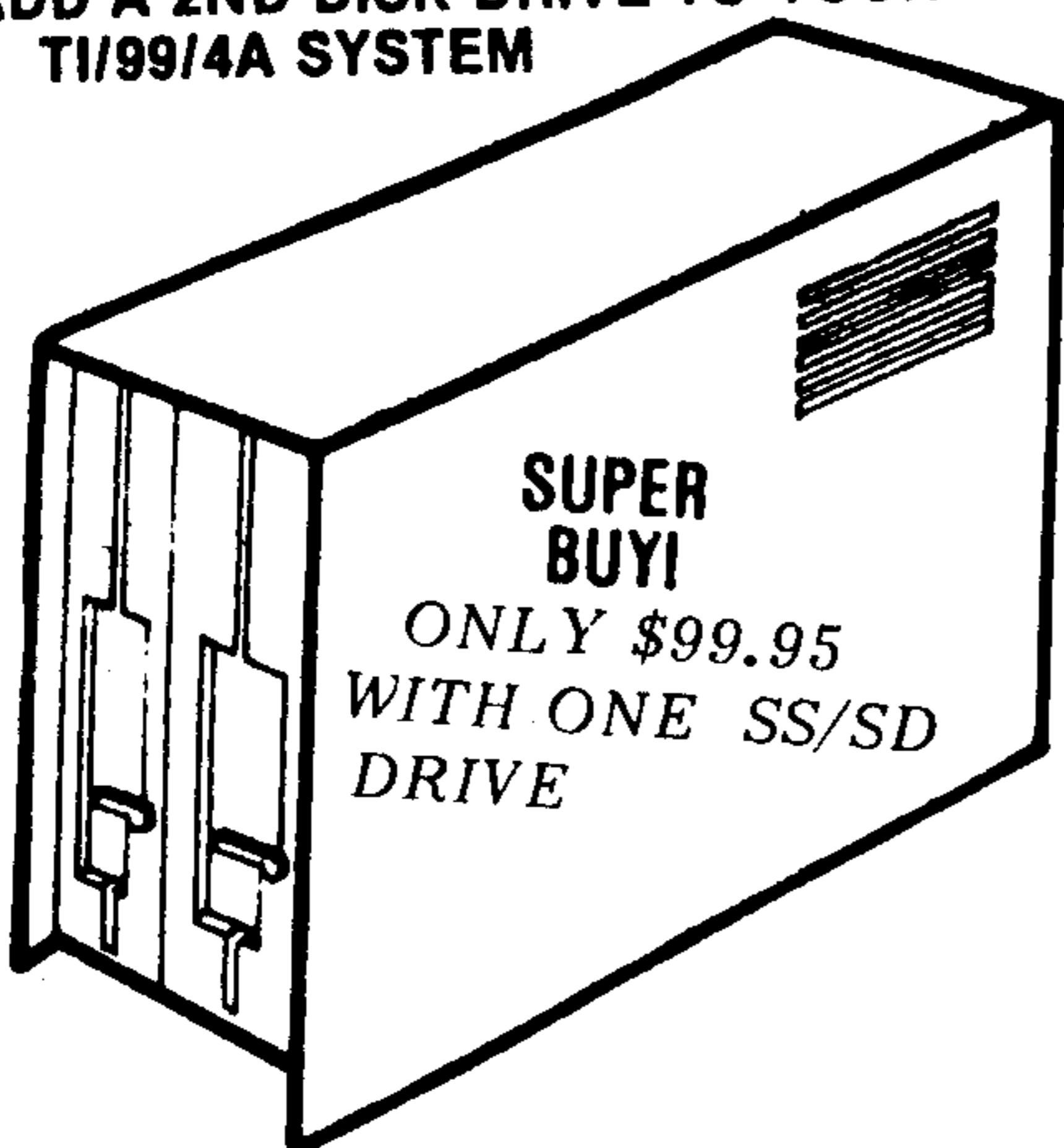
Richard Pitt
President, Almonte 99er Users Group
Carleton Place, Ontario, Canada

The Feedback column is a reader forum. The editor will condense excessively lengthy submissions if necessary. We ask that writers limit themselves to one subject per submission. Our only requirement is that submissions be of interest to those using the TI99/4A home computer or compatibles. Send items to MICROpendium Feedback, P.O. Box 1343, Round Rock, TX 78680.

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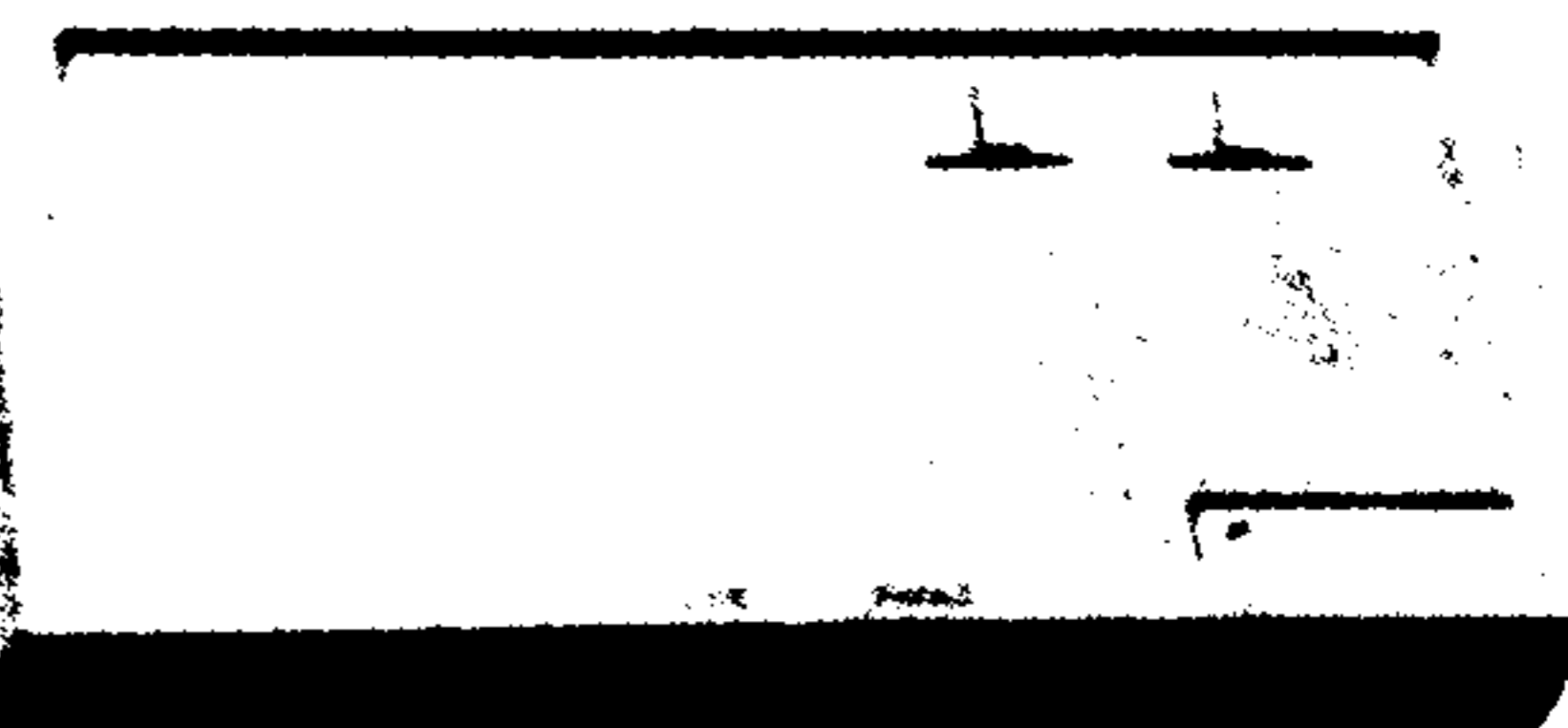
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BASIC

The Ugly Duckling

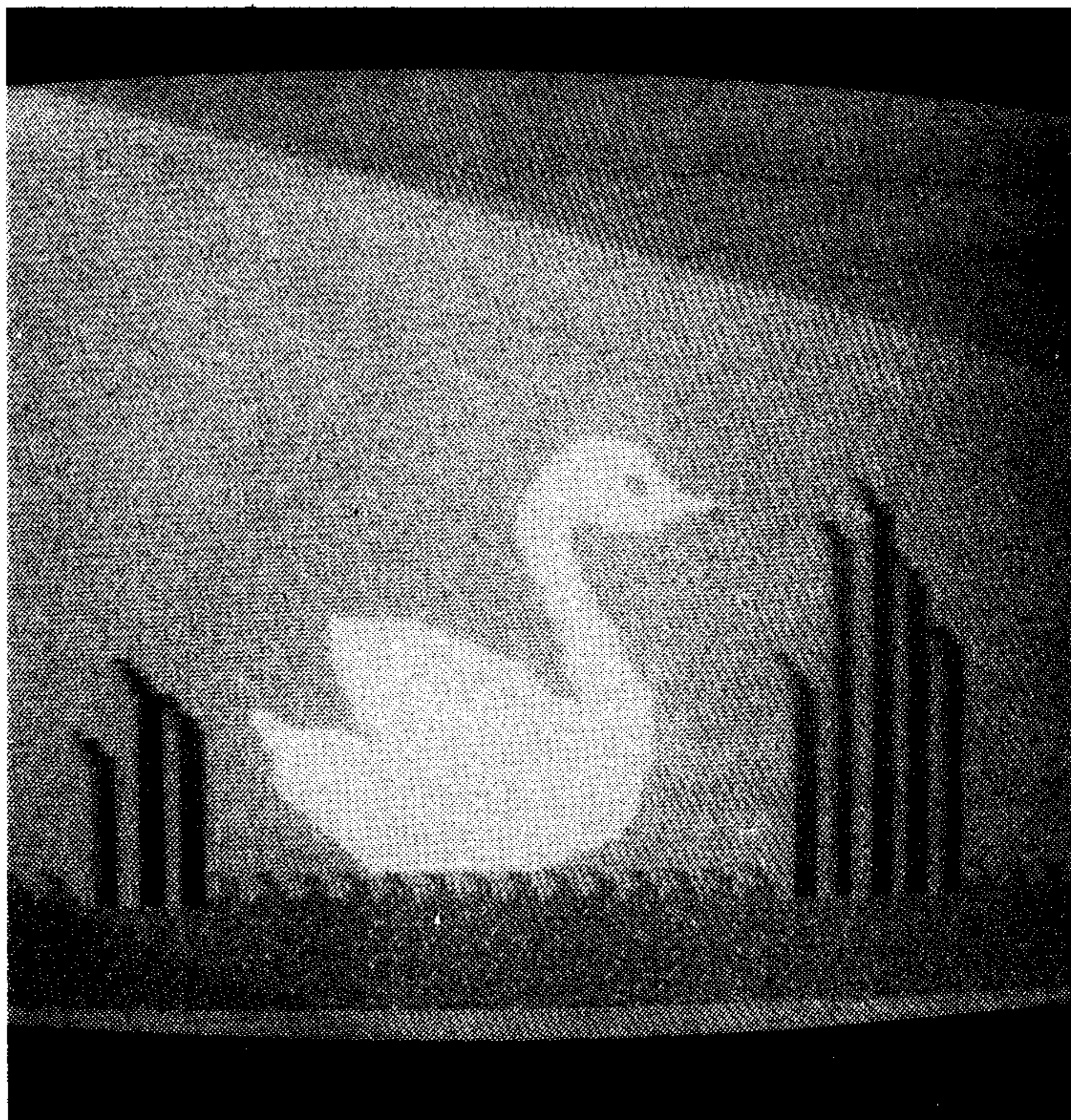
By REGENA

I have always enjoyed "computer choreography," combining music with graphics on the computer. In the days of the TI-99/4 and no disk drive, a program could hold more; and I wrote some programs that were really full-memory. Sometimes it takes quite an effort to revise those programs so they will fit on the current TI99/4A system with a disk drive. I have finally rewritten "The Ugly Duckling" for you so it can fit on disk now.

Usually I write CALL SOUND statements, then put in the CALL statements for graphics. In this program where there were a lot of CALL SOUND statements together, I changed to a GO-SUB 1685, which reads data in a FOR-NEXT loop for the music. Keep in mind that there is a slight pause before the last loop in a FOR-NEXT loop, which can be quite noticeable in music or graphic loops. I tried to avoid an obvious pause by using a "dummy" last loop of a duration of 1 and a frequency of 9999.

As you are typing this, be sure you press ENTER after each line. Some of the lines are exactly 28 characters, so it looks like you are on the next line when you may not have actually pressed ENTER. You can avoid this problem by using NUM 10.5 to automatically print your line numbers for you starting with line 10 and incrementing by 5.

If you want to avoid typing effort, you may have a copy of this program by sending a blank cassette or diskette, \$3 copying fee and a stamped, self-addressed mailer to REGENA, P.O. Box 1502, Cedar City, UT 84720. If you would like the older version which has a more involved title screen (but does NOT fit on disk), please so indicate with your cassette.



"The Ugly Duckling"

Lyrics by Frank Loesser

There once was an ugly duckling
with feathers all stubby and brown

The Ugly Duckling

```

10 REM BY REGENA
15 T=400
20 CALL CLEAR
25 CALL SOUND(T,494,4)
30 CALL CHAR(96,"FFFFFFFFFFFF
FFFF")
35 CALL CHAR(97,"0000001010
7070")
40 CALL SOUND(T,523,3)
45 PRINT TAB(6);"THE UGLY DU
CKLING": :
50 CALL SOUND(T/2,330,3)
55 CALL CHAR(98,"030F3F3F3F
FFFF")
60 CALL SOUND(T/2,330,2)
65 CALL CHAR(99,"0080C0F0F8F
CFFFF")
70 CALL SOUND(T,523,3)
75 CALL CHAR(100,"1F1F1F3F3F
3F7F7F")
80 CALL CHAR(101,"008080C0C0
C0E0E")
85 CALL CHAR(102,"FFFF9F8F0F
0F0F9F")
90 CALL SOUND(T,370,3)
95 CALL CHAR(103,"E0E0E0E0E0
E0E0E")
100 CALL CHAR(104,"7F3F1F0F0
7030301")
105 CALL CHAR(105,"E0F8F8F8F
F8F8F8F")
110 CALL SOUND(T,494,3)
115 CALL CHAR(106,"000000F0E
0C08")
120 CALL CHAR(107,"FFFF3F3F7
F7FFFF")
125 CALL CHAR(108,"FF8F0E")
130 CALL SOUND(2*T,294,3)
135 CALL CHAR(109,"0010383C3
3E7E7E")
140 PRINT TAB(13);"BY"
145 CALL SOUND(T,494,3)
150 PRINT : : " HANS CHRISTIA
N ANDERSEN"
155 CALL SOUND(T/2,523,3)
160 CALL CHAR(110,"E0E0E0C0C
0808")
165 CALL SOUND(T/2,523,2)
170 CALL CHAR(112,"FFFFFFC0E
0C08")
175 CALL SOUND(T,330,3)
180 CALL CHAR(113,"FFFF7F1F0
F070707")
185 CALL CHAR(114,"FFCFC8F0E
0C08")
190 CALL CHAR(115,"0")
195 CALL SOUND(T/2,523,4)
200 CALL CHAR(116,"0707070F0
F1F1F7F")
205 CALL SOUND(T/2,523,2)
210 CALL CHAR(117,"C0E0F8F8F
FFFFFF")
215 CALL SOUND(T,370,3)
220 CALL CHAR(118,"00010FFFF
FFFFFF")
225 CALL SOUND(3*T,587,2)
230 PRINT : : : : :
235 FOR C=12 TO 15

```

(See Page 14)

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- **32K No Wait State High Speed RAM:**

- Programs like MultiPlan, which are painfully slow on the 99/4A, run many times faster, thanks in part to the High Speed RAM.

- **V9938 Video Processor with 7 Graphics Modes:**

- Compatible with the 99/4A so you can use the GENEVE with the TV or monitor you are currently using. Same resolution as the Mac but with color. Faster than the Amiga, as fast as the Atari and does it with true aspect ratio, something the Amiga and IBM AT can not do. Aspect ratio renders higher resolution, better color, and appearance, through the use of square pixels. In the high resolution mode, 256 colors may be displayed on the screen at one time by the GENEVE, eight times as many as the Amiga can display in its high resolution mode.

- **Mouse Interface:**

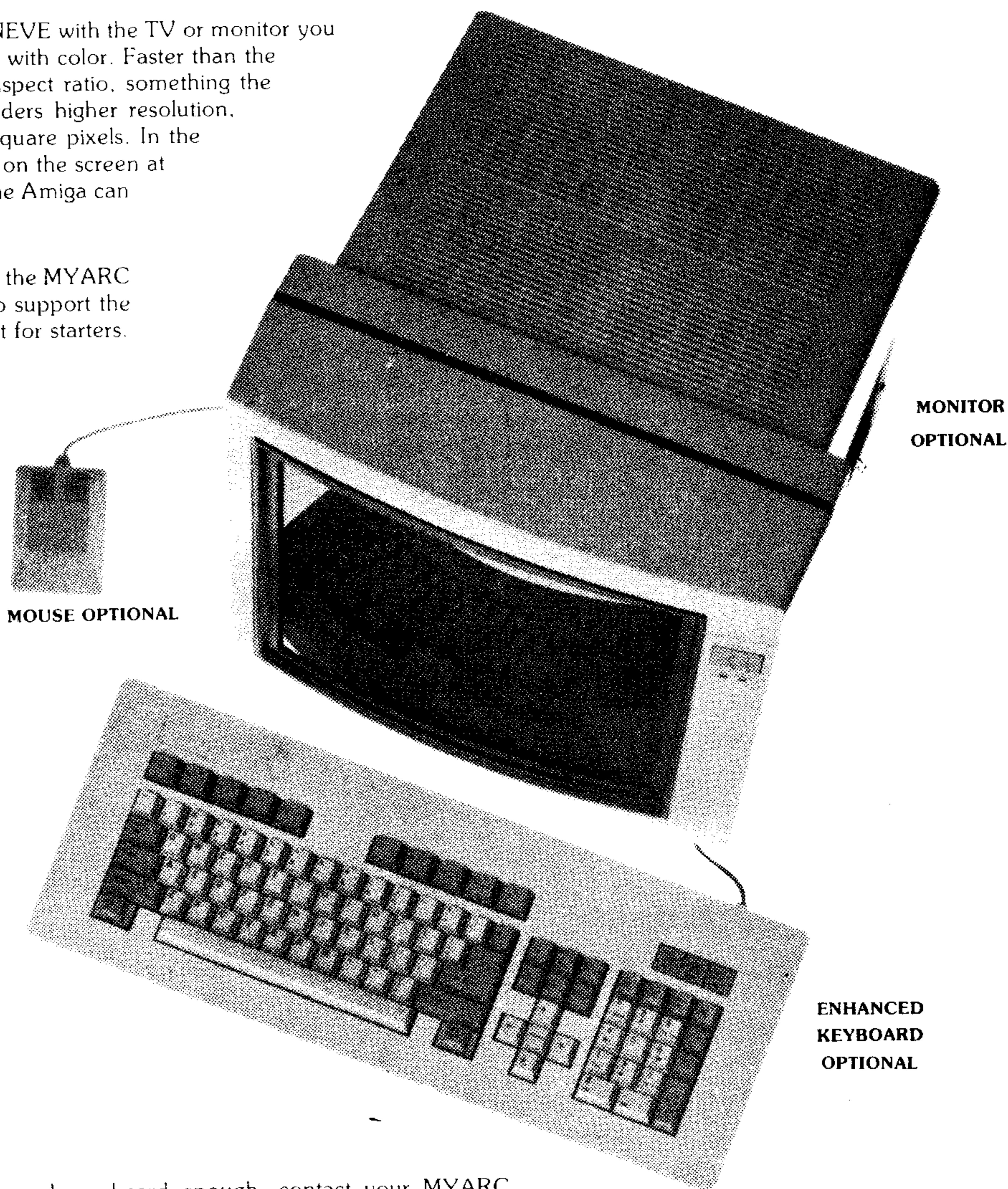
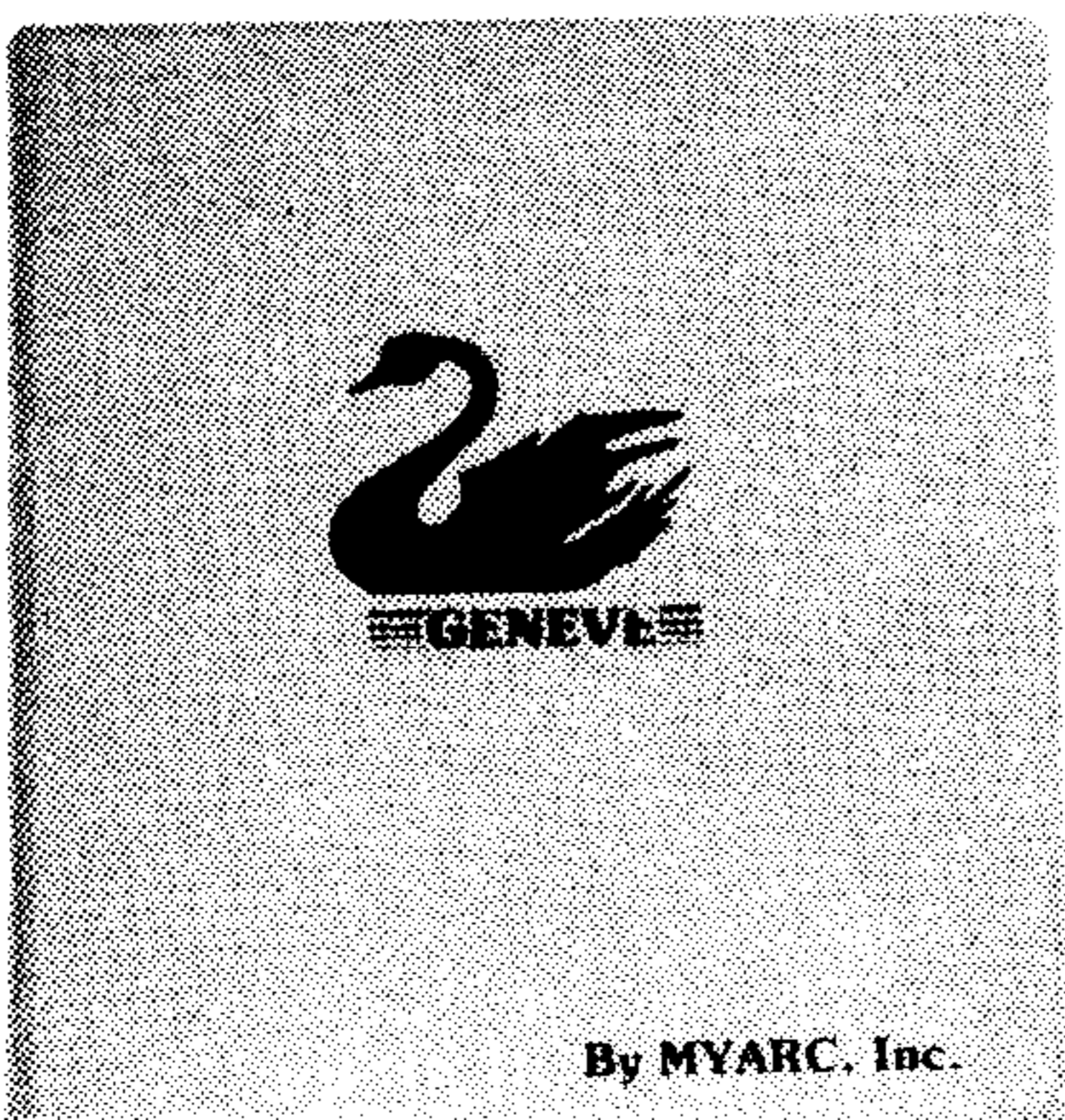
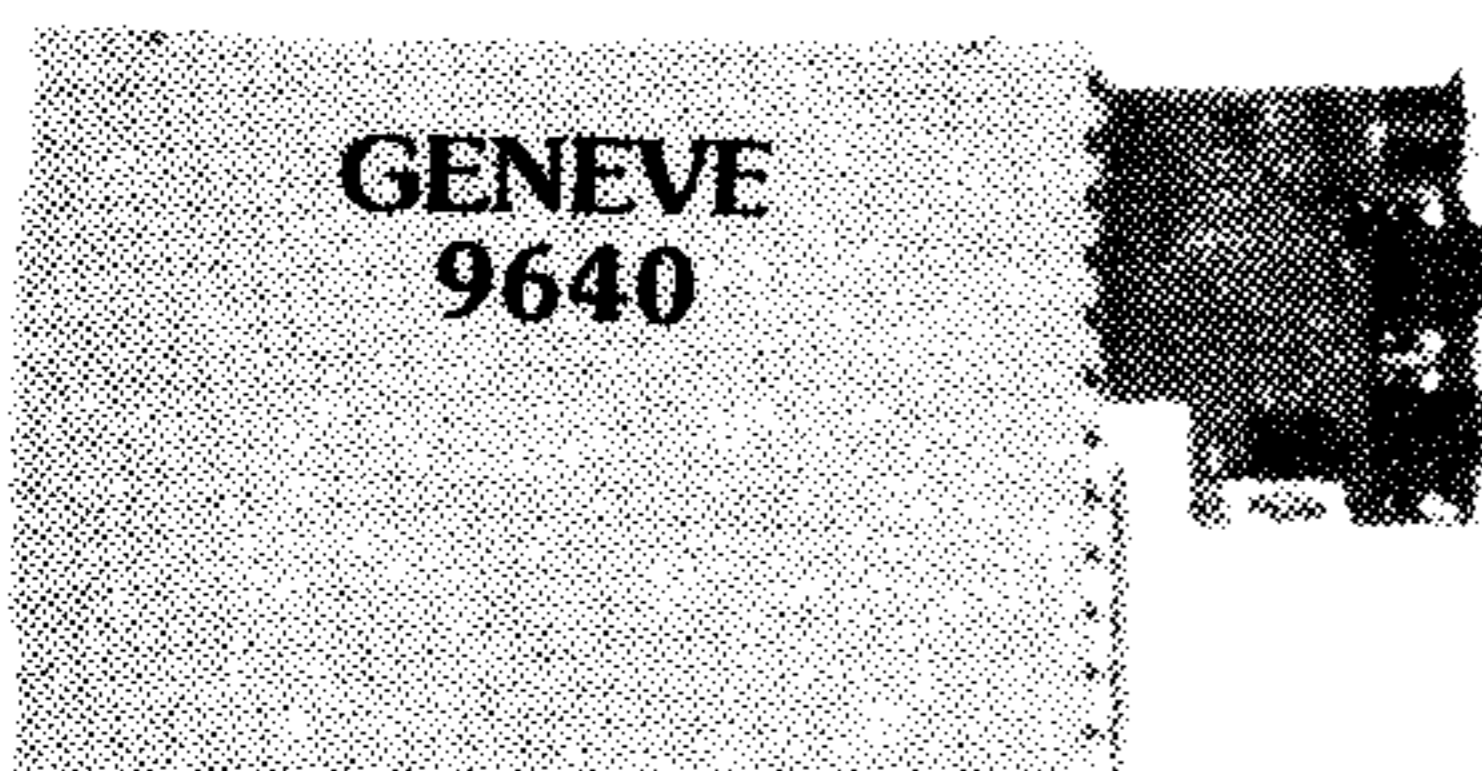
- The mouse interface is built in and ready to use with the MYARC mouse. But, we didn't stop there, it is also ready to support the newest hardware, like video digitizers, and that's just for starters.

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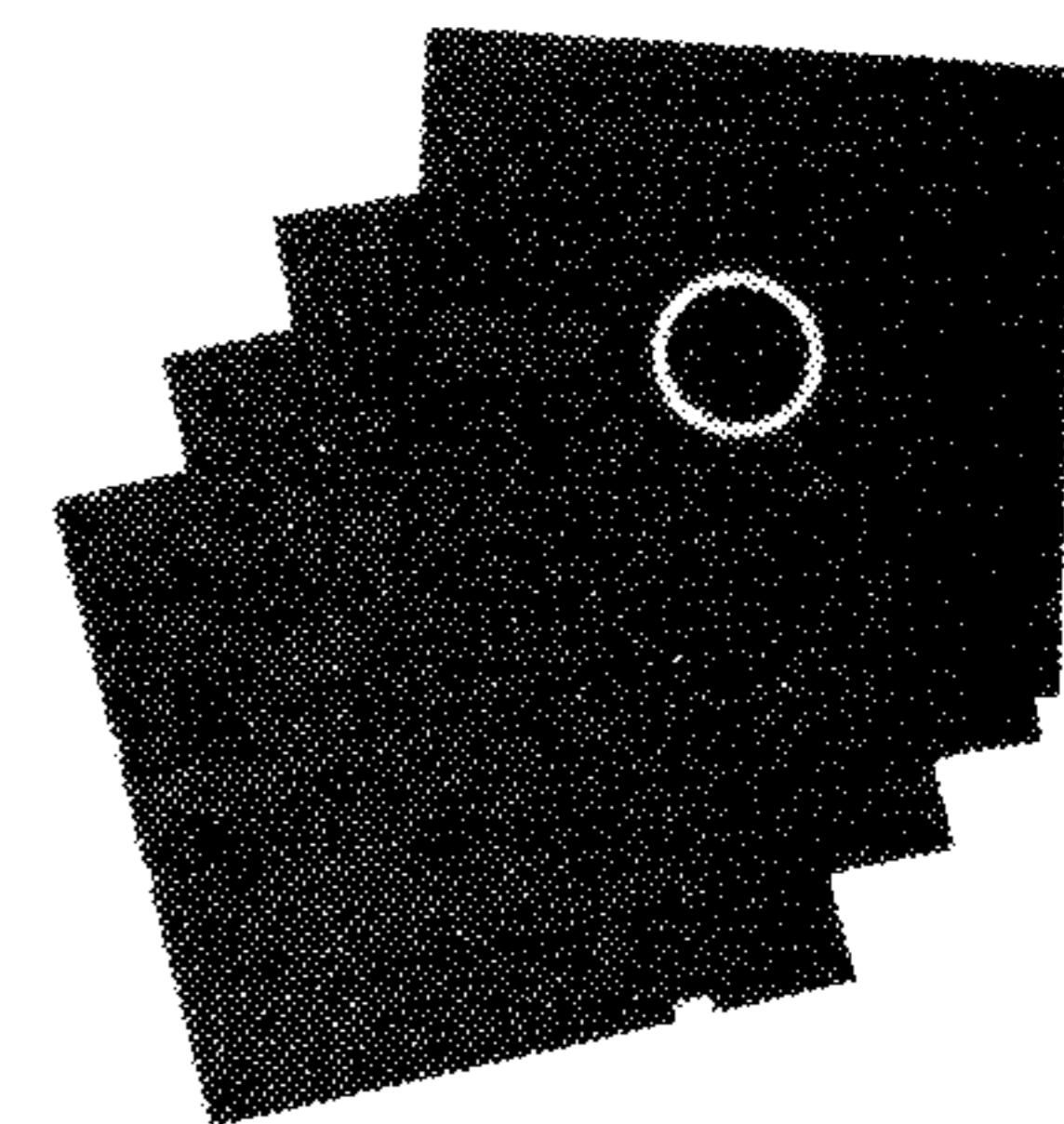
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REGENA—

(Continued from Page 12)

240 CALL COLOR(C,16,8)
 245 NEXT C
 250 CALL COLOR(9,11,8)
 255 CALL COLOR(10,11,8)
 260 CALL COLOR(11,11,15)
 265 CALL COLOR(3,5,8)
 270 CALL SOUND(T/2,494,4)
 275 CALL CHAR(48,"70381C0C1E
 3E7FFF")
 280 CALL SOUND(T/2,494,2)
 285 CALL CHAR(50,"FBHFF6FFF
 FFFFFFF")
 290 CALL SOUND(T,523,3)
 295 CALL CHAR(56,"C040703038
 1C1E1E")
 300 CALL CHAR(57,"0F0F0F0F0F
 0F0F0F")
 305 CALL SOUND(T,330,3)
 310 CALL CHAR(120,"FFFFFFF
 FFFFFFF")
 315 CALL CHAR(121,"0003070F1
 F3F7FFF")
 320 CALL SOUND(T,523,3)
 325 CALL CHAR(122,"00F0F8FCF
 CFEFFFF")
 330 CALL CHAR(123,"000101030
 707070F")
 335 CALL SOUND(T,370,3)
 340 CALL CHAR(124,"8F878787C
 7FFFFFF")
 345 CALL CHAR(125,"80C0E0E0F
 CFFFFFF")
 350 CALL SOUND(T,494,3)
 355 CALL CHAR(126,"00000000
 0E0F8C")
 360 CALL CHAR(127,"0F0F0F0F0
 F0F0F0F")
 365 CALL SOUND(T/2,494,4)
 370 CALL CHAR(128,"FFFFFFF
 FCFCFC")
 375 CALL SOUND(T/2,466,3)
 380 CALL CHAR(129,"FFFF7F0F0
 1")
 385 CALL SOUND(T,494,3)
 390 CALL CHAR(130,"FFFFFFF
 F")
 395 CALL CHAR(131,"F8C08")
 400 CALL SOUND(T,349,3)
 405 CALL CHAR(132,"070707070
 3030101")
 410 CALL CHAR(133,"FCFCFEFE
 EFFFFFF")
 415 CALL SOUND(T,330,3)
 420 CALL CHAR(134,"FF7F7F7F3
 F3F3F1F")
 425 CALL CHAR(135,"8080C0C0E
 0E0F0F8")
 430 CALL SOUND(T/4,523,3)
 435 CALL SOUND(T,494,3)
 440 CALL CHAR(136,"1F1F0F0F0
 F070707")
 445 CALL CHAR(137,"FCFCFCFC
 FCFCFC")
 450 CALL SOUND(T,440,3)
 455 CALL CHAR(138,"FCFCF8F8F
 0F0F0F")
 460 CALL CHAR(139,"F0E0E0E0C
 0C08")
 465 CALL SOUND(4*T,392,2)
 470 CALL CHAR(140,"FFFCFC")
 475 CALL CHAR(141,"FFFFFFF
 F8E")
 480 CALL CHAR(142,"C0F0FCFE
 FFFFFFF")
 485 CALL CHAR(143,"00000000
 0C0F0FC")
 490 CALL CHAR(144,"00C0F0FC
 FFFFFFF")
 495 CALL CHAR(145,"00000006
 0787(3F")
 500 CALL CHAR(146,"FF7F3F1F0
 F070301")
 505 (X)SUB 1685
 510 DATA 33,100,523,400,494,
 400,440,400,294,100,494,400,
 440,400,392,400,262,100,440,
 400,392,400,370
 515 DATA 1200,392,200,370,20
 0,392,400,330,200,370,200,39
 2,400,294,200,370,200,392,20
 0,262,200,392
 520 DATA 200,370,200,392,400
 ,247,200,370,200,392,200,392
 ,400,392,400,392,400,370,160
 0,392,1,9999
 525 CALL SOUND(T,494,4)
 530 CALL SCREEN(8)
 535 CALL COLOR(2,16,8)
 540 CALL SOUND(T,523,3)
 545 CALL VCHAR(14,27,32)
 550 CALL VCHAR(14,26,32)
 555 CALL VCHAR(14,25,32)
 560 CALL SOUND(T/2,330,3)
 565 CALL VCHAR(8,24,32,7)
 570 CALL VCHAR(8,23,32,7)
 575 CALL SOUND(T/2,330,2)
 580 CALL VCHAR(8,22,32,7)
 585 CALL VCHAR(8,21,32,7)
 590 CALL SOUND(T,523,3)
 595 CALL VCHAR(8,20,32,7)
 600 CALL VCHAR(8,19,32,7)
 605 CALL VCHAR(8,18,32,7)
 610 CALL SOUND(T,370,3)
 615 CALL VCHAR(8,17,32,7)
 620 CALL VCHAR(8,16,32,7)
 625 CALL HCHAR(16,18,106)
 630 CALL SOUND(T,494,3)
 635 CALL VCHAR(8,15,32,7)
 640 CALL VCHAR(8,14,32,7)
 645 CALL SOUND(2*T,294,3)
 650 CALL HCHAR(14,17,101)
 655 CALL HCHAR(15,17,103)
 660 CALL HCHAR(16,17,105)
 665 CALL HCHAR(13,16,99)
 670 CALL VCHAR(14,16,96,3)
 675 CALL HCHAR(15,16,102)
 680 CALL HCHAR(17,16,108)
 685 CALL SOUND(T,494,3)
 690 CALL HCHAR(18,16,101)
 695 CALL HCHAR(19,16,103)
 700 CALL HCHAR(20,16,110)
 705 CALL SOUND(T/2,523,3)
 710 CALL VCHAR(8,13,32,7)
 715 CALL SOUND(T/2,523,2)
 720 CALL VCHAR(13,15,96,8)
 725 CALL SOUND(T,330,3)
 730 CALL VCHAR(8,12,32,7)
 735 CALL HCHAR(13,14,98)
 740 CALL VCHAR(14,14,96,7)
 745 CALL SOUND(T/2,523,3)
 750 CALL HCHAR(17,14,107)
 755 CALL SOUND(T/2,523,2)
 760 CALL VCHAR(8,11,32,7)
 765 CALL SOUND(T,370,3)
 770 CALL HCHAR(13,13,97)
 775 CALL HCHAR(14,13,100)
 780 CALL HCHAR(15,13,96)
 785 CALL HCHAR(16,13,104)
 790 CALL SOUND(3*T,587,2)
 795 CALL HCHAR(18,13,98)
 800 CALL HCHAR(18,14,112)
 805 CALL HCHAR(18,15,113)
 810 CALL HCHAR(19,15,116)
 815 CALL HCHAR(19,14,115)
 820 CALL HCHAR(19,13,114)
 825 CALL HCHAR(20,14,118)
 830 CALL HCHAR(20,13,117)
 835 CALL VCHAR(8,10,32,7)
 840 CALL VCHAR(8,9,32,7)
 845 CALL SOUND(T/2,494,3)
 850 CALL HCHAR(18,12,97)
 855 CALL SOUND(T/2,494,2)
 860 CALL VCHAR(19,12,96,2)

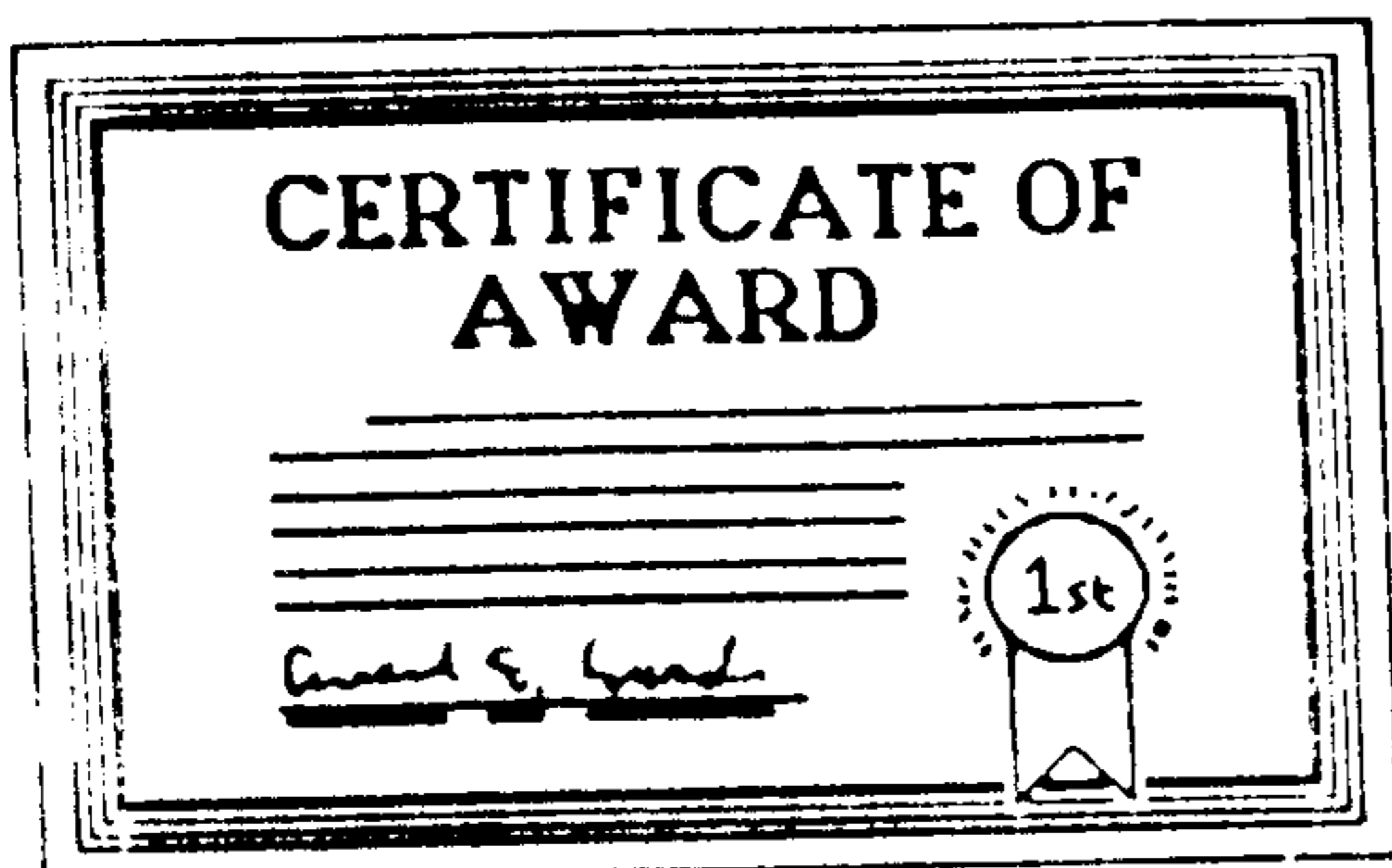
(See Page 16)

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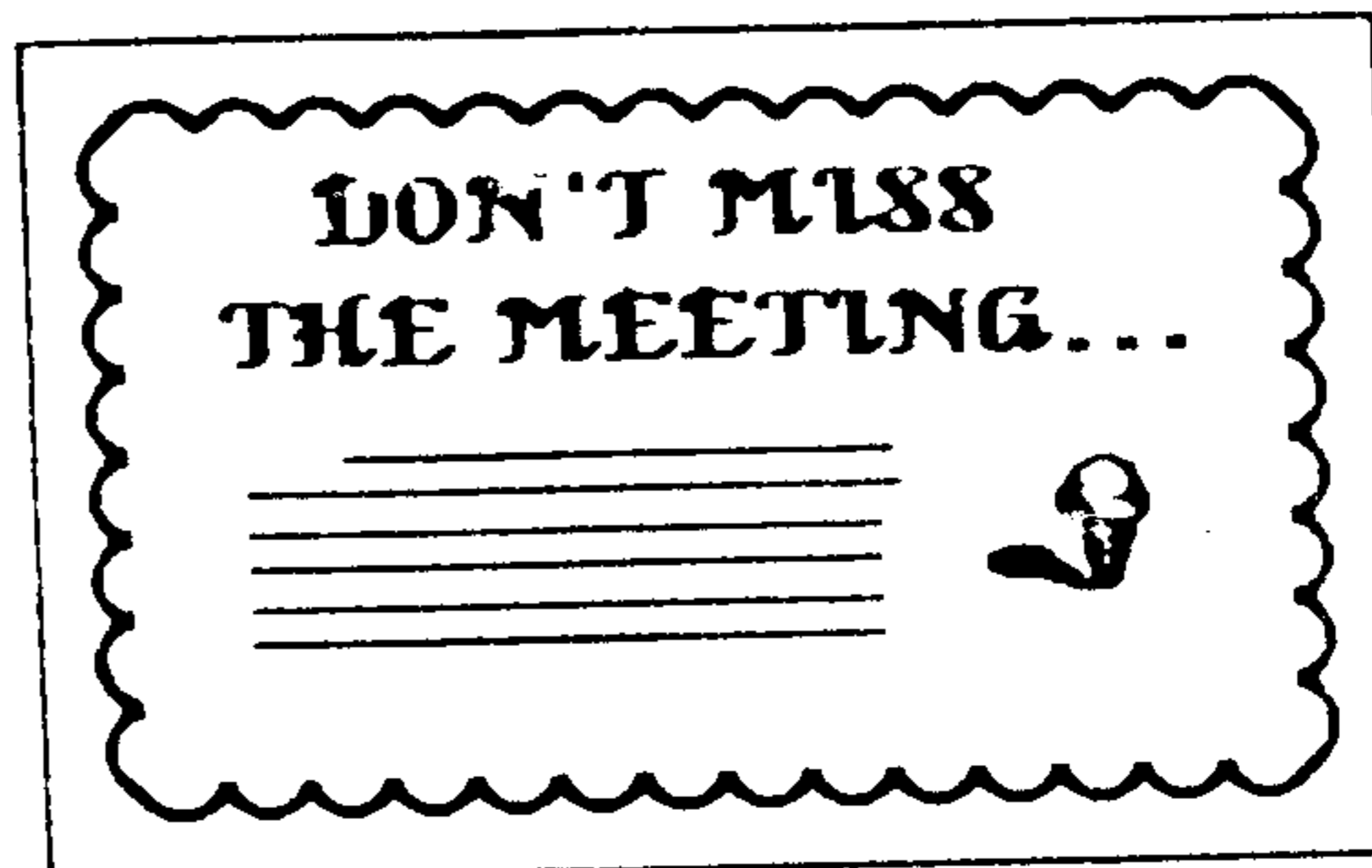
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(Continued from Page 14)

865 CALL SOUND(T,523,3)
 870 CALL HCHAR(18,11,109)
 875 CALL HCHAR(19,11,96)
 880 CALL HCHAR(20,11,104)
 885 CALL SOUND(T,330,3)
 890 CALL VCHAR(8,8,32,7)
 895 CALL VCHAR(14,7,32)
 900 CALL SOUND(T,523,3)
 905 CALL VCHAR(14,6,32)
 910 CALL VCHAR(14,5,32)
 915 CALL SOUND(T,370,3)
 920 CALL HCHAR(21,1,48,32)
 925 CALL SOUND(T,494,3)
 930 CALL HCHAR(22,1,50,96)
 935 GOSUB 1685
 940 DATA 23,200,494,200,466,
 400,494,400,349,400,330,100,
 523,400,494,400,440,1600,392
 ,400,330,100,523
 945 DATA 400,494,400,440,400
 ,294,100,494,400,440,400,392
 ,400,262,100,440,400,392,400
 ,370,1200,392,1,9999

950 CALL SOUND(T/2,370,1)
 955 CALL CHAR(111,"FFFFFFDFCF
 CFFFFFF")
 960 CALL SOUND(T/2,392,2)
 965 CALL CHAR(51,"0080C0C")
 970 CALL SOUND(T,330,2)
 975 CALL HCHAR(16,16,111)
 980 CALL SOUND(T/2,370,1)
 985 CALL SOUND(T/2,392,2)
 990 CALL SOUND(T,294,2)
 995 CALL HCHAR(17,17,51)
 1000 CALL SOUND(T/2,370,1)
 1005 CALL SOUND(T/2,392,2)
 1010 CALL SOUND(T/2,262,2)
 1015 CALL HCHAR(18,17,51)
 1020 GOSUB 1685
 1025 DATA 16,200,392,200,370
 ,200,392,400,247,200,370,200
 ,392,400,247,200,370
 1030 DATA 200,392,200,220,20
 0,392,400,392,400,392,400,37
 0,1600,392,1,9999
 1035 CALL SOUND(2*T,370,2)
 1040 CALL HCHAR(3,8,42)

1045 CALL HCHAR(6,15,42)
 1050 CALL HCHAR(5,22,42)
 1055 CALL HCHAR(10,11,42)
 1060 CALL SOUND(3*T/2,370,2)
 1065 CALL HCHAR(12,8,42)
 1070 CALL HCHAR(10,24,42)
 1075 CALL SOUND(T/2,392,2)
 1080 CALL HCHAR(3,17,42)
 1085 CALL SOUND(T,330,2)
 1090 CALL HCHAR(4,13,42)
 1095 CALL SOUND(T,330,2)
 1100 CALL HCHAR(11,19,42)
 1105 CALL SOUND(3*T/2,330,2)
 1110 CALL HCHAR(7,9,42)
 1115 CALL COLOR(4,3,8)
 1120 FOR C=1 TO 2
 1125 CALL SOUND(T/2,440,2)
 1130 CALL HCHAR(8,21,42)
 1135 CALL SOUND(T,370,2)
 1140 CALL HCHAR(10,15,42)
 1145 CALL SOUND(T,370,2)
 1150 CALL HCHAR(5,10,42)
 1155 CALL SOUND(3*T/2,370,2)
 (See Page 18)

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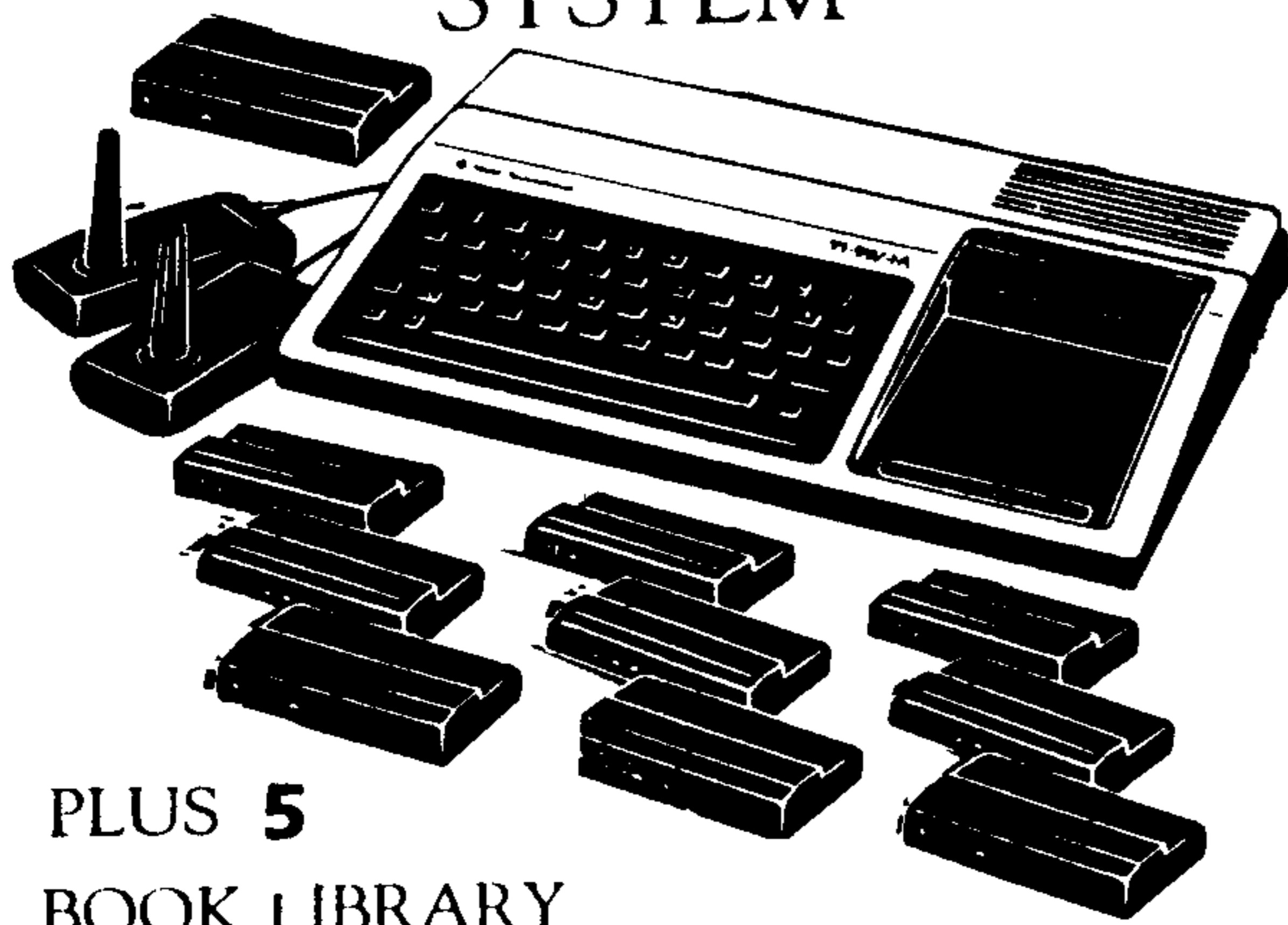
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(Continued from Page 16)

1160 CALL HCHAR(15,10,42)	1305 CALL VCHAR(16,6,57,6)	1465 CALL HCHAR(16,18,137)
1165 CALL SOUND(T/2,392,2)	1310 CALL SOUND(T/2,523,2)	1470 CALL HCHAR(16,16,142)
1170 CALL HCHAR(5,18,42)	1315 CALL SOUND(3*T,440,2)	1475 CALL SOUND(T/2,370,3)
1175 CALL SOUND(3*T,330,2)	1320 CALL VCHAR(16,7,56)	1480 CALL HCHAR(16,11,136)
1180 CALL HCHAR(8,13,42)	1325 CALL VCHAR(17,7,57,5)	1485 CALL SOUND(T,440,2)
1185 NEXT C	1330 CALL VCHAR(17,5,56)	1490 CALL HCHAR(15,12,120,6)
1190 GOSUB 1685	1335 CALL VCHAR(18,5,57,4)	1495 CALL HCHAR(15,16,132)
1195 DATA 9,200,330,267,370, 267,294,267,370,267,392,267, 330,267,392,1600,440,1,9999	1340 CALL COLOR(2,1,1)	1500 CALL HCHAR(15,15,122)
1200 CALL SOUND(2*T,440,2)	1345 CALL SOUND(T/2,370,4)	1505 CALL SOUND(T,440,2)
1205 CALL VCHAR(10,24,56)	1350 CALL SOUND(T/2,330,4)	1510 CALL HCHAR(15,18,135)
1210 CALL VCHAR(11,24,57,11)	1355 CALL SOUND(T,294,4)	1515 CALL HCHAR(15,11,134)
1215 CALL VCHAR(11,23,56)	1360 CALL HCHAR(20,12,120,4)	1520 CALL SOUND(3*T/2,440,2)
1220 CALL VCHAR(12,23,57,10)	1365 CALL HCHAR(20,17,140)	1525 CALL HCHAR(14,14,143)
1225 CALL SOUND(3*T/2,392,2)	1370 CALL HCHAR(20,16,141)	1530 CALL HCHAR(14,13,144)
1230 CALL VCHAR(12,25,56)	1375 CALL SOUND(T,294,4)	1535 CALL HCHAR(14,11,120,2)
1235 CALL VCHAR(13,25,57,9)	1380 CALL HCHAR(20,11,146)	1540 CALL SOUND(T/2,440,2)
1240 CALL SOUND(T/2,523,2)	1385 CALL HCHAR(19,11,120,7)	1545 CALL HCHAR(14,17,133)
1245 CALL SOUND(T,440,2)	1390 CALL SOUND(2*T,294,4)	1550 CALL SOUND(3*T,523,1)
1250 CALL VCHAR(14,26,56)	1395 CALL HCHAR(19,18,139)	1555 CALL HCHAR(14,16,136)
1255 CALL VCHAR(15,26,57,7)	1400 CALL HCHAR(19,10,146)	1560 CALL HCHAR(13,16,134)
1260 CALL SOUND(T,440,2)	1405 CALL HCHAR(18,10,120,8)	1565 CALL HCHAR(13,17,135)
1265 CALL VCHAR(15,22,56)	1410 CALL HCHAR(18,18,138)	1570 CALL HCHAR(12,16,133)
1270 CALL VCHAR(16,22,57,6)	1415 CALL HCHAR(18,9,132)	1575 CALL HCHAR(12,15,132)
1275 CALL SOUND(3*T/2,392,2)	1420 CALL HCHAR(17,18,137)	1580 CALL HCHAR(11,15,127)
1280 CALL SOUND(T/2,523,2)	1425 CALL SOUND(T,370,3)	1585 CALL HCHAR(11,16,128)
1285 CALL SOUND(T,440,3)	1430 CALL HCHAR(17,10,120,8)	1590 CALL HCHAR(11,17,129)
1290 CALL SOUND(T,440,2)	1435 CALL HCHAR(17,11,142)	1595 CALL HCHAR(11,18,130)
1295 CALL SOUND(3*T/2,392,2)	1440 CALL SOUND(T,370,3)	1600 CALL HCHAR(11,19,131)
1300 CALL VCHAR(15,6,56)	1445 CALL HCHAR(17,9,136)	1605 CALL HCHAR(10,20,126)
	1450 CALL HCHAR(16,9,145)	1610 CALL HCHAR(10,19,125)
	1455 CALL SOUND(3*T/2,370,3)	1615 CALL HCHAR(9,18,122)
	1460 CALL HCHAR(16,12,120,6)	1620 CALL HCHAR(9,17,120)
		1625 CALL HCHAR(9,16,121)
		1630 CALL HCHAR(10,15,123)
		1635 CALL HCHAR(10,16,120,2)
		1640 CALL HCHAR(10,18,124)
		1645 CALL COLOR(9,1,1)
		1650 GOSUB 1685
		1655 DATA 18,200,440,200,440, ,200,587,200,587,400,587,400, ,523,400,440,1600,587,400,55 4,600,523
		1660 DATA 200,330,400,523,40 0,370,400,494,800,294,400,58 7,2000,392,1,9999
		1665 CALL KEY(0,K,S)
		1670 IF S<1 THEN 1665
		1675 CALL CLEAR
		1680 STOP
		1685 READ N
		1690 FOR A=1 TO N
		1695 READ TT,F
		1700 CALL SOUND(TT,F,2)
		1705 NEXT A
		1710 RETURN
		1715 END

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Riley holds a degree in business from the University of Alabama and did graduate work at Stanford.

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He chose Myarc, not only because it would allow him to remain in the southeastern United States, but also because of the “potential in the Geneve.”

Riley notes that sales and marketing “doesn’t have to be in the same location as engineering. With a phone and a modem, you can do a lot of high-speed communication and when you do shows and so on, it makes no difference where you’re traveling from.”

Riley is married to a store manager for a retail chain. The couple has five children.

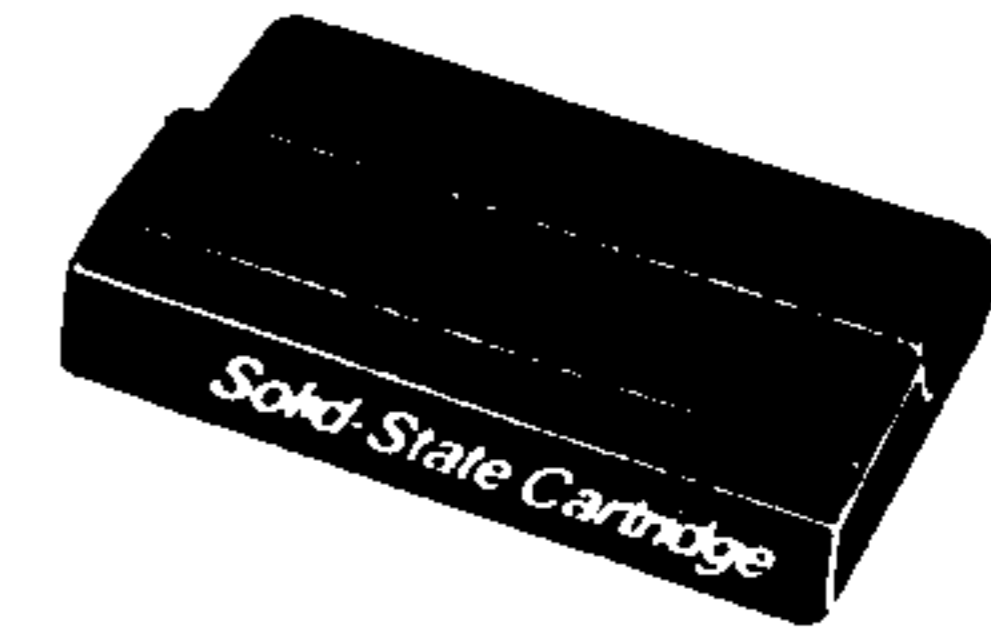
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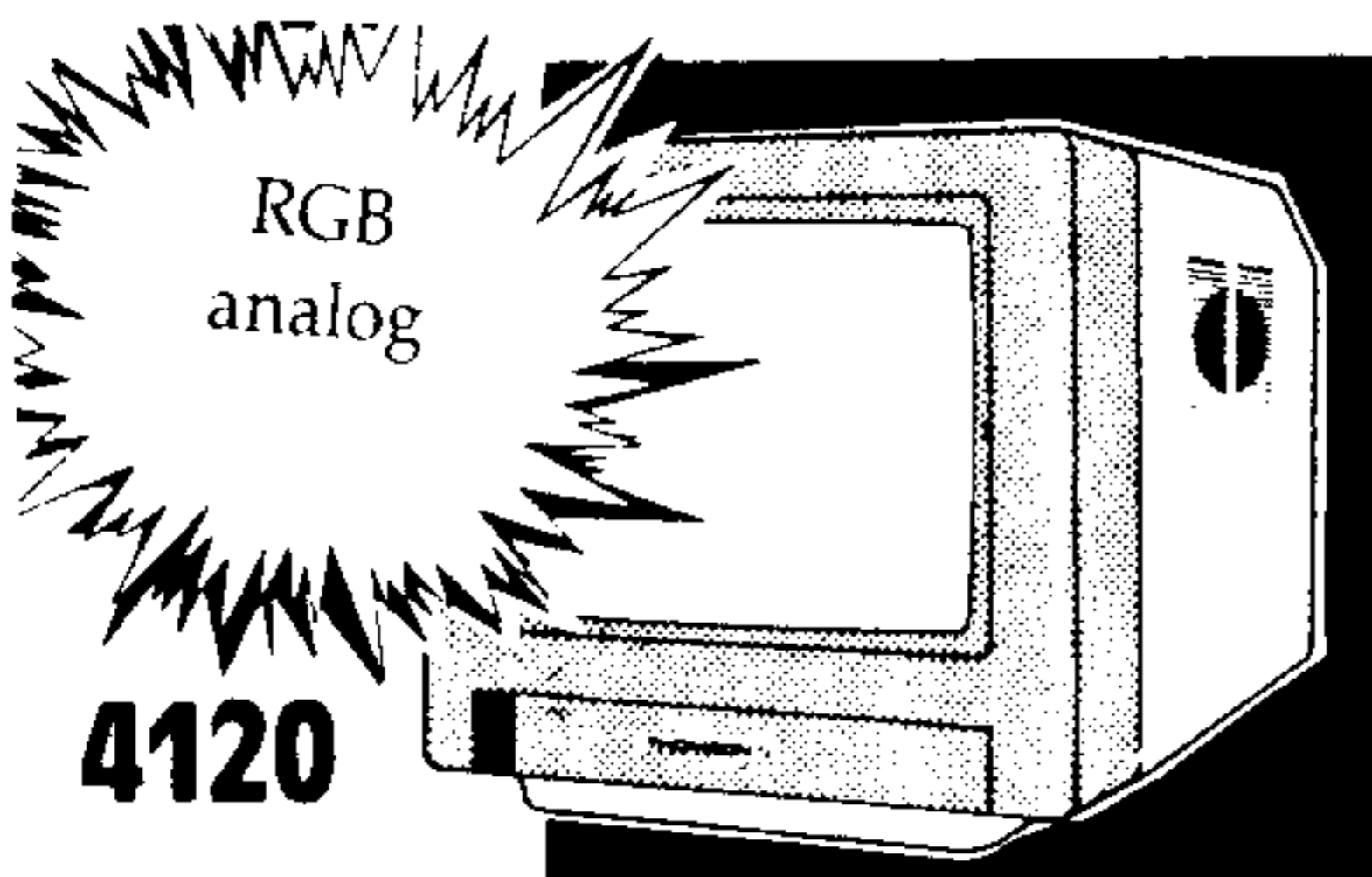
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The trials of a c99 beginner

Loops and arrays

By CHARLES E. KIRKWOOD JR.

There are two type of loops in c99, the **while(condition)** and the **for(index initial value,condition,step)**. The general forms are:

```
while(condition)      for(index initial value,
{                    condition,step)
  statements;        {
                    statements;
```

The index is a counter and can either increase or decrease by any integer value. It may be necessary to initialize a counter prior to the **while** loop and step it within the loop if counting is required. Examples 1 and 2 depict the **while** and **for** loops and the index or counter is **i**. To increase the index by 1, you can use **i=i+1** as in BASIC or **++i** and to decrease by 1, you can use **i=i-1** or **--i**. The examples are especially for the beginner who has had difficulty finding simple examples to illustrate the structure and techniques of the language.

Example 1: Print your name 5 times with no input.

```
/*while loop*/      /*for loop*/
main()              main()
{
  int i;            int i;
  i=1;              for(i=1;i<=5;i=i+1)
  while(i<=5)      /*or replace i=i+1 by ++i*/
  {
    puts("John Doe\n");
    i=i+1; /*or ++i;*/
  }
}
```

Example 2: Print out the alphabet from A to Z with no input.

```
/*while loop*/      /*for loop*/
main()              main()
{
  int i;            int i;
  i=65; /*or i='A';*/ for(i=65;i<=90;++i)
  while(i<=90)      /*or for(i='A';i<='Z';++i)*/
  /*or while(i<='Z')*/
  {
    i=putchar(i);
    ++i;
  }
}
```

The loop in Example 2 goes from 65 through 90, which are the ASCII values of A and Z. A single quote on each side of a character denotes the ASCII value of that character. 'A' is the ASCII value of A, which is 65. 'Z' is the ASCII value of Z, which is 90. Either 'A' and 'Z' or 65 and 90, respectively, may be used to control the loop. To print out the alphabet from Z to A without an input, replace the initial values by **i='Z'** or **i=90**, the condition by **i>='A'** or **i>=65**, and the step by **i=i-1** or **--i**.

Arrays in c99REL3UP can be either one- or two-dimensional. Only one-dimension can be used in previous releases. Examples of declarations for a one-dimensional array may be **int a[50]**; or

char a[50]; where brackets are used rather than parentheses as in BASIC. There are 50 elements (or locations) in array **a**; the first subscript is 0 and the last subscript is 49. The array dimension declaration must be equal to or greater than the number of consecutive subscripts (starting with zero) to be used in the program. The remaining examples deal with both loops and arrays. The index or counter may also be the subscript of an array.

Example 3: Declare an array to have 10 elements and input 10 characters. First, print these characters in the same order they are read in and second, print them out in the reverse order.

```
/*while loop*/      /*for loop*/
main()              main()
{
  int a[10];        int a[10];
  int b,c,i;        int b,c,i;
  /*input*/         /*input*/
  i=0;              for(i=0;i<10;++i)
  while(i<10)      {
  {
    b=getchar();    b=getchar();
    a[i]=b;         a[i]=b;
    ++i;           }
  }
  c=putchar(10);   c=putchar(10);
  /*output in*/    /*output in*/
  /*same order*/   /*same order*/
  for(i=0;i<10;++i)
  {
    b=a[i];
    b=putchar(b);
  }
  c=putchar(10);
  /*output in*/
  /*reverse order*/
  for(i=9;i>=0;--i)
  {
    b=a[i];
    b=putchar(b);
  }
  c=putchar(10);
  /*output in*/
  /*reverse order*/
  i=9;
  while(i>=0)
  {
    b=a[i];
    b=putchar(b);
    --i;
  }
}
```

Example 4: Input an unknown number of characters into an array. Use zero (0) as a flag to indicate the data set has ended. The flag must be a character not in the data set. First, print out the characters stored in the array and then on the next line print out the smallest character; i.e., decreasing from Z to A.

```
main()
{
  int a[100];
```

(See Page 22)

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c99—

(Continued from Page 22)

```

int b,c,i,t,n;
/*initialize b with a value different from the*/
/*ASCII value of zero in order to enter the loop*/
b=50;
i=0;
while(b!=48) /*or while(b!='0')*/
{
  b=getchar();
  a[i]=b;
  ++i;
}
/*i is incremented after zero is stored, so the*/
/*last character in the data set is stored in i-2*/
n=i-2;
c=putchar(10);
for(i=0;i<n;++i)
{
  b=a[i];
  b=putchar(b);
}
/*t is initialized to the character in the first*/
/*element of the array*/
t=a[0];
for(i=1;i<=n;++i)
{
  if(a[i]<t)

```

```

{
  /*Any character less than t will be stored*/
  /*in t*/
  t=a[i];
}
}
c=putchar(10);
t=putchar(t);
}

```

The input can also be included as part of the condition for the while loop. In this case it is not necessary to initialize the variable b before entering the loop. In Example 4, delete `b=50;`, replace `while(b!=48)` by `while((b=getchar())!=48)` or `while((b=char())!='0')`, delete `b=getchar()`; within the loop, and change `n=i-2;` to `n=i-1;` since the flag is not stored in the array.

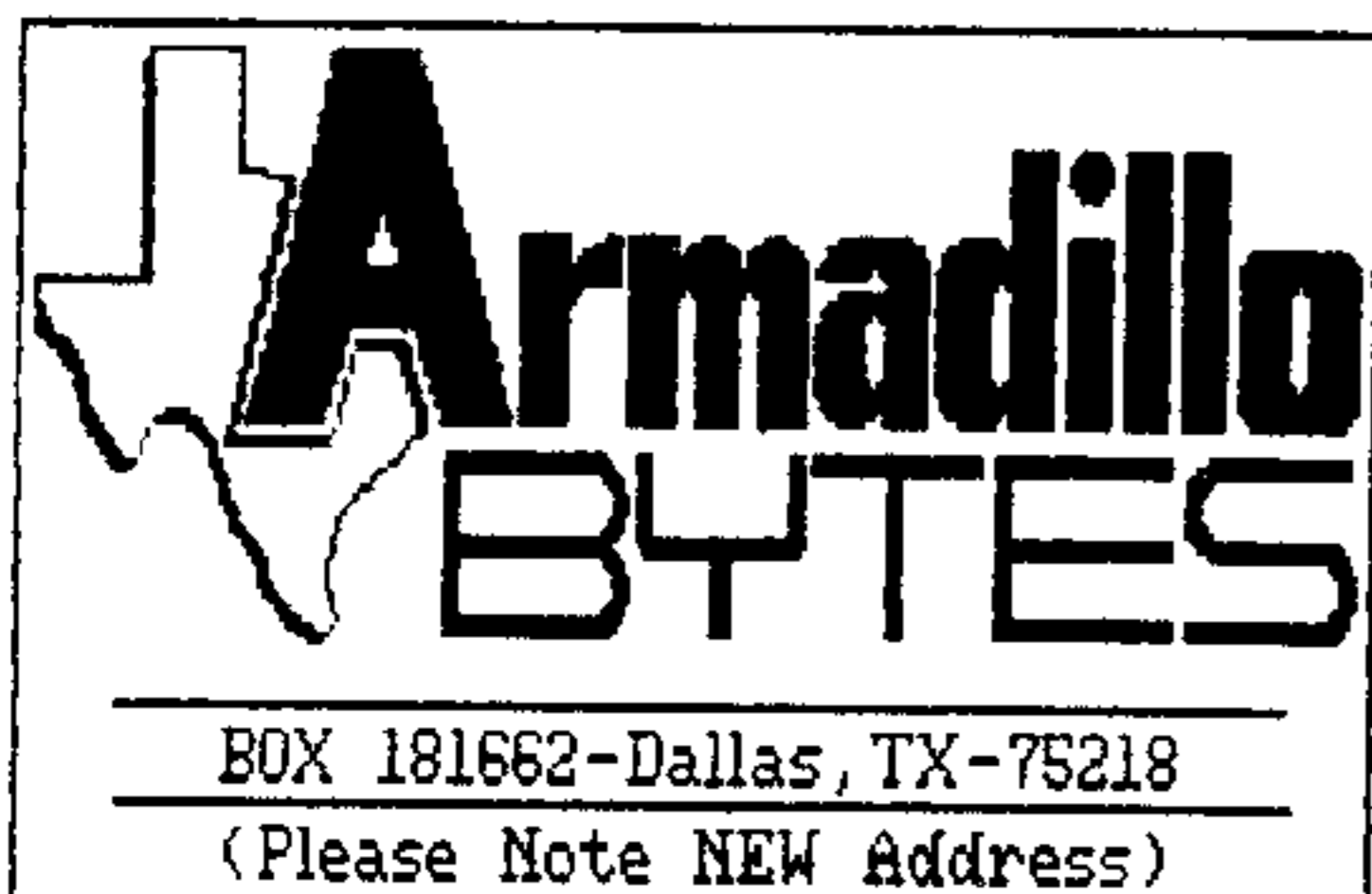
Example 5 is a program to sort characters in ascending order. Nested loops are used; two different indices must be used, one for each loop. Start with the first element, check through all the elements to find the smallest character. Swap this smallest character with the character in the first element. Start with the second element, check through the elements to again find the smallest character. Swap the smallest character with the character in the second element. Start with the third element, etc. The index i in the outer loop will go from 0 through n-1 and the index j of the inner loop will go from i (or i+1) through n.

Example 5: Write a program to sort characters in ascending order. Use zero (0) as a flag to indicate the data set has ended. If digits are to be sorted, you will want to use some other character as a flag.

```

main()
{
  int a[100];
  int b,c,i,j,k,t,n;
  i=0;
  while((b=getchar())!=48)
  /*or while((b=getchar())!='0')*/
  {
    a[i]=b;
    ++i;
  }
  n=i-1;
  for(i=0;i<n;++i)
  {
    t=a[i];
    k=i;
    for(j=i+1;j<=n;++j)
    {
      if(a[j]<t)
      {
        t=a[j];
        k=j;
      }
    }
  }
}

```



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(See Page 23)

Geneve

Modes make the difference

By MIKE DODD

The Geneve 9640 computer has two modes of operation — 99/4A and 9640 mode. In 99/4A mode the Geneve is totally imitating a 99/4A — the addresses of the memory-mapped I/O (e.g., VDP, GROM) are the same, GRAMS 0-2 have been loaded with the monitor and TI BASIC, and RAM at >0000 has been loaded with the GPL interpreter. Actually, as far as the hardware is concerned, you can be in 99/4A mode without having the 99/4A software loaded, but as M-DOS automatically loads the 99/4A software on entry to 99/4A mode, that is not really a concern.

The 9640 mode is vastly different — GRAM does not exist, and the memory-mapped I/O is clustered around >F100. This allows RAM to go from >0400 to >F100 without any breaks in the middle. This can be a huge advantage when writing software.

The memory-mapped I/O resides from >F100 to >F13F, with RAM continuing from >F140—>FFFF. This mode has all of the memory-mapped I/O ports tightly packed together, unlike the 99/4A, which used 1K for every two bytes. Another advantage of 9640 mode is that programs

running in that mode can use the multi-tasking features of the DOS (when completed).

Note that both modes can take advantage of the new graphics modes and extra memory. To set 99/4A mode, use the following code sequence:

```
LI R12,>1EF4
SBZ 0
```

To set 9640 mode, use:

```
LI R12,>1EF4
SBO 0
```

If you have received the MSX 9938 VDP manual, you may have been confused by the references to the many VDP ports. In 99/4A mode, the addresses for these are as follows:

Port	Read	Write
0	>8800	>8C00
1	>8802	>8C02
2	not exist	>8C04
3	not exist	>8C06

In 9640 mode, the addresses are the same for both read and write ports. They are:

Port	Address
0	>F108
1	>F10A
2	>F10C
3	>F10E

Last month I wrote about the memory usage of the Geneve. There is one other consideration: the 9995 processor includes 258 bytes of on-board RAM. This RAM is very, very fast. If at all possible, use this area for your workspace registers. The location of the RAM is from >F000 to >F0FB, and from >FFFA to >FFFF. All of the addresses can be accessed as either bytes (e.g., MOV_B) or words (e.g., MOV), except for the word at >FFFA: if you attempt a byte write to >FFFA or >FFFB, a copy of that byte will be written in the unaccessed byte.

Another thing to keep in mind is that this area of RAM cannot be mapped out of the memory space since it is built into the 9995 processor. If you are writing programs that involve bank switching, try to use the >E000—>FFFF area to keep code that is never swapped out. That will make the programming much easier for you.

The Geneve comes with 128K VDP RAM. However, only 16K of that can be accessed at a time. The method used to bank-swap the VDP memory is totally different than the method used for CPU memory. The entire 16K is swapped at once. To swap banks, you must write the

(See Page 24)

c99—

(Continued from Page 22)

```
a[k]=a[i];
a[i]=t;
}
c=putchar(10);
for(i=0,i<=n;++i)
{
    b=a[i];
    h=putchar(b);
}
}
```

All that is necessary to sort in descending order is to change `if(a[j]<T)` to `if(a[j]>T)`. The declarations for the sort program could have been written as:

```
char a[100];
char b,c,t;
int i,j,k;
```

Now is a good time to add three more utility files to your c99 disk. Copy **C99PFI** and **C99PFF** from the master c99 disk and

SAVE from E/A Part B. These files will make it possible to save your program so you can call it by selecting 5 on the E/A menu.

After you have checked out your object file (program) and it will execute correctly, select 3 (LOAD AND RUN) on the E/A menu.

Each time the FILE NAME prompt appears, type:

```
DSK1.C99PFI <ENTER>
DSK1.your-object-program <ENTER>
DSK1.CSUP <ENTER>
DSK1.C99PFF <ENTER>
DSK1.SAVE <ENTER>
<ENTER>
```

Type **SAVE** after the PROGRAM NAME prompt. The **SAVE** utility will execute. Type in a program file name after the prompt. Now, anytime you want to run your program, you can select 5 on the E/A menu.

Thought for the month: Typing correctly is a necessary factor for getting your program to run correctly. Good luck!*

GENEVE—

(Continued from Page 23)

bank number (0-7) into VDP register 14. For example, to load bank 2, you would use:

```
LI R0,>0E02
BLWP @VWTR
```

If you are using a graphics mode that is present on the 99/4A (Text 1, Graphics 1, Graphics 2, or Multicolor mode), VDP memory will wrap around in the same 16K block. For example, if you read from or write to VDP >3FFF, the next byte read would be located at >0000 in that same memory block. If you are using one of the new graphics modes, however, going past >3FFF will automatically increment the value in VDP register 14 and reset the address in that memory block to 0, essentially, therefore, going to the next address.

Advanced BASIC has full support for the MYARC mouse. The problem is that, as of this writing, Advanced BASIC isn't quite finished yet, so, I wrote a program to interface with TI Extended BASIC and the MYARC mouse. It is not compatible with the Advanced BASIC calls, so any programs you write using this routine will have to be converted over when Advanced BASIC is finished. This program has another purpose, as well — showing how to access the mouse from assembly language. Instructions for using the program are embedded in the source code.

To type in the program, load MY-Word and go into Program Edit mode (type PE <ENTER> on the main command line). Enter the program that appears at the end of this article.

Save the file and assemble with the Editor/Assembler cartridge (use the R option, or RL if you want a listing to the printer).

Here's an example program written in Extended BASIC to take advantage of the new CALL LINK. It will move a ball around the screen as you move the mouse.

Press the first mouse button to change the foreground color, the second button to change the background color, and the third button to end the program.

```
100 CALL LINK("MON")!TURN MO
USE ON
110 CALL CHAR(128,"3C/FFFFFF
FFF7E3C")!A BALL
120 CALL CLEAR!(GUESS!)
130 FC=16 :: BC=2 !SET INITI
AL FOREGROUND AND BACKGROUND
COLORS
140 CALL SPRITE(#1,128,FC,1,
1)!SET SPRITE
150 CALL SCREEN(BC):: CALL C
OLOR(#1,FC)!SET COLORS
160 CALL LINK("MOUSE",B,X,Y)
:: CALL MOTION(#1,Y,X):: IF
B AND 1 THEN 200 !MOUSE BUTT
ON 3 PRESSED
170 IF B AND 4 THEN FC=FC+1
:: IF FC=17 THEN FC=1 !MOUSE
BUTTON 1 PRESSED
180 IF B AND 2 THEN BC=BC+1
:: IF BC=17 THEN BC=1 !MOUSE
BUTTON 2 PRESSED
190 GOTO 150
200 CALL LINK("MOFF"):: END
```

As you can see from the above XB listing, you do not have to include a myriad

of IF statements to check the possible combinations of button presses — merely use the AND statement. For example, to check mouse button 2, rather than include IF B=2 OR B=3 OR B=6 OR B=7 THEN..., use the command IF B AND 2 THEN....

If you wanted to check if both buttons 1 and 2 were pressed, you could use IF B AND 6 THEN The AND statement masks off all but the bits you specify. For an excellent discussion of the AND (and other related commands) statement, you should read the manual to MG's "Night Mission" game/tutorial combination (reviewed in February 1986 MICROpendium).

PRBASE, the fairware database program by William Warren, does not correctly work on a Geneve. I have released a version of PRBASE (labeled V2.1) that will correctly work on the 9640. It has been uploaded to all of the information networks, or you may write to me for a copy. Directions for receiving the program are below.

If you have any questions about the Geneve that you would like to see answered in this column, please write me, either in care of MICROpendium, or directly to me: Mike Dodd, 116 Richards Dr., Oliver Springs, TN 37840.

If you prefer to save typing effort, you may have a copy of these programs by sending \$2, a blank disk, and a stamped, self-addressed mailer to Dodd at the above address. Please specify which program(s) you want.

Myarc Mouse-Extended BASIC interface program

* MYARC mouse interface for TI Extended BASIC
 * Copyright 1987 by Mike Dodd
 * Written for publication in MICROpendium magazine.
 *

```
DEF MON      turn the mouse on
DEF MOFF     turn the mouse off
DEF MOUSE    read the mouse
CIF EQU >0020
NUMMSG EQU >2008
XMLLNK EQU >2018
VWTR EQU >2030
FAC EQU >834A
```

* Turn the mouse on. To do this, we must set
 * the MSB of VDP register 8 to 1.

* Note that bit 4 (numbered 0 - 7) must also
 * be 1, regardless of the condition of the
 * mouse.

```
MON LI R0,>0888 Mouse on
BLWP @VWTR write to VDP register
RT return to XB
```

* Turn the mouse off. To do this, we must set
 * the MSB of VDP register 8 to 0.

```
MOFF LI R0,>0808 Mouse off
BLWP @VWTR write to VDP register
RT return to XB
```

* Read the mouse. The format for this command
 (See Page 26)

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Developing TI Users' Group
The TI Market and the 9640
Myarc Products
Software Demonstration

Myarc releases M-DOS, tells plans for software in 1988

The nearly complete version of M-DOS has been released by Myarc. Version .99 includes batch commands. Version .97, released in mid-October supported most functions described in the Geneve manual.

The new version of M-DOS matches the documentation provided with the 9640 and allows users to fully operate out of the 9640 mode. Previously, a GPL interpreter was used to access the 99/4A mode and only the My-Word word processor and the most recent update of the 80-column version of Microsoft Multiplan (Version 1.0) ran in the 9640 mode.

Those who returned warranty cards to Myarc should receive the final M-DOS sometime during October, according to

Myarc. This mailout is expected to include Advanced BASIC and Pascal Run Time Version 4.21.

Myarc's Disk Manager III is also being improved. The new version will allow users to format disks on the 9640, among other things. DM IV is also expected to be released in October. This version will fully support the 9640 operating system.

My-Word has also been upgraded to Version 1.0. This final version of My-Word allows searches to be conducted above or below the cursor location, places help files in RAM for instant access and users CTRL R to move the cursor to the right margin or CTRL E to move to the last word of a line.

Version 1.0 of Multiplan expands spreadsheet sizes to 41 kilobytes and loads the Overlay file into RAM so that the program disk is accessed only to retrieve help screens. The TI version of Multiplan allows spreadsheets up to 16K.

My-Art, the mouse-based graphics program, was released earlier this month.

Other software for the Geneve from Myarc includes the Lotus-like spreadsheet My-Numbers (second quarter of 1988); My-BASIC, a BASIC compiler (first quarter of 1988); c-Compiler (first quarter of 1988); and My-Data, a DBIII compatible database manager (third quarter of 1988). My-Data is written in c and was

(See Page 27)

GENEVE—

(Continued from Page 24)

```

* is: CALL LINK("MOUSE",buttons,x-movement,
* y-movement). The buttons variable will be set
* as follows: 0 - nothing pressed
*             1 - button 3 pressed
*             2 - button 2 pressed
*             3 - buttons 2 and 3 pressed
*             4 - button 1 pressed
*             5 - buttons 1 and 3 pressed
*             6 - buttons 1 and 2 pressed
*             7 - all buttons pressed
* X-movement will be the relative horizontal movement.
* Y-movement will be the relative vertical movement.
MOUSE MOV R11,R10    save return address
        LIMI 0      make sure interrupts are off!
* First, read the buttons. Note that the status for
* buttons 2 and 3 is stored in VDP register 1, while
* button 1 is read as a CRU bit in the 9901.
        LI  R0,>0F01    VDP read register 1
        BLWP @VWTR
        MOVH @>8802,R1    read it
        SRL R1,14      strip all but buttons
        CLR R12      prepare to read CRU
        TB 28        read mouse button 3
        JEQ MOUSE1    off (CRU bit inverted)
        ORI R1,>0004    set button 1 on
MOUSE1 BL  @WRTNUM    write to XB
        DATA 1      first parameter
* now read the x-movement
        LI  R0,>0F03    VDP read register 3
        BLWP @VWTR
        MOVH @>8802,R1    read it
        SRA R1,8      to LSB, but keep sign in MSB
        BL  @WRTNUM
        DATA 2      second parameter
* now read the y-movement
        LI  R0,>0F05    VDP read register 5
        BLWP @VWTR
        MOVH @>8802,R1    read it
        SRA R1,8      to LSB, but keep sign in MSB
        BL  @WRTNUM
        DATA 3      third parameter
* now, we have to reset the VDP read register
* pointer to 0, otherwise Extended BASIC will
* lock up.
        LI  R0,>0F00    VDP read register 0
        BLWP @VWTR
        B *R10      return to XB
*
* Write a number to Extended BASIC
WRTNUM MOV R1,@FAC    Number to write is in R1
        BLWP @XNLLNK
        DATA CIP      convert to floating
        CLR R0        not an array
        MOV *R11+,R1    get parameter number
        BLWP @NUMASG    write a number
        RT            return
*
        END

```

M-DOS RELEASED—

(Continued from Page 26)

ported from a PC system. Myarc's programmers must decompile the program and debug the code on a line by line basis. Myarc says the c-Compiler is a high priority for the company because many applications available in the PC market are written in c.

An upgraded version of My-Word, My-Word-Pro, is also expected in 1988. This word processor will support the Myarc Mouse and will allow users to take advantage of the 9640's graphics capabilities. Many of its operations will be identical to My-Word.

Other things to look for in 1988 include support for windowing, possibly in the first quarter, and multi-tasking. An EPROM will also be available by mid-year that will contain the entire M-DOS operating system. Users would then be able to have the operating system available without having to access it from a disk.

Questions

Questions is a column for readers with questions that may be answered by other readers. Send your questions and mailing address to MICROpendium for publication.

John Graney, data processing manager at Consolidated Cooperative Inc., P.O. Box 48, Gowrite, IA 50543, (800-262-1625), is looking for a terminal emulator for the 99/4A. "In particular, I am looking for a TI931 Terminal Emulator which would facilitate logging on to a TI Business System Computer (TI 990 Mini) remotely over a telephone line using a modem."

Readers with advice are invited to write directly to him.

Users groups

The following are additions and updates to our user group listings, which we began publishing in the May 1987 issue.

California

Tri-Valley 99ers, 3895 San Clemente Court, Newbury Park, CA 91320. Greg McGill, president, (805) 498-0198. Meets fourth Tuesday of the month at Kountry Folks Restaurant in Simi Valley, California. Newsletter, Disk of the Month, Fairware library. Annual dues \$12.

Maryland

T.I.-B.U.G., P.O. Box 2, Chase, MD 21027. About 100 members.

New Jersey

Northern New Jersey 99er's Users Group, P.O. Box 338, Kenvil, NJ 07847. Contact: Stan Rosental, (201) 647-2365. Meets 7-9 p.m. second Wednesday of the month year round at Clarence Dillon Public Library, corner of Lamington Road and Route 207, Bedminster, New Jersey. Newsletter, RAMER 99 BBS (201) 584-5373.

Ohio

New Horizons, 5533 Fleet St., Toledo, OH 43615, (419) 537-1454. Don Turner,

(See Page 31)

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Program helps insure program accuracy

You can be sure with checksum

This article and the accompanying programs first appeared in LA TopIcs, the newsletter of the Los Angeles 99/4A User Group. It was written by Tom Freeman. We are reprinting it here because in the future all Extended BASIC programs that appear in MICROpendium will be processed through the CHECKSUM program to help insure accurate program listings. We are including only a CALL LOAD version of the program that may be entered using Extended BASIC. If enough readers request it, we will also publish the Editor/Assembler source code of the program.—Ed.

By TOM FREEMAN

Have you ever typed in a TI99/4A version of a BASIC program from a magazine and noticed that the other versions have little numbers at the end of the lines that you don't have? They were for error checking on your typing, to ensure no mistakes.

Have you ever laboriously typed in a long program and run it, only to find that it crashes? Or doesn't work as it is supposed to, all because of a simple typing error that you can't find?

So, why doesn't TI have one? Now you do!

This may be the most useful program that I have published for general use, because almost everyone does BASIC programs at one time or another. It involves only one extra step for the programmer, and one for the user who is typing the published program in.

It is really a simple method, and depends on the manner in which TI stores BASIC programs. However, it requires a memory expansion and disk drive and works only in Extended BASIC (although BASIC programs can be entered in XBASIC, SAVEd and ten RUN in BASIC).

You may remember the format in which "MERGE" type programs are stored on disk. The MERGE format is actually a duplicate of the way in which the actual program is stored in memory, or on disk. The difference is that it is a display type file, with each record starting with two bytes for the line number, and then the actual program line. In memory, however,

the program lines are stored contiguously, and in seemingly random order. (Actually, the order depends on the order in which they were entered.)

A separate line number table is stored below the program area and keeps track of the line numbers and pointers to where each line begins. Each line consists of one byte "tokens" for all reserved words with all strings, including the names of subprograms such as LOAD, SCREEN, etc. being spelled directly.

When you enter any line in Extended BASIC (either a command or a program line with the line number coming first) it is first moved to the so-called "edit buffer" at address >8C0 in VDP. The BASIC bias is preserved. The purpose of this is that if you press FCTN 8 (REDO) then the whole line or lines can be retrieved.

Next, everything is "crunched" by replacing each reserved word with its token, subtracting the BASIC bias from strings, computing their length, etc. and placing the result in the "crunch buffer" at >820 in VDP. Once it is there, it can be transferred to the appropriate place in memory expansion. This is the area that is used when my program computes the "checksum" by merely adding the value of each byte! The number is never allowed to go over hex >FF — the high byte is ignored (thus, in decimal, no number over 255). The assumption is that it is extremely unlikely, probability approaching zero, that a small number of mistakes will result in a number that differs by exactly 256 or a multiple thereof. The one exception is that if you transpose two characters, there's nothing I can do about that.

Now, what does the programmer do? First, his program must be completely debugged, as no changes may be made after the checksums are computed, or they will, of course, differ. Next, he SAVES his program in MERGE format. Now, the following program must be run on the result:

```
100 !CREATE CHECKSUMS FOR XB
ASIC PROGRAMS, BY TOM FREEMA
N, LA 99 TERS !250
110 !SHOULD BE USED TOGETHER
```

```
WITH "CHECK" ASSEMBLY FILE
THAT WILL PRINT CHECKSUMS ON
SCREEN !099
120 DISPLAY AT(2,1)ERASE ALL
:"CREATE CHECKSUMS FOR XBASI
C ERROR CHECKING": : " by
Tom Freeman" !085
130 DISPLAY AT(10,1): "INPUT
MERGE FILE?": " DSK1." !007
140 DISPLAY AT(13,1): "OUTPUT
MERGE FILE?": " DSK1." !108
150 ACCEPT AT(11,3)SIZE(-15)
BEEP: !$ :: OPEN #1: !$.VARIABLE
163, INPUT !192
160 ACCEPT AT(14,3)SIZE(-15)
BEEP: O$ :: OPEN #2: O$.VARIABLE
163, OUTPUT !053
170 DISPLAY AT(20,1): "ANALYZ
ING LINE": "CHECKSUM IS " !01
4
180 LINPUT #1: A$ :: IF LEN(A
$)=2 THEN CLOSE #1 :: PRINT
#2: CHR$(255)&CHR$(255):: CLO
SE #2 :: STOP !115
190 Z=ASC(A$)*256+ASC(SEG$(A
$,2,1)):: DISPLAY AT(20,15)B
EEP: Z !141
200 H$=SEG$(A$,3,163):: L=LE
N(H$):: IF L>157 THEN 230 !1
62
210 N=0 :: FOR X=1 TO L :: Y
=ASC(SEG$(H$,X,1)):: N=N+Y :
: NEXT X :: N=N AND 255 :: N
$=STR$(N):: N$=RPT$( "0",3-LE
N(N$))&N$ !088
220 DISPLAY AT(21,13)BEEP: N$
:: PRINT #2: SEG$(A$,1,1+1)&
CHR$(131)&N$&CHR$(0):: GOTO
180 !252
230 DISPLAY AT(22,1)BEEP: "WA
RNING!": " LINE"; Z; " IS TOO LO
NG!": "PRESS ANY KEY TO CONTI
NUE" !123
240 CALL KEY(0,K,S):: IF S=0
THEN 240 ELSE PRINT #2: A$ :
: GOTO 180 !232
```

Notice the exclamation mark and three numbers at the end of each line? The program was RUN on itself!

Here is what happens: Each record of
(See Page 29)

CHECKSUM—

(Continued from Page 28)

the MERGE file is read in, the first two bytes ignored (we don't need the line number) and the rest are added up.

Next, the identical record is printed to the output file, with the addition of the token for "!" (REMark) and the three characters of the checksum. This will work even if the program line already contained a REMark (as in lines 100-110). *The user must not type these characters*, since they were not computed into the checksum. At the end (it may take a while with a long program, but only needs to be RUN once), the programmer types NEW and MERGEs in the output file, then SAVES it in normal mode, or lists it to a printer, or whatever. This is the form to be published.

What the user must do once is type in the CALL LOAD version of the object code for the CHECKSUM program. If the object code created was called "CHECK," then he must type the following upon entry into XBASIC:

```
CALL INIT :: CALL LOAD("DSKx.CHECK") :: CALL LINK("CURSOR")
```

This one line with a line number can be SAVED on disk and then RUN each time it is needed, rather than typing in the whole line for every use.

What the assembly routine "CURSOR" does is some housekeeping, such as moving the numbers 0-9 to character sets 13-14, changing the colors there, redefine the cursor, put up the title screen, etc. and then turn on the user-defined interrupt. Now, at every VDP interrupt (each one-sixtieth second), the routine at CHECK begins. The interrupt can be turned off with CALL LINK("OFF") and back on with CALL LINK("ON") at any time and the shape of the cursor will tell you which mode you're in. Every time you enter a new program line (and for some reason after FCTN 8 even if no changes are made) the checksum will appear at the bottom of the screen and one extra line scrolled up. Here is the key — it should correspond to the one published that you are attempting to copy in. Hence, no errors!

I spent many hours with MG Explorer, by Doug Warren, finding out what is going on when you enter a line in Extended BASIC. The address range in GROM of >6AA0 to >6AD8 should be broad enough to cover the various versions of

XBASIC, since they differ by a few bytes here and there (the range needed in my module was >6AAE to >6ACA.

I hope everyone finds this program to be useful and that it is widely used. I would like to thank Doug Warren for writing Explorer, without which I could not have done this, since I needed to find out where XBASIC does what. And I would like to thank Craig Miller for his invaluable help and advice while I was writing the program.

```
1 !CALL LOAD VERSION OF OBJECT CODE FOR CHECKSUM PROGRAM ,BY TOM FREEMAN,LA 99ERS !200
```

```
100 CALL INIT :: CALL LOAD(9460,0,0,0,0,0,106,160,106,216,0,10,11,13,0,0)!180
```

```
110 CALL LOAD(9484,0,126,66,66,66,66,126,0,31,31,32,32,88,66,65,83,73,67,32,69)!144
```

```
120 CALL LOAD(9504,82,82,79,82,32,67,72,69,67,75,69,82,32,32,32,32,32,85,83,73,78)!107
```

```
130 CALL LOAD(9526,71,32,67,72,69,67,75,83,85,77,83,32,32,32,32,66,89,32,84,79,77)!119
```

```
140 CALL LOAD(9548,32,70,82,69,69,77,65,78,44,32,76,65,32,57,57,69,82,83,2,132,0,10)!052
```

```
150 CALL LOAD(9570,17,2,2,36,0,7,2,36,0,48,192,68,2,33,0,176,6,193,4,32,32,32)!199
```

```
160 CALL LOAD(9592,4,91,2,0,3,240,2,1,37,4,2,2,0,8,4,32,32,44,2,0,4,128)!121
```

```
170 CALL LOAD(9614,2,1,39,22,2,2,0,80,4,32,32,44,2,0,7,0,4,32,32,36,4,32)!166
```

```
180 CALL LOAD(9636,32,24,0,38,2,2,37,22,2,3,96,96,2,4,0,36,192,66,172,131,6,4)!204
```

```
190 CALL LOAD(9658,22,253,2,0,2,228,2,2,0,24,4,32,32,36,4,32,32,24,0,38,2,0)!067200
```

```
CALL LOAD(9680,2,228,2,1,37,46,2,2,0,24,4,32,32,36,4,32,32,24,0,38,2,0)!020
```

```
210 CALL LOAD(9702,2,228,2,1,37,70,2,2,0,24,4,32,32,36,2,0,3,240,2,1,37,12)!006
```

```
220 CALL LOAD(9724,2,2,0,8,4,32,32,36,2,0,38,36,200,0,131,196,4,91,2,0,3,240)!119
```

```
230 CALL LOAD(9746,2,1,37,4,2,2,0,8,4,32,32,36,4,224,131,196,4,91,216,32,152,2)!239
```

```
240 CALL LOAD(9768,36,248,6,224,36,248,216,32,152,2,36,248,6,224,36,248,6,32,36,248,136,32)!133
```

```
250 CALL LOAD(9790,36,248,36,250,26,8,136,32,36,248,36,252,27,4,4,224,36,244,4,224,131,4)!013
```

```
260 CALL LOAD(9812,216,32,36,248,156,2,6,224,36,248,216,32,36,248,156,2,2,0,8,28,2,1)!054
```

```
270 CALL LOAD(9834,37,20,2,2,0,2,4,32,32,36,2,0,8,15,2,1,244,0,2,2,0,13)!105
```

```
280 CALL LOAD(9856,4,32,32,32,5,128,6,2,22,251,2,0,7,4,4,32,32,48,7,96,36,244)!204
```

```
290 CALL LOAD(9878,22,62,2,1,0,3,152,33,36,254,131,117,19,3,6,1,22,250,4,91,200,32)!180
```

```
300 CALL LOAD(9900,131,4,131,4,19,49,136,32,131,4,131,74,22,45,7,32,36,244,208,160,131,66)!038
```

```
310 CALL LOAD(9922,9,130,2,0,8,32,2,1,39,22,4,32,32,44,4,224,37,2,184,49,37,3)!195
```

```
320 CALL LOAD(9944,6,2,22,252,200,11,36,246,4,32,32,24,0,38,2,0,2,226,193,96,37,2)!138
```

```
330 CALL LOAD(9966,2,2,0,10,2,3,0,100,2,6,0,2,4,196,61,3,6,160,37,94,5,128)!027
```

```
340 CALL LOAD(9988,192,194,6,6,22,248,193,5,6,160,37,94,194,224,36,246,4,91)!104
```

```
350 CALL LOAD(16376,79,78,32,32,32,32,37,244)!042
```

```
360 CALL LOAD(16368,79,70,70,32,32,32,38,14)!240
```

```
370 CALL LOAD(16360,67,72,69,67,75,32,38,36)!002
```

```
380 CALL LOAD(16352,67,85,82,83,79,82,37,122)!053
```

```
390 CALL LOAD(8194,39,22,63,224):: CALL LINK("CURSOR")!143
```

Forth tips

Sorting numbers quickly

By LUTZ WINKLER

Inevitably a programmer encounters the need to sort some information into some logical sequence, either numerically or alphabetically. Quite a few sorting algorithms have been devised over the years and here we will deal with a Forth version of the Quicksort. This particular interpretation was written by Gary Nemeth. Based on it I have implemented a demonstration to sort 20 numbers.

```

0 ( QUICKSORT DEMO - 1  BASED ON GARY NEMETH'S QUICKSORT )
1 : NOT @= ;          : 2/ 1 SRA ;
2 : 2DUP OVER OVER ; : 2SWAP ROT >R ROT R > ;
3 : 2OVER SPE 6 + @ SPE 6 + @ ;
4
5 @ VARIABLE XX 40 ALLOT
6
7 : NO. INP ( ----n )
8   QUERY INTERPRET ;
9 : ENTER CR 40 @ DO I 2 / 1 + 14 .R ." INPUT : "
10   NO. INP XX 1 + ! CR 2
11   +LOOP ;
12 : SHOW CR 40 @ DO CR I 2 / 1 + 18 .R ." : "
13   XX I + @ 3 .R 2
14   +LOOP ;
15 -->

```

This screen sets up a number of operators (from NOT to 2OVER) which are needed for the sorting operation. VARIABLE XX is established to receive the numbers in random order by way

of ENTER. After they have been sorted, SHOW displays them. The words which perform the sort are shown below:

```

1 ( QUICKSORT DEMO - 2 )
2 @ VARIABLE MIDDLE
3 : K@ 2 * XX + @ ;
4 : K! 2 * XX + ! ;
5 : MID@ OVER - 2/ + K@ MIDDLE ! ;
6 : COMP K@ MIDDLE @ - ;
7 : EXCH 2DUP K@ SWAP K@ ROT K! SWAP K! ;
8 : SORT ( n1 n2 --- )
9   2DUP > IF DROP DROP
10  ELSE 2DUP 2DUP MID@
11  BEGIN SWAP BEGIN DUP COMP @ < WHILE 1+ REPEAT
12  SWAP BEGIN DUP COMP @ > WHILE 1- REPEAT
13  2DUP > NOT IF 2DUP EXCH 1 -1 D+ THEN 2DUP >
14  UNTIL SWAP ROT 2OVER 2OVER - ROT ROT -
15  < IF 2SWAP THEN MYSELF MYSELF THEN ;

```

SORT obviously is the top level word. K@ and K! retrieve and store the integers from variable XX, while MID@, COMP and EXCH are needed to enable SORT to perform its function. (It is not the purpose of this article to explain the workings of a typical quicksort. This information should be obtained from other sources.)

The 20-number limit for the sort is arbitrary. It was chosen so the entire result of the sort can be displayed without scrolling off screen. If XX is modified to allot more (or fewer) cells and the loop counters in ENTER and SHOW are changed accordingly a larger (or smaller) number can be sorted.

Usage is as follows:

ENTER—allows input of 20 positive or negative numbers
 0 19 SORT—sorts them in ascending order (loop parameters must be put on the stack!)

SHOW—displays the result of the sort

In spite of the length of SORT, you will be amazed at the speed of the sorting operation. In the next installment we shall explore the use of this routine for string sorts.

Ryte Data South closes


Henry Schlereth of Houston, Texas, has announced the closing of his company, Ryte Data South as of Oct. 19.

Schlereth cited difficulty with deliveries from a major supplier as the reason. He said he wants to express thanks to all his customers.

Datex moves to Florida

Datex, manufacturer of The Brain and Da-Tax Auditor, has relocated from New York to Florida. The new address is Datex, 470 12th Ave. North, St. Petersburg, FL 33701. New telephone number is (813) 894-7472.

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'Total' group holds some answers

By LEO W. DuBRY

What can be news about some computer users group having an exhibit at an unknown fair?

To each member of the users group, it's quite important.

Maybe you don't belong to a group, as there is not a TI group in your area. That is the case here in Longview, Texas. There is an active users group with more than 100 members and 10 in the TI SIG.

Why belong to a total group? First, a local bulletin board. Our board has an 80 meg hard disk to handle programs for 10 different SIGs. A monthly newsletter has articles from each SIG.

Each SIG has its own chairman and meets once a month. Also, a monthly meeting for the entire group highlights new items on the market.

Being a non-profit organization, we acquired a double-size booth without charge at the recent Gregg County fair. The fair ran from Tuesday evening through Sunday night. Each night at least four different

SIGs were represented, with two persons from each SIG on hand to keep something going on the computers and answer questions.

There was an IBM-compatible section, a Commodore, Apple and TI99/4A. More than 100,000 persons paid admission to the fair, and the majority of them passed the booth.

Five TI members manned the booth and it proved enjoyable. We acquired a number of different catalogs and copies of MICROpendium. When a person stopped at the booth he was asked what kind of computer he owned and was pointed to a person who could help him. We feel that a number will join. Those having TIs found that they were not alone. Some stated that they had heard TI was dead. They found out that they had been misled and received information on different sources of supply for hardware and software.

The material that was not given out will be turned over to the Tyler TI users group for a Computer Flea Market to be held in

their city.

This is one way interest in our computer can be increased. If there is not a TI group in your town, maybe a combined group can help you start a SIG.

We now plan to hold classes in programming in BASIC and Extended BASIC and in the use of software and hardware.

Rainbow Software produces games

Rainbow Software of Brooklyn, New York, produces adventure-fantasy games for the TI on cassette and disk.

Wizard's Lair is described as a 3-D game pitting the user against countless monsters as he advances to defeat the Evil Wizard. Wizard's Revenge is a sequel. Both require Extended BASIC. Wizard's Lair is \$14.95 and Wizard's Revenge is \$16.95, add \$3 each shipping and handling. For information contact the company at 15 Rose St., Brooklyn, NY 11236 or (718) 498-6107.

(Continued from Page 27)

president.

OH-MI-TI, 225 S. Wheeling, Oregon, OH 43616, (419) 693-7934. Robert Peters, president. Joint newsletter and TICOMM BBS (419) 385-7484 with New Horizons.

Outside U.S. Canada

Almonte 99er Users Group, 18 Brown St., Carleton Place, Ontario, Canada K7C 3W3. Richard Pitt, president. Meets once a month, 11 members. Extensive library.
Red Deer TI 99ers, c/o 5924-51 Ave., Red Deer, Alberta, Canada T4N 4H9. Contact: Gary Caton, (403) 347-4183.

West Germany

Rex-Soft User Group, c/o Mike Rohrmoser, Nietzscheweg 16, 4300 Essen 14, West Germany. Phone: 201 / 53 06 87 or c/o Klaus-J. Höltingen, Westerdorfstr. 10, 4300 Essen 12, West Germany. Phone: 201 / 32 38 45. Annual dues 12 DM (\$6), newsletter on disk. Freeware, software development (languages: Pascal, C, XBASIC, Assembler, Pilot, German Logo). Membership year begins in January.

Magazine binders

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Mail your order to MICROpendium Holders; P.O. Box 1343; Round Rock, TX 78680. Include \$3 for each set of 12 holders.

THE BRAIN

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6 Tables: ASCII codes, TI99/A color codes, TMS 9900 Instruction Set, Trigonometry, Elements and Isotopes, Metric equivalences.

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Database managers compared

Some are definitely better than others

By **BILL GASKILL**

Some owners/authors of the applications I have covered in this article will no doubt be angered by the apparent brutality of it. I choose to view it as honesty rather than brutality. Too many reviewers whitewash the weaknesses of TI software they critically review. I will not. I think sometimes that we are afraid that the software market will dry up and blow away unless we give favorable reports on the software products that do appear for our computer. I prefer to think of it in another way — if we promote junk software in a favorable light those that do publish product reviews will lose credibility and those that buy software based upon those reviews will simply be that much more reluctant to get burned a second time.

In the process of searching for the perfect data base manager I have purchased several programs and spent a few hundred dollars in the process. All of the programs that I own have positive points and all have negative points.

What I have discovered to date is that the "perfect" data base manager does not exist yet (not even in the business world). What I am going to share with you are my impressions of the programs I own and in doing so will perhaps save you a little time and money if you too are looking for that "perfect" application.

The programs I own are:

Acorn 99 from Oak Tree Systems

Creative Filing System from Mark Beck

DBMS from Navarone Industries

Data Base 1 from SPC Software

Data Base 99 from Quality 99 Software

Data Base 300 from the International Users Group

Data Base X from Western Ware

PR Base V1.2 and V2.0 from William Warren

Turbo Dataman from Easy Ware

I have used these programs enough to feel comfortable with each and could probably write several pages about each one. Unfortunately, publication space is limited and such a voluminous article would never see print. I have tried to be brief and to the point in my comments on each program. Also, keep in mind that my com-

ments are subjective, based upon how each product meets my needs and expectations. Yours may be different.

There are a couple of applications I own that are not included in this article. They are the Personal Record Keeping module and Data Base 300/500 from the International User's Group Master 99 series. The PRK module does not warrant recognition in this article and Data Base 300/500 is no longer available as far as I know. A couple of other applications — Total Filer by Warren Agee and S-Files and S-Reports by Shepard Software — are not included because I don't own them yet. No doubt there are other programs I haven't discovered and programs yet to be written. Eventually, I will probably try them all.

Acorn 99

Among the top three database manager's available to the TI community. The only relational data base available, also the only one with a programming language interface for custom applications.

Extremely powerful and well-designed. Can support three active files at one time, allows existing data file formats to be edited, copied to another file, resequenced and can reformat a file structure into another file format. Does not have the ability to show number of records in a file. Can hold more than 1500 records per file on a SS/SD disk (depending on file size). Sorts alpha characters and strings better than numbers. Indexes record location for subfile creation and mainfile is then concatenated to create the subfile as another database. Possesses ability to search using "equal to, unequal, greater than, less than, ignore" logical operators. Supports relational operators in search routines through the use of a true/false convention that allows selection of records where all parameters are met or any parameters are met. Can print a single record from a display screen.

Extremely slow in operation. Uses 40-column text mode. Allows duplicate key field data entries. Allows printer control codes to be encrypted in setup file. Provides input checking for "numeric, integer, money, string, flag and date" en-

tries. Over all, a fabulous program, with almost limitless potential. The best documentation of the group, giving many examples along with explanations. Superb application.

Navarone DBMS

Allows 32,000 records per file but only 350 per SS/SD diskette. Limits you to half that amount if you wish to sort the file since it creates a second sorted file that demands equal space on your data disk. Most interesting report generator I have ever seen, a cut and paste type affair that is really neat but poorly documented.

Excellent custom screen design module which includes help screens that you design. Fast, fast, fast. Requires unique key field entries only, which I find inconvenient. Documentation is better than originally written but still confusing at times and incomplete. Dotes on mundane things and skips over or entirely omits important things.

Does totaling in reports but no other computational work. Does not support single record printing but can use the report module to scroll data on screen, write it to disk or send it to your printer. Can append new data fields to the end of an existing record but cannot reformat the record in any other way. Can create subfiles but you have to figure out how to do it for yourself because the documentation does not tell you how. It doesn't even mention subfiles. Allows printer control codes to be encrypted in Report Generation file. Does not perform input checking of any type. All data is considered to be a string entry. Best suited for a hard disk environment. Not difficult to use once you have "played" with it, but can be intimidating at first.

Creative Filing System

CFS is the most feature-packed and interesting application of the group, containing so many different programs and files that they do not all fit on a SS/SD diskette. This can be an annoyance to the user who has only a SS/SD drive, but no problem otherwise.

CFS supports 1-3 disk drives, as well as the Horizon RAM Disk and the Founda-

(See Page 33)

DATABASES—

Database programs for the TI99/4A

Name	Price	Strengths	Weaknesses
Acorn 99	\$59.95	Relational, flexible, excellent documentation, BASIC interface	Slow
Navarone DBMS	\$49.95	Very fast, excellent screen design and report generator	Records must be accessed by record number, spotty documentation
Creative Filing System	Fairware	Outstanding tabular report generator, feature laden	Inadequate documentation
Data Base 1	\$29.95	Best used for list maintenance, can create disk file database	Not very flexible, searches require index file
Data Base 99	\$39.95	Fast report generator, custom screen design	Cumbersome, requires additional utilities to get maximum use
Data Base X	\$29.95	Can analyze data statistically	Poor documentation, doesn't sort, slow
PR Base	Fairware	Fast, flexible, on-line help, graphics options for screen design	Report design cumbersome, no "no number crunching"
Turbo Dataman	\$30.00	Powerful, supports math functions	Would be better with menu system, documentation could be better

(Continued from Page 32)

tion 128K card. It has a neat Auto-open feature that catalogs a data disk to look for your file name for you, then opens it for processing. Does not support custom screen design. Does not perform input checking of data. All data is considered string input.

Uses a rather unusual record format in that it actually supports only eight data fields with a maximum length of 28 characters per field. But each field has been split in half to provide 16 fields of 14 characters each. No length limiters are provided to control the length of an entry though. So one could accidentally type in more than 14 characters in a field that will run the data into the next field, possibly causing problems in sorting or searching. CFS does let you use any of the eight actual fields as one field of 28 characters but, during data entry, the cursor still skips to position 15 if the data entered into a 28-character field is less than 14 characters long. Thus, you find yourself pressing <ENTER> twice to advance to the next field.

Program crashes when you try to save a file format to your data disk using a name that already exists on the disk, but you can edit an existing file so you don't have to redesign it from scratch. File merges and subfiles are supported. As many as 1,000 8-line records will fit on a DS/DD diskette, but the documentation does not tell you how many will fit on a SS/SD disk.

Can change the size of file, meaning the number of records in it. Cannot have more than one file open or active at one time. Only supports the "equal to" relational operator when performing searches, but provides logical operator support for AND, OR and NOT. Searches may be performed in sequential mode by any field (in a single condition search) or by any two fields (in a multiple condition search). Sorted files may be searched in what is called the "Turbo" mode, which is a single condition search of an indexed field. Output is displayed to the screen or you may use the search routines to index records for sub-file creation. No individual record printing is provided. Screen display

of records selected in a search scroll by so fast that it is difficult to see them. The program requires that a key be pressed to halt the scrolling, but the keyboard scanning routine is not fast enough to keep up. Thus, by the time you have pressed a key to stop the display of records, the one you wanted to see has already gone by. You can't go back to it except by starting the search all over again.

A horizontal bar chart program is provided (a la Craig Miller's *Smart Programmer's Guide To Sprites* book) that will allow one to chart numeric data by month. Date and money data, in a rigid CFS format, must be present in each record before the graph can be used. Even so, this is a nice feature and CFS is the only application to provide it. File sorting, in version 8, is done on one or two fields, via J. Peter Hoddie's assembly language sort program. The routine is cryptic and not adequately documented, but fast and effective once you figure it out.

While one can find room for improvement (See Page 34)

DATABASES

Features of data base programs

Program	Max.Fields/ records	Max. Field Length	System	Custom screen	Math	Sorts	Search method	Subfiles
Acorn	58/1500	240	XM,DSK,XB	no	limited	yes	A,Relational	yes
DBMS	25/32000 ⁽¹⁾	28	XM,DSK	yes	limited	yes	Record No.	yes
CFS	16/1000	28 ⁽²⁾	XM,DSK,XB	no	limited	yes	B	yes
DB I	10/varies ⁽³⁾	28	XM/DSK/XB	no	no	yes	C	yes, printer
DB 99	28/700 ⁽⁴⁾	28	XM/DSK/XB	yes	no ⁽⁵⁾	yes	A, by 1 field	yes
DB X	10/1000	28	DSK/XB	no	yes	no	Sequential	no
PR BASE	32/700	246	XM/DSK/XB	yes	no	yes	D	yes ⁽⁶⁾
Turbo DM	30/30	28	XM/DSK/XB	yes	yes	yes	Sequential	yes

A—by logical operators

B—"equal to," sequential, by up to 2 fields

C—"equal to," by 1 field

D—"find" function to view data in any field and "global" option to locate entry within a record

1—32,000 records possible only on hard disk

2—only 8 fields possible with 28 characters each

3—the fewer the fields, the more records possible

4—one field per line, only 24 lines displayed on screen

5—must purchase DB 99 Utilities program

6—must obtain Fairware PRB Utilities

(Continued from Page 33)

ment in the record design, data entry and data manipulation portions of CFS, an absolutely outstanding tabular Report generator is provided that is simply the best of its kind. Though not as easy to use as the Navarone Report module, the CFS program outperforms all of the competition.

Besides being extremely flexible, it supports what CFS calls priority fields, which means it has the ability to suppress printing of duplicate data (a feature no one else appears to even have considered). It also supports both horizontal and vertical column totaling of numeric data, allows you to insert custom heading information in the tabular report rather than limiting you to the headers built into the record format for the file being printed.

For my purposes, a data manager's report generation is number 2 in importance, second only to a program's ability to "pull out" only that data I want, for whatever task I'm dealing with, so that I can generate reports on it. The CFS report program alone just about makes up for any weaknesses found in the main program. It is that good. It supports custom-designed

formats and allows them to be saved for future use, prints to disk or printer and more.

CFS provides a host of other features or programs that have specific rather than general uses. There is a program that allows you to create a catalog file of your disks (that is used by other CFS programs, but which ones I could not discover), a Formatter program that allows you to print text along with data files (another feature unique to CFS), a utility program to create TI-Writer value files for form letters and such.

Overall, Creative Filing System is quite a program. While I have been critical of it in some areas, it offers more features than any of the other programs looked at. Because of this, it simply cries out for more adequate documentation. Some of the more complex operations that could use 3-4 pages of instructions by themselves are covered in one or two paragraphs. The 39-page, on-disk manual simply does not do justice to the utility that Creative Filing System can provide a user. That which is provided is cryptic for the most part, in-

accurate in a couple of places because of the eight updates it has gone through and it reads like it was written by a programmer rather than a user. No doubt author Mark Beck understands how to use all the features CFS offers. The challenge in writing documentation though is to pass that information on to others so that they can figure it out too.

However, for the price and the utility offered, CFS is hard to beat. In fact, because of its many features and the Freeware price tag, it deserves to be a competitor to PR Base for your attention. That says a lot for Creative Filing System.

Data Base 1

Best suited for mailing lists or other LIST type data files. Cumbersome design setup requires records to be accessed by their relative position in the file (record number). You must first list the records by a specified field if you don't know the record number. Time consuming.

Provides three pre-set mailing label report formats and one custom format for your own design. Will not do reports that
(See Page 35)

DATABASES—

(Continued from Page 34)

have heading information. Includes several nice utilities, such as a form letter generator and disk file data base which creates a DBI data base file out of the information on your library of disks. Does not provide for input checking nor length of field entries. Looks only at the length of overall record.

Does searches by "equal to" operator on only one data field at a time. Requires that you first create an index file and then search. To search by another field you must create another index file. Searches by a maximum of five characters in any field. Sorts are limited to 1,000 records no matter how many exist in the file, but both alpha and numeric sorts are offered. Subfiles can be created to a printer in the main program or to disk by using the Utilities options. Selection is by "equal to" or "between two values" which can be either alpha or numeric type.

Data Base 99

More emphasis put on copy protection than on program performance. Allows custom screen design and claims 28 fields of up to 28 characters each. Would be a neat trick to do since four of the 24 rows on screen are used by program prompts. Fast assembly language interface for report generation. Cannot generate reports with headings and does not permit printer control codes to be inserted in report data. Does not save a format after design so you will have to re-create it each time you want a report. Data is printed in continuous format without regard to page breaks or anything else.

Design of layout is cumbersome, requiring you to conceptualize how many colons or semicolons are needed to push the data across the page. Number of colons/semicolons is limited to 127 characters allowed in a LINPUT command. A terrible system.

Disk catalog accessed from main menu will crash program if you enter an alpha character instead of a number when it prompts for the disk drive number to be cataloged. Color is lost after a crash since it was CALLED from the LOAD program. Does not permit single record screen print (unless you buy the DB 99 Utilities), must use EDIT option to search for a record or search sequentially. Cannot go directly to a record by its relative position in the file. Will create subfiles to disk allowing the

search by "less than, equal to or greater than" operators. Search is limited to one field for all practical purposes.

Sorts can be performed in ascending order, by any one field. Sort is an actual re-write of the file. All data is considered string information. No number crunching (unless you buy the DB99 Utilities), no input checking. Documentation consists of two 8½" X 11" sheets of paper printed on both sides.

Program is slow, inflexible, inconvenient in many ways and cumbersome to use. It might have been an advanced application some years ago. Today it is a dinosaur, even with the DB99 Utilities. Much too expensive.

Data Base X

Very modular, meaning that each function (adding, editing, printing, deleting, etc.) requires a separate program that must be loaded each time you want to use that function. Does statistical analysis of data. Record counter is inaccurate, code of program is jumbled and entirely unstructured.

Does not sort data even though documentation uses the term "sort." What it means is "select." When Data Base X "sorts" by a particular parameter it is really selecting records for dumping to a printer that meet that parameter. Does allow selection between ranges. Cannot create subfiles, does not index existing records. Access of a record is done sequentially unless you know the record number. No way to tell the record number, you must guess. Supports 1 or 2 disk drives. Only program reviewed in this article that runs with only 16K.

Excruciatingly slow. Requires that you name the data disk DBXDATA for no good reason that I can see, otherwise program errors out. Does not save report definition but does allow it to be printed in normal or compressed mode. Definition process is fairly simple but time-consuming.

Documentation is the shabbiest I have ever seen. It is photocopied and put into booklet form with the pages not even cut straight, so that some information is missing off of some pages. Over all, this program is junk! As with the IUG's DATA BASE 300/500, it never really belonged on the market in the state that it is in. Unfortunately I didn't know that and paid out over \$30 to find out. (*Most recent price found by MICROpendium, \$29.95—Ed.*)

PR Base

Totally assembly language coded. The BEST all-around application in my opinion.

Fast, flexible, does virtually anything a user would want in the way of data handling except number crunching. It will not do anything in that area. Treats all data as part of a big string just as DBMS and Data Base 99 do. As long as you own the PRB Utilities written by John Johnson you can create subfiles, otherwise you can't.

Has on-line help for commands, creates an index by any input field you choose and then accesses any record in about 1 second. Also has a Find feature to look at data sequentially in any single field and a Global option that searches for a single data entry anywhere in the record. Saves up to five report formats, V2.0 allows you to format a data disk. Custom screen layout with terrific graphics options for borders/windows, etc. is available. A tremendous program, well thought out, well-designed and artistically executed. Fairware! PRB Utilities are free for the asking as long as you provide the disk and mailer.

Report design routine is cumbersome and confusing. Prints single record from screen display in either 40- or 80-column mode. Program is very sensitive about I/O device names. My copies (V1.2 and V2.0) both require "PIO." to work rather than just PIO or PIO/I. With number crunching abilities this program would be a perfect "flat-file data manager" for most TI users.

As it is, the value and performance for a Fairware application, or a commercial application for that matter, is unsurpassed. If you don't have PR Base then you are missing out on one of the premier productivity tools available to the TI community.

Turbo Dataman

This is potentially the most powerful and useful data manager, taking a back seat only to PR Base. It runs slightly ahead of Acorn because it performs number crunching and is faster in operation.

Like Acorn, Turbo Dataman allows you to create a dictionary of data items (fields) and then lets you choose from that library of fields to put a record together. Up to 30 fields are allowed per record. Twenty predefined records (file formats) can exist on one disk. Allows custom screen

(See Page 36)

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DATABASES—

(Continued from Page 34)

layout design, complete with graphics for borders/windows, etc. Does input checking, allows secondary screen access like Acorn's Detail Records. Allows formulas to be created and saved that perform the four basic math functions. Report definitions can be saved. Allows wildcard type operators in searches. Will print single record from screen display.

Provides "less than, greater than, equal to, not equal to, greater than or equal to, less than or equal to" operators in screen display and report generation modules. Permits sub-totals in reports that can be formatted, like TI Extended BASIC does with the IMAGE statement. Subfiles can be created through the report generator by sending the output selected to a disk file rather than a printer. However, the results must be converted back to INTERNAL FIXED from DISPLAY FIXED before you can use it in the program. Turbo Dataman does not provide you with that utility. The documentation instructs you to "write a program" to do it.

Names used for different modules in the program are confusing: ETCH, SKETCH, SKETCHR, FETCH. Should change names to more accurately reflect function of module. Documentation acceptable but lacks adequate coverage in some areas. Utilities are provided to perform some mundane operations, such as counting the number of records in a database.

Reformatting or restructuring of an existing file is not permitted unless the input field is appended to the end of a record format. This program needs some fine tuning in some areas but is still an exciting productivity tool with immense possibilities. Its speed of operation is not fast but acceptable. It is faster than Acorn. One can set up the SKETCH program to auto-load if desired, but the whole application should be centered around a menu in my opinion. As it is, you must run each module from the READY prompt when you need to use it, because every module exits with an END statement.

Whether you want to manage a mailing list or do accounting, Turbo Dataman is useful.

CONCLUSION

We are more fortunate than most orphaned computer communities, in that we have

so much talent and loyalty in our ranks. Some of the programs that I have discussed in this article are certainly representative of that talent.

When it comes down to making a choice on which program to buy, ("buy" includes paying the Freeware author his just reward), you pretty much have to make that decision on your own.

PR Base is certainly the most professionally designed application of the group and also the fastest in virtually every respect.

Acorn 99 is far and away the most business-like with its relational capabilities and support for multiple files being open at the same time.

Turbo Dataman (which I haven't seen on the market since Don Thompson exited the TI market) is the best number cruncher.

Creative Filing System packs the most bang for the buck with its broad spectrum of features.

No one program will address all needs, so your choice is likely to be made based upon what your needs are. And that is as it should be. Perhaps this article has helped to make that decision a little easier.

Acorn 99: Oak Tree Systems, 3922 Valentine Rd., Whitmore Lake, MI 48189

Creative Filing System: Mark Beck, 8 Forrestridge Circle, Valdosta, GA 31602

DBMS: Navarone Industries, 19968 El Ray Lane, Sonora, CA 95370

Data Base I: SPC Software, Box 121, Brightwaters, NY 11718

Data Base 99: Quality 99 Software, 1884 Columbia Rd #1000, Washington, D.C. 20009

Data Base X: Western Ware, Box 53043, Lubbock, TX 79453

PR Base: William Warren, 2373 Ironton St., Aurora, CO 80010

Turbo Dataman: EasyWare, Box 3130 Station D, Ottawa, Ontario, Canada K1P 6H7

(Note: We advise anyone interested in ordering one of the database systems listed above to contact the manufacturer regarding current availability before ordering.—Ed.)

BBS changes

The Penn Ohio Users Group has replaced its TIBBS with 4A Connection, 24 hours at 300/1200 baud, at (216) 755-8220. Sysops are Ed Luptak, Ron Baker and Dave Tranovich.

Font Writer II

Pizzazz for your layouts

By HARRY BRASHEAR

Font Writer, and now Font Writer II. Asgard and Peter Hoddie have gotten together again to better what was already an excellent piece of software.

I had a nodding acquaintance with the original Font Writer and was impressed with its capabilities but had never used it much. Now I have version 2, and it's slated to become one of my most used disks. User group newsletter editors had better listen up because this program could add pizzazz to otherwise dull layouts.

FWII consists of five major programs, any one of which is innovative enough to warrant at least half the \$24.95 price tag. They are the Editor, the Formatter, the Manager, the Disk Dump, and the Banner maker. Asgard has also included on the main menu the TI-Writer editor and formatter, a utility loader and, of course, a file to keep your system defaults in. This latter group is put there for your convenience and it is assumed that you are acquainted with their use. For this review it's enough to know that they are there.

When you get a new piece of software, you always want to get right into it and DO something. Because of this I am going to tell you about the simple stuff first, Banner and Disk Dump.

Banner does exactly what it says it does, makes banners just like CSGD. You can use any CSGD font you may have to print with and you can also combine CSGD graphics. Nothing new in that, but how about the ability to do the letters in nine different sizes and put it where you want on the page? Looks like the "man just bit the dog," right?

While they were at it they also gave you a "stretch" factor that allows you make the letters as wide as you want. I selected a "one high" font and tried the banner out with the defaults of 1 and 1. The letters came out just slightly less than an inch tall and perfectly formed. Setting the height at two added another inch, three added one more inch, etc. Using this one font, I could have set the size at four and the column half way up the page, printed a message, backed the paper up, set the size at two, and printed a second smaller line on the

Review

Report Card

Performance.....	A+
Ease of Use.....	B
Documentation.....	A
Value.....	A+
Final Grade.....	A

Cost: \$24.95

Manufacturer: Asgard Software, P.O. Box 10306, Rockville MD 20850

Requirements: Console, Extended BASIC, 32K, RS232, printer

bottom of the banner.

Graphics are not affected by the size inputs so a little placement planning is needed for them. Also, you can mix graphics and text by doing parts of a message. The format is... TESTING(DSK1.FLOWER/GR). The word TESTING would be printed, then the program would go to drive one and get the FLOWER graphic and print that. When

finished, you are returned to the input area for further instructions.

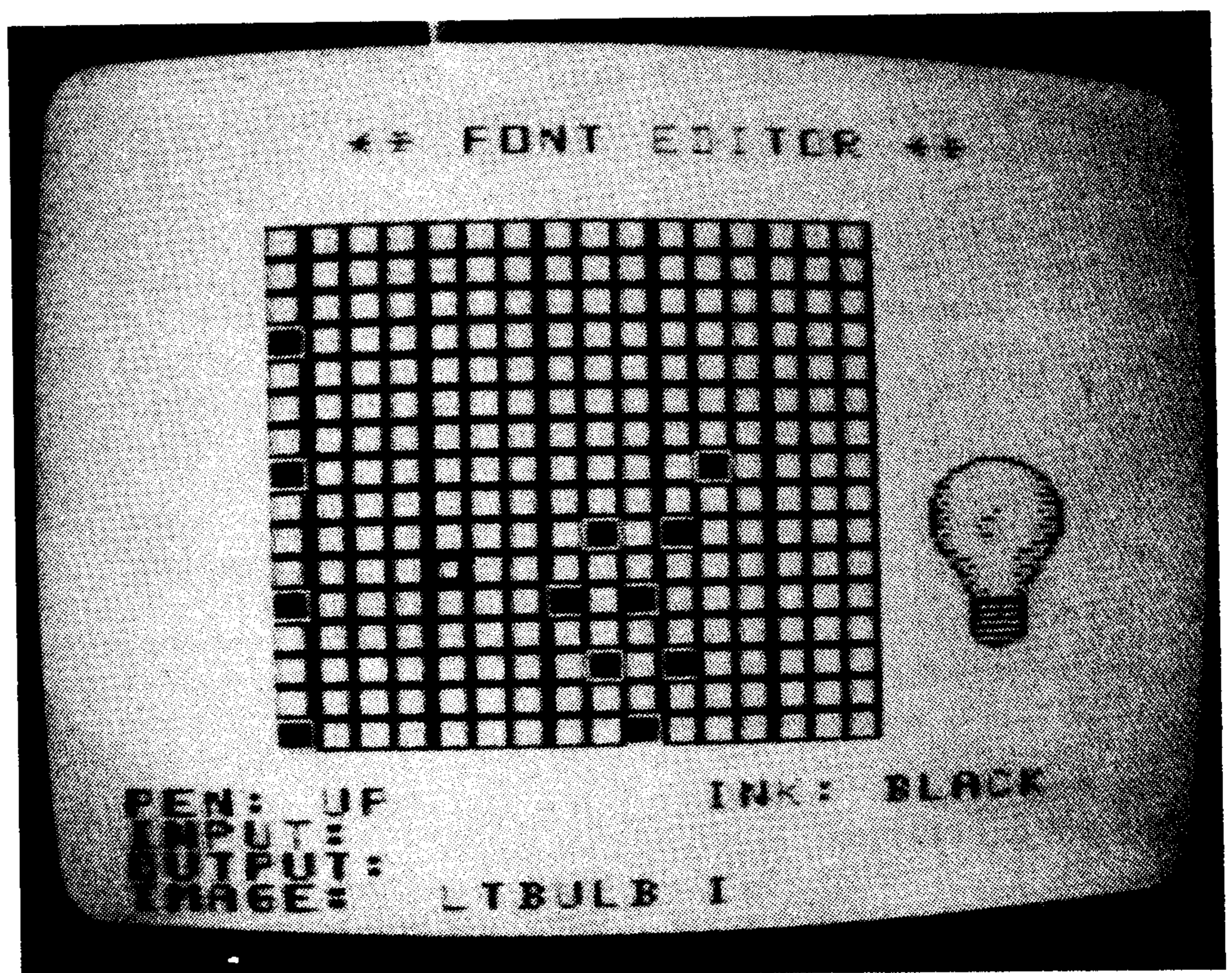
The DISK DUMP could be voted your "most valuable utility for the week," if you're a graphics freak like me. I have scads of pictures, fonts, and instances from Graphx, Artist and CSGD all thrown together on orange colored disks. (See, I'm slightly organized by the fact that orange means something graphic.) I have gotten to the point where finding which disk a font is on takes more time than the use of the font. Well, the Disk Dump was the answer to all my problems.

You are presented with a menu that looks like this:

- | | |
|------------------------|----|
| 1. CSGD FONTS | ON |
| 2. TI-ARTIST FONTS | ON |
| 3. TI-ARTIST INSTANCES | ON |
| 4. TI-ARTIST PICTURES | ON |
| 5. GRAPHX PICTURES | ON |
| 6. SINGLE DENSITY | ON |
| 7. FRAME PICTURES | ON |

By pressing the corresponding number the "ON" becomes a "OFF" and vice versa, giving instructions to the program. Once you tell the program what you want,

(See Page 38)



FONTWRITER II—

(Continued from Page 37)

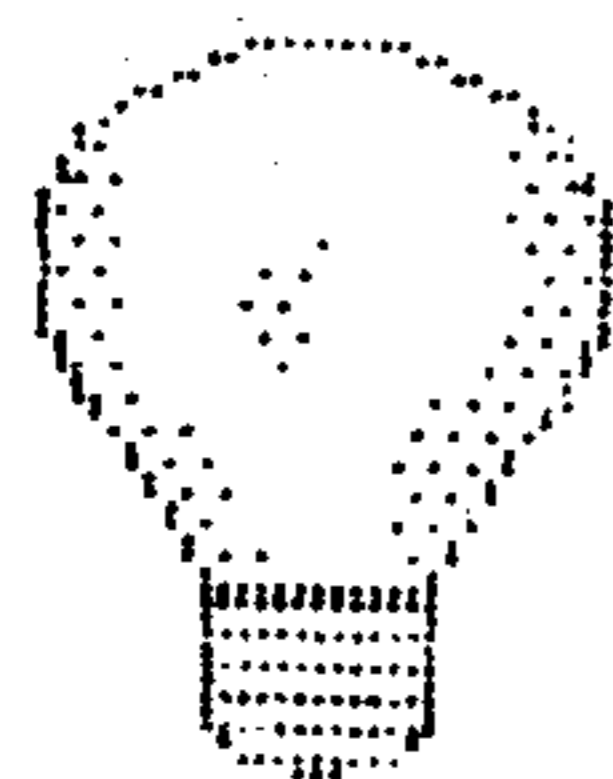
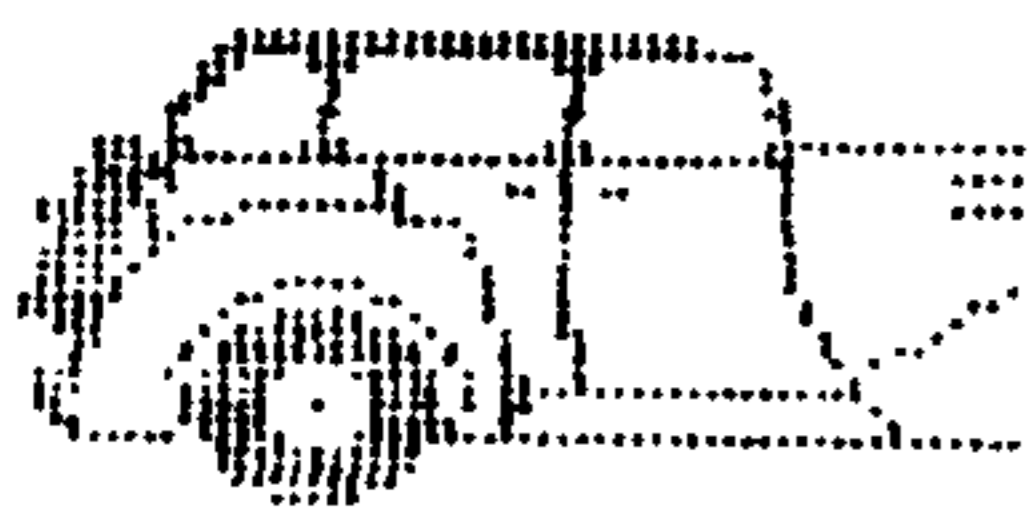
press ENTER and it prepares a DV/80 text file "program" based on your needs. (More on this miracle later).

To make a long story short, at this point, you will receive a printout of everything you have asked for. That is to say, the fonts are printed out completely as they should appear in your programs. All of the instances are printed as is, and all of the pictures are printed with a frame around them if you selected that option. You have a complete encyclopedia of your fonts and pictures with their file names to refer to from now on.

Before moving on here, I should make one important point. One thing that has always bothered me about TI-Artist printer dumps is that they are almost always pulled, stretched or not dark enough. FWII prints in double-density in what appears to be perfect proportion. The size is equal to the single-density, single-size Artist output. I would buy FWII just for this option.

The Editor is one of the main items that you want to buy the program for. It would remind you of a giant sprite editor but is infinitely more complex. The editing area you have to work with represents a 7 by 7 character segment good for fonts, graphics and instances. The larger part of the screen is taken up by the editing grid and there is a smaller "life-sized" area below so you can see what your graphics will really look like.

All of the typical commands are available by different names. Pen up, pen down, white ink, black ink ... it's all pretty much



the same except for the large final area you are working with. What really sets it apart is that you can load whole fonts into memory with the font Manager and work on the letters one at a time. Pull a letter into the working area, edit it, save it, and go on to the next. This can be a real time-saver for those little changes that personalize your fonts.

There is one thing that I didn't care for in the Fonts area. I never thought I would see the day I'd say it but Macros, one of the Font options, is the most labor-intensive piece of work I've ever seen, both on the part of the author and the end user. (Remember that this is an option and that this review reflects personal observations.)

Macros are designed to eliminate drawing work. For instance, you can press "A" and the cursor will draw a three-character long line that is three pixels wide. A "B" press could get you six pixels down, three diagonal, four across, etc., all automatically. That's nice, and you are allowed to make up your own but, frankly, for the time involved in doing it, no thanks. If you plan on becoming a professional font maker, it's probably worth the effort, but otherwise, I would rather that the programming space had been used for something else.

The Fonts area will also load parts of an image if it's too big to fit the 7 by 7 grid area. (In Fontwriter, (I)stances are known as (I)mages.) It would seem that every graphic possibility has been accounted for. Even sprites can be created, defined and saved as data statements for merge use. Also inside of the Fonts area is a complete disk management area for deletion, file copy, cataloging, etc.

Finally there is the Formatter area, and here is where you find *the meaning* of FWII. It's the bottom line where everything comes together to produce a finished product.

Lets assume that you are completely familiar with TI-Writer. If you know all the dot commands, such as .LM, .CE, .FI and .AD, fine! Now try some new ones on for size:

LF = Load Font
 II = Include image
 IM = Image merge
 BB = Begin box
 BE = Box end
 DF = Dump file

KB = Keyboard entry

EL = Elite type

DS ON/OFF = Double-density on/off

DB ON/OFF = Double-width on/off

FR ON/OFF = Frame image on/off

That's not all of them by a long shot, but it gives you an idea of the new commands that can be used in a Writer DV/80 text file to produce some fantastic output. By using such commands you can mix any font in with normal text for tiles and such. You can include pictures with the text at any given margin and, if you like you can use various one-high fonts to fancy up the entire text file. Artist pictures slide onto the page as nice as can be and in double-density mode that makes your pages camera ready for the printer.

Using all of the new dot commands, and most of the old ones, there is an area of the Formatter where you can do everything right from the keyboard. I used this section as a practice area to learn proper sequencing of the commands and to quickly find out how they reacted. If you needed to make up a quick sign for some reason, this would be the spot. Perfect for the retailer. It was a joy to use and, for the most part, I found the speed reasonable. Even though the programming is in Extended BASIC, there are assembly links to help out where needed.

I had some problems here and there but nothing I didn't eventually work out. The documentation is pretty good and tells you everything you need to know, but it can't supply you with the imagination to get everything out of the program. I had the feeling as I worked with it that, like TI-Writer, it would take some time to discover all of its potential. While there are a few formatted files to play with, none of them really shows what the program can do. It desperately needs example files that will produce whole pages of complicated structure, something that you can copy from or use as reference.

There are a couple of items that wouldn't work on my old Gemini but I got around them. They weren't that big a deal. All in all, Fontwriter II has great value to me. The TI community needs good desktop publishing programs, but no single one to date has completely filled that order. Fontwriter is no exception. It doesn't do everything but it's a giant step toward filling the need.

Star NP-10 Printer

Features + price = value

By BOB CARMANY

A month or so ago, I was faced with the agonizing decision of buying a printer to replace my Star STX-80 which had finally "given up the ghost."

With overall price a consideration, I began to leaf through the pages of just about every magazine, newsletter and buyer's guide I could find. One thing I almost immediately found was that there were some amazing discounts being offered on a number of printers that would suit my purpose. My search soon focused on the Star NP-10.

Well, I soon "took the plunge" and sent off for one through one of the mail-order houses. A few days later I had it and was ready to get it set up and start printing. After a few hundred pages of printed material, this is what I found:

Performance: The NP-10 did everything that the promotional "hype" said that it would — and much, much more. It prints at a crisp 100 CPS in the draft mode and 25 CPS in the Near-Letter-Quality mode. The characters in the NLQ mode are really suitable for all but the most formal correspondence. But, as I read through the manual, I found that there are many features mentioned in it that even the local distributors did not know were included in the NP-10!

The NP-10 has several character fonts built into it. It will print in Pica (80 columns per line), Elite (96 columns per line), or in Italics. In addition, additional character sets are built in (it also has a selectable IBM character set).

Now, let's see what else it will do. These are just the highlights! It would take pages to document everything. It, of course, prints in condensed print (either Pica 136 chars/line or Elite 160 chars/line). It also has proportionaql, expanded (double-width), emphasized, boldface, underline, subscripts and superscripts as well. In fact, you can even combine these styles to create your own print pitch. It also has the ability to enlarge the print area and create "giant" letters without having to use the graphics mode. If that isn't enough for you, you can even design and download your own customized character sets!

Review

Report Card

Performance	A
Ease of Use	A
Documentation	A
Value	A
Final Grade	A

Cost: \$279

Manufacturer: Star Micronics, Pan Am Building, Suite 3510, 200 Park Ave., New York, NY 10166

Requirements: Console, monitor or TV, and an RS232 card (or appropriate PIO port)

We are not through. It has full horizontal and vertical tab facilities built in that allow you to move the print head virtually anywhere on the page! This is especially convenient for charts and tables.

It will do bit-image dot-addressable graphics in several modes. It will print in single-density, double-density (normal speed), double-density (double speed) and even quad-density! I tried it out on a whole bunch of intricate RLE pictures chosen for their complexity, and the NP-10 churned out some really outstanding pictures.

It even has a "Macro" command that will allow you to define a series of printer control codes and execute them with a single command. It makes life a whole lot easier when you need to enter a series of print pitch, font type and other information at the start of a document or in a program.

Ease of Use: The NP-10 is one of the easiest printers to set up that I have ever used. Most of the controls can be accessed by pressing the buttons on the front of the machine. There is a set of DIP switches, but the factory-set defaults really don't have to be changed at all. They are set up for standard usage and can be overridden by software commands.

The NP-10 has an "easy load" ribbon that is thoroughly explained in the documentation. It loads very easily and you don't even get your fingers dirty doing it!

The paper loading is just as easy. It auto-loads with the touch of a button. In fact, you can use sprocket feed or single sheets with equal facility. Both will auto-load into the machine.

Some of the additional features built into the NP-10 that make it easy to use are forward and reverse microfeed (for aligning paper without turning off the printer), skip over perforation and a "paper empty" bell.

Everything worked so smoothly that it was just a matter of a couple of minutes from the time I opened the shipping carton until I was running the self-test (there are two of them as well as a hex dump) on the printer. I couldn't believe that I hadn't left something out!

Documentation: The printer comes with a 176-page instruction book that can be somewhat intimidating when you first look at it. However, it is easy to read and not nearly as technical as you might expect. The BASIC applications are geared for the IBM and other users who now make up a large part of the computer market. The examples used in the book are simple and there is no problem adapting the brief lines of code into TI BASIC. Everything proceeds in logical order — from the basic set-up of the printer to the groups of commands. There are numerous examples of the "This is what your printer will print" type. Everything is easy to follow. The manual contains several appendices ranging in scope from the technical (interface requirements) to a convenient section containing all the printer commands with a short explanation of each and a chapter reference. That was a nice touch!

Value: The list price on the NP-10 is \$279 (manufacturer's suggested retail). However, there is no reason you have to spend that much money for one. If you take a few minutes to look through advertisements, you can find it at much less than retail price. I have even seen the NP-10 listed for as little as \$158. The "comfortable" range seems to be between \$170 and \$190. At that price it is a REAL bargain! You will not find another printer with the wealth of functions for the same price!

(See Page 40)

Mechatronics 80-Column Card

A final answer for the 4/A

By MACK McCORMICK

The 80-column card from Mechatronics is the final answer for the TI99/4A.

With this card you can unleash the total power of your computer. In fact, if you already have the RAVE keyboard and a GRAM card or GRAM Kracker you have the equivalent of the new Geneve computer. My system running this configuration and the Geneve operating system, which, by the way, will execute perfectly from an Editor/Assembler cartridge with RAM at address >6000, was only about 5 percent slower than the Geneve. This is because much of the Geneve's speed comes from the 9938 VDP chip which is also found in the Mechatronics 80-column card.

Ease of use: The card itself is transparent except when running standard BASIC. When first entering BASIC you must momentarily press a micro switch on the 80-column card so the operating system can find the extra 128K of VDP RAM in the 80-column card. A minor inconvenience.

Installation is a snap. You must open your console and remove the old TI 9918 VDP chip, which is in a socket by the way, and substitute a ribbon in its place. I'm sure most of you have already figured out how to open your console. If not, Mechatronics supplies detailed instructions and pictures showing the step-by-step procedure. The 80-column card connects on the side of the computer into the expansion port and passes through to the PEB fire hose. Total installation took less than 10 minutes. There are a series of DIP switches to set the base address of the card which is at CRU >1000 default. If you're not using any special hardware, then the factory settings should be OK. The only other requirement is to make or purchase an RGB video cable to interface to your monitor.

Speaking of monitors, to benefit fully from this card you need an RGB analog monitor. The card will function with a standard composite monitor, but you won't be satisfied with the text in 80 columns.

Documentation: The manual is short but adequate. The documentation to install the card is great, as I've already noted. All

Review

Report Card

Performance	A
Ease of Use	A
Documentation	B
Value	A
Final Grade	A+

Cost: \$249.95

Manufacturer: Mechatronics, West Germany. North American distributor, TAPE Ltd. 1439 Solano Pl., Ontario, CA 91764.

Requirements: Console, TV or monitor, 32K, Peripheral Expansion Box, and Extended BASIC, Editor/Assembler or Mini-Memory.

DIP switches are fully documented and the RGB output connections are clear. The manual does a good job of documenting how to get 80-column output from within your current TI programs like Extended BASIC and TI-Writer by printing to the 80-column card. The company now offers TI-Writer and Multiplan in an 80-column version with the purchase of each new 80-column card.

Performance: The card performs exactly as expected. It is well behaved and I've never had it crash a program. With the extra 128K of RAM you can run the 9938 chip in all modes including super high resolution bit map mode. The MYARC lines demo program moves just as fast as does their blocks program. This is largely due to the hardware commands found internal to the 9938 chip which will execute commands independently of the 9900 CPU in the computer. It's like having two CPUs operating at the same time.

Converting Extended BASIC programs to give displays in 80 columns is a snap. You simply print to the screen using a special print sequence which specifies colors and other necessary information. By the way, speaking of colors, the 80-column card gives you 4,096 colors! From TI-Writer you can also see your document in

80 columns before you print it.

Value: At \$249.95, the 80-column card is worth every penny. The improvement in screen resolution and being able to have your TI operate in 80-column mode is fantastic. This is the last piece of hardware you need to upgrade your TI to the equivalent of many of the other newer computer systems on the market.

Overall Rating: As you all know, it is rare for me to assign an overall grade of A+ to a product, but this one is well deserved. An important side benefit is that software developed for the Geneve computer should be compatible with this card. For my money, the 80-column card from Mechatronics can't be beat.

The version of M-DOS mentioned in this review is essentially a GPL interpreter, the copyright to which is held by its author, Paul Charlton. It is not the M-DOS that constitutes the operating system of the Geneve. Mechatronics neither implies nor states that the 80-column card is compatible with M-DOS or the GPL interpreter or any software designed specifically for use on the 9640. Readers are advised not to purchase this card on the basis of its possible compatibility with Myarc's 9640 or M-DOS.—Ed.

STAR NP-10—

(Continued from Page 39)

The NP-10 has the advantage of not being one of those "off" brands that you have trouble with because it just isn't compatible with the particular programs you are running. Most of the programs for the TI are Epson/Star compatible. This type of compatibility seems to have become more or less the standard for the TI. I have been able to run Funnelweb (TI-Writer) and virtually all the graphics generating programs in my library without any trouble (TI-Artist quad density option is the exception). Everything works just fine without any modification.

I did, however, find two things that the NP-10 will not do — it doesn't make coffee and it doesn't do windows! Anything else is possible!

Newsbytes

SOFTWHERE? finds programs for users

SOFTWHERE? is a Yuba City, California, company which helps locate software to meet a customer's particular requirements.

TI programs are among those located, according to David Peterson of the company. He says users need to provide information on their hardware and on the price range of the package sought. The company will report software available after searching its database and files. A flat fee of \$55 is charged, he says, with no charge if the desired software cannot be found.

For a free copy of the company's booklet, "Guide to Selecting Computer Software," write SOFTWHERE?, P. O. Box 3336, Yuba City, CA 95992.

Asgard releases catalog, programs

Asgard Software released EZ-Keys by Harry Wilhelm and Missile Wars by John Behnke in August, and was scheduled to release Artist Fonts Volume 1 and Artist Enlarger Oct. 1. Asgard's fall catalog has been released, and is available by sending the company a postcard.

According to the manufacturer, EZ-Keys endows TI Extended BASIC with the power of macros. The program allows the assignment of up to 55 macros, which can consist of up to 668 characters of programming code, cursor commands, TI XBASIC commands or commonly used answers for business programs running in Extended BASIC. Each of these can be defined in a single keystroke with the program, according to the manufacturer.

Chris Bobbitt of Asgard says the program also lets the user change the screen colors in the programming mode or for any program running, move the cursor up and down within a line while program and automatically stop and save the program at user-defined intervals ranging from one to 18 minutes.

The program sells for \$14.95 and requires the TI99/4A, 32K, one disk drive and TI Extended BASIC.

Missile Wars, based on the game Mis-

sile Command, is an arcade-style game "that runs so fast you would never know it was written in TI Extended BASIC," Bobbitt says. It sells for \$5.95 and requires a TI99/4A, TI XBASIC and one disk drive or a cassette recorder.

Artist Fonts Volume One, by Ken Giliand and Bobbitt, is a companion disk for TI-Artist and Font Writer consisting of typefaces, each font containing complete uppercase and lowercase alphabets and numbers and special symbols.

The program requires TI-Artist or Font Writer, 32K, disk and Extended BASIC; or a Myarc Geneve and Font Writer. It retails for \$7.95.

Artist Enlarger, by Howard Uman, is designed to allow the user to enlarge, reduce, stretch or squeeze any TI-artist compatible font or instance file vertically or horizontally.

The program requires TI Extended BASIC, 32K and one disk drive or Myarc 9640. It sells for \$9.95.

For further information, or to order, contact Asgard Software, P.O. Box 10306, Rockville, MD 20850 or (301) 559-2429.

News on FLUG TIBBS, Dallas TI Faire

The Forest Lane TI Users Group announces that it has moved its TIBBS to a new number and that a new date has been scheduled for the coming Dallas TI Faire.

The number for the TIBBS is (214) 328-4880, 24 hours at 300/1200 baud.

Richard Fleetwood is the new sysop (he was also the original sysop), who has taken over because of the former sysop's work schedule conflicts.

Fleetwood says the system has had several updates since its move, including more than 80 new download files (many of which are archived), RLE pictures online for use by the OMEGA program from Travis Watford and several new menus. Areas of the board now include the Main Menu, the FLUG Monthly Newsletter, Hardware Products, Info Files, the ASCII Archives, the File Transfer System and the message base, featuring 24-line messages.

The user file has been updated, and those who have not called within the past three months have been deleted, Fleetwood says.

New users will be upgraded to level 3 within 24 hours after their first call, he says. Level 3 users may download a file for every upload, while FLUG members and long distance members have unlimited downloads. Time limits are also strictly enforced, he notes.

The Dallas TI Faire has been rescheduled for April 30. For further information, write Forest Lane TI Users Group, Attention: Dallas TI Faire, P.O. Box 743005, Dallas, TX 75347-3005. All interested persons will be placed on a mailing list and receive information packets.

Fleetwood notes that information on the rescheduling of the event, originally planned for October, is available in the group's newsletter or on the FLUG TIBBS.

For further information on FLUG, contact Fleetwood at (214) 328-9257.

AIDS report on disk

Jack Shattuck, a member of the Delaware Valley Users Group, reports that in July, copies of the U.S. Public Health Service Surgeon General's Report on Acquired Immune Deficiency Syndrome (AIDS) were released on a single-sided, single-density red disk to libraries of the four Delaware and New Jersey Chapters of the group and to 14 TI users groups in the U.S. and other countries.

He says recipients have loaded the files onto several bulletin boards, including Delphi. The report is in three files totalling 210 sectors, plus an addendum which can be altered locally and a contents index referenced by line number for persons using TI-Writer or Editor/Assembler.

Format is 40 columns, allowing DM 1000 or another appropriate manager or J. Peter Hoddie's file reader to be used without requiring a printer. He notes that Art Byers of the Central Westchester 99ers added a 40-column XBASIC screen loader. The loader is not on the earlier copies, but is available from the August 1987 DVUG Data Bus Newsletter.

The AIDS disk has been distributed to Central Westchester 99ers, New York; CONNI Spirit of 99, Ohio; Daytona 99ers, Florida; DVUG; Edmonton 99ers, Canada; Dr. Guy-Stefan Romano, Amnion

(See Page 42)

Newsbytes

(Continued from Page 41)

Helpline, San Francisco, California; Houston Users Group, Texas; LA 99ers, California; MSP 99ers, Minnesota; MUNCH 99ers, Massachusetts; Ryte Data, Canada; San Francisco 99ers, Canada; TI-LINES, England; TI 99 Users of Perth, Australia; and the Washington D.C. Area TI Users Group.

Shattuck says users wishing to contact him can find his Veterans Administration telephone number and business address on the AIDS disk.

'88 Fest-West slated

The TI Fest-West, TI XPO 88, is scheduled for Feb. 27-28 at the Palace Station in Las Vegas, Nevada.

Reduced room rates and discount airfares are available, according to organizers. For room reservations at the Palace Station, call 1-800-544-2411 and for PSA air reservations call 1-800-435-9722. Mention TI-XPO-88 PSA Smile No. MI586S.

For further information, contact the Southern Nevada Users Group, P.O. Box 26301, Las Vegas, Nevada 89126 or (702) 647-1062 or (702) 878-3167. Online information is available 24 hours at 300/1200 baud at (702) 648-1247.

Chicago fair lists keynote speakers

Keynote speakers and topics have been announced for the Chicago TI-Faire Nov. 7 at Triton College in River Grove, Illinois.

They are Don Walden, "Geneve 9640"; Franz Wagenbach "Mechatronics 80 Column and 512K Cards"; Mike Maksimik, "P-Code for the TI"; Dave Wakely, "Triton Turbo XT TI-IBM Compatible"; Sandy Bartels and Carole Goldstein, "Developing TI Users' Groups"; Barb Wiederhold, "The TI Market and the 9640"; Lou Phillips, "Myarc Products"; and J. Peter Hoddie, "Software Demonstration."

Vendors booths will be sponsored by both commercial vendors and by users groups.

Admission is \$3.

The fair is sponsored by the Chicago Area TI Users Group. For further information, call (312) 657-1093.

Milwaukee Faire set

The Milwaukee TI Faire is scheduled for 9 a.m.-4 p.m. Nov. 8 at the Quality Inn, 5311 Howell Ave., Milwaukee, Wisconsin.

The fair is being held the day after the Chicago TI-Faire, to provide a TI Faire Weekend.

Tickets are \$1 in advance, \$2 at the door. For further information, call (414) 535-0133.

ARTIST+GRAPHX combines features

A.K. Kiddoo of Winona Lake, Indiana, has released ARTIST+GRAPHX, a program which he says allows placement of graphics and text exactly where the user wants.

All printing is done through TI-Artist, using Graphx.

The disk-based program is available for \$10 from Kiddoo at 120 Boys City Dr., Winona Lake, IN 46590.

Designer Labels released by company

Nameloc Software has released "Designer Labels," a c99 graphics printing utility on disk designed to work with TI-Artist instances.

The program allows the user to print his creations repetitively and to position a graphic anywhere on the page, according to Paul Coleman of Nameloc.

To use Designer Labels, the user first creates the graphic desired with TI-Artist and saves it as an instance. Up to an entire screen may be saved, Coleman says. Designer Labels, he says, will process this instance and save a special file of its own (required only the first time the instance is used). The user then may choose which format the instance will be printed out on. Options include any size 1-inch label, 1 $\frac{1}{16}$ -inch labels, 3x5 cards, 4x6 cards, 8 $\frac{1}{2}$ x11 sheets and a user-specified option.

A special tab feature allows horizontal positioning of a graphic anywhere on the page, Coleman says.

Price is \$10 plus \$1.50 shipping and handling. It requires TI-Artist plus the appropriate hardware and an Epson-compatible printer. For more information, or to

order, write Nameloc Software, 3971 S.E. Lincoln, Portland, OR 97214.

Fastest BBS released

The After Hours BBS, a 100 percent assembly language bulletin board program, has been released by Ed Schaum, 1060 Arnow Ave., Bronx, NY 10469. The program is available for \$25.

Features of Version 1.4 of the program include 15 message bases, real-time clock, full protection from hackers, 40-column screen, sysop screen which shows all user data, multiple newsletters, automatic word-wrap, chat mode, XMODEM upload and download, variable time limits, ability to read a particular conversation within a base, full sysop control over all text, limited access for new users, limited access message base, vote section, operation up to 9600 baud, system checks for disk space, recent caller list, screen formatting to allow any type of computer to connect, the ability to instantly take control and override or disconnect any user, variable time limits and more.

The system requires no special cabling and works with any modem. Included are more than 50 support files and the source code. Customer support is available by calling the original After Hours BBS (212-547-4210). Those with previous versions of the program may obtain Version 1.4 free via download or by sending a formatted disk to Schaum. There is also a version that takes advantage of the MPS clock card for an automatic clock/calendar function.

User group sought

Richard Bressler, of Merced, California, is interested in forming a TI user group in his area. He may be reached at P.O. Box 3706, Merced, CA 95344. Telephone: 209-384-1731.

Newsbytes is a column of general information about products and services related to TI and 9640 users. The publisher does not necessarily endorse products listed in this column. Vendors, manufacturers and others are encouraged to submit items for consideration. Photos will be used when space permits. Materials cannot be returned.

User Notes

Customizing Funnelweb

The information presented in this item originally appeared in ROM, the newsletter of the Users Group of Orange County, Fountain Valley, California. We are not certain of the identity of the author.

The first thing I wanted to do was to enable Funnelweb to load Fast-Term. When you press 5 on the main menu, one of the options that comes up is modem (No. 2). I could not find what file name was needed. After a bit of searching, I found it: MD.

Fast-Term comes with two files named UTIL1 and UTIL2. You must rename them to MD and ME and then copy the files to the Funnelweb disk. Change the names before copying because there already is a UTIL1 on Funnelweb.

When you switch item 2 to disk edit, Funnelweb loads Disk Patch, or Disco, a bare-bones sector editor. I wanted to replace it with Disk Utilities by John Birdwell. I removed Disco, renamed the two Disk Utilities files from UTIL1 and UTIL2 to DP and DQ and copied them to Funnelweb.

Do not make these changes to your master copy of these programs.

Better images from Instances

The accompanying program was created by Bob Coffey of the Western New York 99ers to fill the need for camera ready artwork for the group's newsletter. It is compatible with Epson and Gemini compatible printers.

The biggest problem with TI-Artist is that when you go to double-density for a better image, it distorts the picture. This program provides double- or quad-density output (where the printer is capable of quad-density) in perfect proportion. A six-inch circle will print out with only a 1/16-inch variation in the diameter.

However, it takes time. A full-size instance will take over an hour to print because of the calculations the program makes. In the case of the New Yorkers, "we felt it was worth it for the image quality," says Harry Brashear, a member of the group. If someone were to convert the program to assembly language, it could become a much sought after utility. Until then, you may find good use for it as is.

This is the first article published in MICROpendium to use the CHECKSUM program. See the article on page 28 of this issue for an explanation of CHECKSUM. The exclamation mark and numbers following the exclamation should not be included when entering this or other programs processed through CHECKSUM.—Ed.

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10 ! Instance Printer V1.5 !
230
20 !      08/06/87 !222
30 ! by Robert Coffey Jr. !1
46
35 !      102 Woodgate Road !1
50
40 !      Tonawanda, NY 14150
!174
45 !!131
50 DIM F(32,8),P$(32),DOTS(4)
) !058
55 DOTS(1)=4 :: DOTS(2)=6 ::
DOTS(3)=3 :: DOTS(4)=7 :: T
=1 !142
60 ESC$=CHR$(27):: FILES="DISK2.
INSTANCE" :: LF$=ESC$&"3"
:: ZEROS=CHR$(0) !170
65 DISPLAY AT(1,4)ERASE ALL:
(See Page 44)

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Reviewed in MICROpendium

1984

February: B-1 Nuclear Bomber, Tandon TM-100 Disk Drive, Void, Beanstalk Adventure, Microsurgeon, On Gaming, Database 500.

March: Star Trek, Escape From Balthazar, Garkon's Getaway, Sky Diver, Mail-Call, Prowriter 8510 Printer.

April: Monthly Budget\$ Master, Budget Master, Home Budget, Thief, Donkey Kong, Khe Sanh.

May: Companion Word Processor, Q*Bert, Mad-Dog I & II, Programs for the TI Home Computer.

June: Creative Expressions Accounts Receivable/Accounts Payable, CDC 9409 Disk Drive, Starship Concord, Lost Treasure of the Aztec, ASW Tactics II.

July: Theon Raiders, Introduction to Assembly Language for the TI Home Computer, Game of Wit, Pole Position

August: TE-1200, Tower, Galactic Battle, Galaxy
September: Wycove Forth, 99/4 Auto Spell-Check, QUICKCOPYer, Wizard's Dominion, Anchor Automation Mk XII Modem

October: Killer Caterpillar, ZORK I, Defender
November: 9900 Disk Controller Card/Manager, Super Bugger, Transtar 120S printer, Floppy-Copy, Data Base-X

December: Gravity Master, Data Base Manager System, Learning 99/4A Assembly Language Programming

1985

January: Super Sketch, Foundation Computing 128K Card, PTERM-99, TI-Runner

February: Super Extended BASIC, Beginning Assembly Language for the TI, ZORK II

March: Morning Star Software CP/M Card, WDS/100 Winchester Disk Drive, Sketch Mate, BMC Color Monitor

April: 9900 Micro Expansion System, Disk + Aid, Gemini 10X-15X

May: Character Sets and Graphics Design, Draw 'N Plot

June: GRAPHX, DATA BASE I

July: Acorn 99, Advanced Diagnostics

August: Model Dow-4 Gazelle, TI-Artist, PC-KEYS,

Not-Polyoptics' Bankroll

September: Midnite Mason, Myarc 32K/128K Card, GRAPHX Companion

October: 4A/TALK, Extende BASIC II Plus, XB Detective, Console Writer 2.a

November: Foundation Z80A/80-column cards, 9900BASIC, Adventure Editor

December: Display Enhancement Package, Triple Tech

1986

January: BITMAC, Starcross

February: Night Mission, Peripheral Diagnostic Module, BA-Writer

March: Super Duper, Tunnels of Doom Editor, Business Graphs 99

April: U.S. Open Tennis, PRBASE

May: 4A Flyer, GRAM Kracker, Artist's Companion

June: Myarc Disk Controller Card, Maximem

July: Horizon RAMdisk, Old Dark Caves, Funlwriter, TI99/4A Macro Assembler

August: JOYPAINT 99, GPL Assembler, TI99/4A Intern, GPL Linker

September: Mechatronic 128K Card

October: TI-Forth Utilities, CorComp Memory Plus

November: Submarine Commander, PEP, MAX-RLE

December: GK Utility I and II and GRAM Packer, X-10 Powerhouse, RAVE 99/101.

1987

January: MG DISKASSEMBLER, Myarc XBII

February: TI-Tax, Mechatronic Mouse

March: Wycove Forth version 3.0, DIJIT Systems RGB Conversion Kit, Spad XIII Flight Simulator

April: Geneve 9640, Disk Utilities

May: QS-Solitaire, Geneve 9640 (Part 2), Technical Drive, Console Calc

June: Character Sets and Graphic Design III, Writerease Ver. 1.1, 4A DOS, Prescan_It

July: Junkman Junior, Avatex 1200/1200hc modem, Bubble Plane

August: Frostick, The Brain, Rocketman, Menu Ver. 6.3

September: TI-IBM Connection, Super Extended BASIC

User Notes

(Continued from Page 43)

```

"INSTANCE PRINTER V1.5" :: D
ISPLAY AT(3,5): "by Robert Co
ffey Jr." !101
70 DISPLAY AT(9,4): "INSTANCE
:&FILES$ :: ACCEPT AT(9,13)S
IZE(-13):FILES$ !104
75 DISPLAY AT(13,7): "(1) DOU
BLE DENSITY" :: DISPLAY AT(1
5,7): "(2) QUAD DENSITY" !009
80 CALL KEY(0,K,S):: IF K<49
OR K>50 THEN 80 ELSE DENSIT
Y=VAL(CHR$(K)):: CALL HCHAR(
DENSITY*2+11,7,42):: DISPLAY
AT(18,11): "Working...." !19
8
85 STRIKE=DENSITY+T :: LF=2.1
*(STRIKE/3)+T :: FILLER=64*D
ENSITY :: TEMP=4/DENSITY !00
7
90 OPEN #1: "PIO.CR.LF" :: OP
EN #2: FILES&"_I", INPUT :: IF
DENSITY=1 THEN FORMAT$=ESC$
&"L"&CHR$(192)&CHR$(3)ELSE F
ORMAT$=ESC$&"Z"&CHR$(128)&CH
R$(7) !196
95 PRINT #1: ESC$; "@"; !183
100 INPUT #2: WIDTH, LENGTH ::
J=(32-WIDTH)*(13*DENSITY) !2
21
105 FOR A=T TO LENGTH :: FOR
B=T TO WIDTH :: INPUT #2: F(
B,1),F(B,2),F(B,3),F(B,4),F(
B,5),F(B,6),F(B,7),F(B,8)::
NEXT B !017
110 FOR Z=T TO 5 STEP 4 !086
115 FOR B=T TO WIDTH :: P$(B
)=" " !059
120 CALL MIRACLE(F(B,Z),F(B,
Z+1),F(B,Z+2),F(B,Z+3),DENSIT
Y,DOTS(),TEMP,P$(B)) !023
125 NEXT B !216
130 FOR ZZ=T TO STRIKE :: IF
ZZ=STRIKE THEN PRINT #1: LF$
;CHR$(LF); ELSE PRINT #1: LF$;
CHR$(T); !136
135 PRINT #1: FORMAT$; RPT$(ZE
RO$,FILLER); :: CALL SPACE((J
),ZERO$) !083
140 FOR B=T TO WIDTH :: PRIN
T #1: P$(B); :: NEXT B :: CALL
SPACE((J),ZERO$):: PRINT #1
: RPT$(ZERO$,FILLER); CHR$(10)
:: NEXT ZZ !122
145 NEXT Z :: NEXT A !073
150 PRINT #1: ESC$; "@" :: CLO

```

```

SE #1 :: CLOSE #2 !054
155 CALL HCHAR(5,T,32,500)::
DISPLAY AT(11,12)BEEP: "DONE
!" :: DISPLAY AT(15,5): "Prin
t another? (Y/N)" !016
160 CALL KEY(0,K,S):: IF S=0
THEN 160 ELSE S=POS("YyNn",
CHR$(K),1):: IF S=0 THEN 160
ELSE IF S<3 THEN 65 !249
165 CALL CLEAR :: END !222
170 !!131
175 SUB SPACE(J,ZERO$) !168
180 IF J<255 THEN PRINT #1: R
PT$(ZERO$,J); ELSE PRINT #1: R
PT$(ZERO$,255); :: J=J-255 ::
GOTO 180 !026
185 SUBEND !168
190 !!131
195 SUB MIRACLE(F7,F5,F3,F1,
DENSITY,DOTS(),TEMP,P$):: F(
7)=F7 :: F(5)=F5 :: F(3)=F3
:: F(1)=F1 !192
200 FOR D=7 TO 0 STEP -1 ::
T=0 :: FOR C=7 TO 1 STEP -2
:: IF F(C)AND 2^D THEN T=T+2
^C+2^(C-1) !222
205 NEXT C :: IF D/TEMP=INT(
D/TEMP) THEN R=DOTS(DENSITY)E
LSE R=DOTS(DENSITY+2) !240
210 P$=P$&RPT$(CHR$(T),R)::
NEXT D :: SUBEND !206

```

A brighter picture

The following item was published in the in the newsletter of the West Penn 99ers, Jeanette, Pennsylvania. It was written by Bob Lawson.

In my travels through the Texas Instruments manuals, specifically the TMS-9918,28,29 manual, I read: "The load resistor (RL, pin 36 to ground) defines the sharpness of the edges on the video signals. A lower resistor value gives faster fall times and a sharper picture."

Hmmm. I don't remember any 330 ohm resistors.

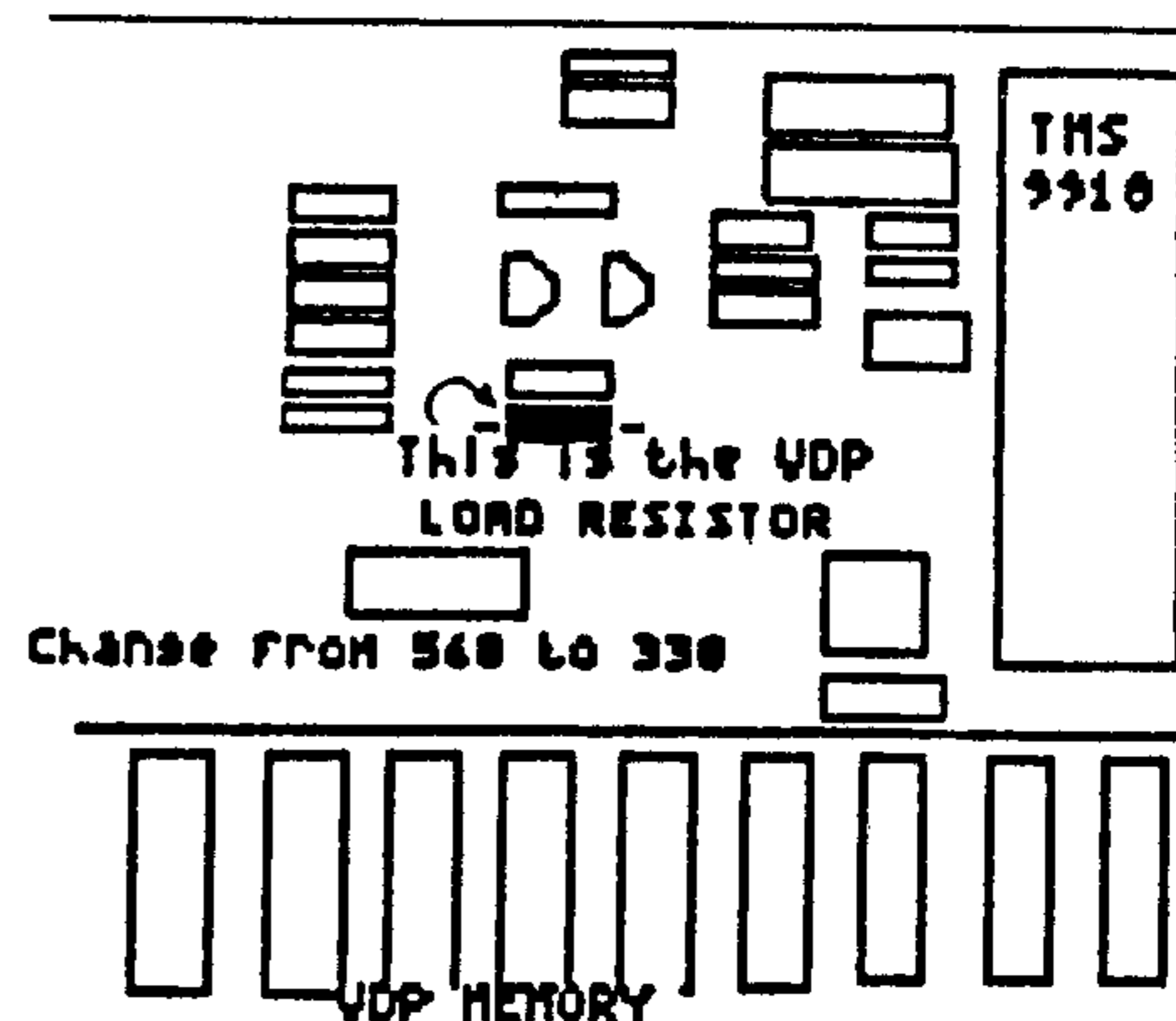
Well, I pulled out the "TI Console and Peripheral Manual" and sure enough, R212 pin 36 to ground was 560 ohms per the schematic. The next step was to check out a console and, you guessed it, R212 was 560 ohms, not 330 ohms as recommended in the manual.

Next step was to try some different value resistors — 330 ohms seems to be about

the best common value resistor to use. I wonder why TI chose to use 560 ohms? I did find one old TI manual (1979) which recommended 390 ohms, but they're sometimes hard to find in one-quarter watt. This 30-cent change gives about a 40 percent improvement in picture quality. The improvement is so good, you'll wonder where the white shadows went.

The schematic is of a common TI console layout. However, not all consoles look the same inside. If your console doesn't match, follow pin 36 from the VDP chip, through two devices called "inductors" to the resistor to ground. Replace that resistor with a 330 ohm resistor.

Readers should use caution when undertaking any hardware modification. If you are uncertain about this or any other procedure, seek the advice of someone with experience in electronics before beginning the project.



Transliteration note

This TI-Writer tip comes from the Pueblo (Colorado) 99'er User Group newsletter:

Here's one of those things that is so obvious you wonder why you didn't think of it long ago. If you have transliterated about all of the keyboard characters you feel can be spared for printer codes, and still need another, at least temporarily, try this. On my printer CHR\$ 144 produces a small heart.

.TL 76:144

I L my TI-99/4A

.TL 76:76

LLL

Result: I ♥ my TI-99/4A

LLL

(See Page 45)

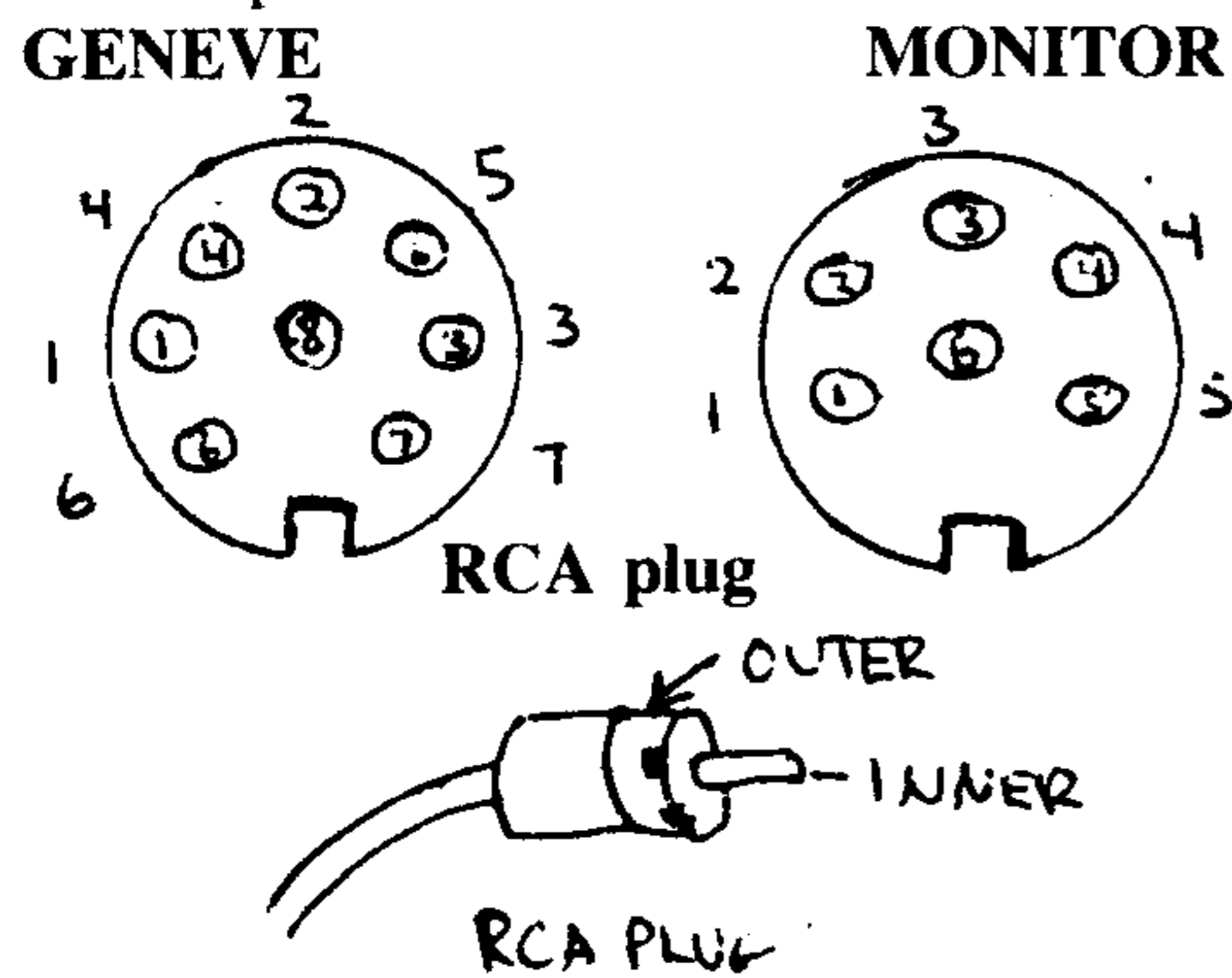
User Notes

(Continued from Page 44)

The capital L (CHR\$ 76) was "borrowed" for one line, used to print the heart, and then transliterated back into an "L."

Geneve pinouts for Magnavox RGB

Mike Christianson, of Pekin, Illinois, provides the pinouts for connecting a Magnavox 8CM515 or 8CM643 monitor to the Myarc 9640. The monitor end of the cable is a 6-pin DIN and the Geneve end is an 8-pin DIN.



GENEVE	MONITOR
1. 12 VDC no connection	1. to Geneve pin 6
2. gnd mon. pin 3 and RCA outer	2. no connection
3. audio—RCA inner (tip)	3. Geneve pin 2
4. comp. video (no connection)	4. Geneve pin 5
5. Red—mon. pin 4	5. Geneve pin 7
6. Green—mon. pin 1	6. Geneve pin 8
7. Blue—mon. pin 5	
8. CSYNC—mon. pin 6	

The RCA plug is for audio and shares the ground on the video plug. The jumper must also be moved from composite to RGB on the Geneve board. The RCA plug is toward the monitor end, of course.

One line mortgage calculator

All it takes is one program line in Extended BASIC to calculate monthly mortgage payments — albeit a long line. Taxes and insurance aren't included. The program, by Sam Morabito, was published in the newsletter of the Salt Lake and Valley 99er User Group.

To enter the line, type in as many characters as possible before the computer

stops accepting input. Then press enter. Then press FCTN REDO and move the cursor to the end of the line and continue entering the remainder of the program.

To use it, simply enter the amount, rate and years when prompted, with each item separated by commas.

```
100 !ONE LINE MORTGAGE PAYME
NT CALCULATOR BY SAM MORABIT
()
110 CALL CLEAR :: INPUT "ENT
ER P,R,N WHER P=AMOUNT, R=RA
TE, N=YEARS" : P
,R,N :: PRINT "$"; INT((P*R/1
200)/(1-1/(1+R/1200))^(N*12))
*100+.5)/100; "PER MONTH"
```

Repeating keys

William Fielden, of Louisville, Kentucky, writes:

While using the FCTN key and the E, S, D and X for cursor control I noticed that as long as the cursor begins to move the FCTN key can be released. As long as the letter key is depressed the cursor continues to move. This is a time-saver for those interested in having one hand free to do something else.

It should be added that Fielden's observation holds true for an FCTN key operation as well as any SHIFT key operation. The shift and function operation remains in effect until the letter key is released.

Disk Labeler

Disk Labeler, by Robert J. Coffey Jr., of Tonawanda, New York, is designed to catalog the contents of a disk to a printer. The program may be used with four printer types, including Epson, Okidata, Prowriter and daisy wheel printers, though dot matrix printers are recommended. The program is written in Extended BASIC.

Disk Labeler outputs a 3-across catalog listing in alphabetical order in condensed type. The catalog is narrow enough to be slipped into a disk jacket.

The catalog header includes the drive number and diskname, number of files on the disk, number of used and free sectors and the date on which the catalog was printed. The listing includes filename, size, file type and protection status for each file and program.

```
1 DIM M$(129),F$(5):: GOTO 1
80
2 A,B,C,FF,G,I,J,K,K1,P,S,U,
X,CH$( ),L$,N$,NP$( ),PN$,T1$
4 CALL KEY :: CALL INIT :: C
ALL PEEK :: CALL LOAD :: CAL
L CHAR :: CALL HCHAR
10 !@P-
110 ! -----
120 ! --- Disk Labeler V 2.0
---
130 ! ----- by -----
---
140 ! --- Robert Coffey Jr.
---
150 ! --- 102 Woodgate Road
---
160 ! --- Tonawanda, NY 14150
---
170 ! -----
---
180 DISPLAY AT(4,4)ERASE ALL:
:"Printer type:" : : " 1)
Epson": : " 2) Okidata":
: " 3) Prowriter": : " 4
) Daisy Wheel"
190 CALL KEY(0,P,S):: IF P<4
9 OR P>52 THEN 190 ELSE P=P-
48 :: CALL HCHAR(5+P*2,5,42)
200 NP$(1)=CHR$(18)&CHR$(27)
&CHR$(50):: NP$(2)=CHR$(30)&
CHR$(27)&CHR$(54):: NP$(3)=C
HR$(27)&CHR$(78)&CHR$(66)::
NP$(4)=""
210 CH$(1)=CHR$(15)&CHR$(27)
&CHR$(48):: CH$(2)=CHR$(29)&
CHR$(27)&CHR$(56):: CH$(3)=C
HR$(27)&CHR$(81)&CHR$(65)::
CH$(4)=""
220 T1$="Filename Size Typ
e P" : FF=2 :: CALL CHAR(
48,"0038445454544438")
240 DISPLAY AT(17,3) "Today'
s Date: 00/00/00" : ACCEPT
AT(17,17)VALIDATE(DIGIT,"/")
SIZE(-8):L$
250 OPEN #1:"PIO"
260 FOR X=1 TO 5 :: READ F$(
X):: NEXT X
310 DISPLAY AT(3,4)ERASE ALL:
:"D I S K L A B E L E R": :
" Version 2.0": : "
by Robert Coffey Jr."
320 DISPLAY AT(11,4): "Select
(See Page 46)
```

User Notes

(Continued from Page 45)

```

drive number, or": "" : "
0 to exit program" :: GOTO 3
30
325 DISPLAY AT(11,5): "Select
drive number,": : " [A]
nother copy, or": : " [0
] to exit"
330 CALL KEY(0,K,S):: IF (K<
48 OR K>56)AND(K<>65 AND K<>
97)THEN 330
335 IF K=48 THEN 710 ELSE IF
K=65 OR K=97 THEN 558
340 DISPLAY AT(11,1): "
Drive #";K-48: : : "
Reading.....": ""
350 ON ERROR 660
360 OPEN #FF: "DSK"&STR$(K-48
)&"", INPUT ,RELATIVE, INTERN
AL :: INPUT #FF: N$,U,U,A ::
X=0
370 ON ERROR STOP
380 IF X>127 THEN 550 ELSE I
NPUT #FF: P$,G,I,J :: IF LEN
(P$)=0 THEN 550 ELSE X=X+1
:: GOSUB 790 :: GOTO 380
550 M$(X+1)=" " :: M$(X+2)=" "
:: CLOSE #FF :: B=X/3 :: IF
B<>INT(B)THEN B=INT(B)+1
558 DISPLAY AT(11,1): "" : :
" Printing...."
560 PRINT #1: CD$(P)
570 PRINT #1: "DSK"&STR$(K-48
)&" : "&N$;TAB(36);STR$(X)&"
Files";TAB(68); "Used ="&RPT
$(" ",5-LEN(STR$(U-A)))&STR$(
U-A)
580 PRINT #1: "Printed on "&D
$;TAB(68); "Free ="&RPT$(" ",
5-LEN(STR$(A)))&STR$(A):: PR
INT #1: RPT$(" ",78)
590 PRINT #1: TT$&" "&TT$&"
"&TT$ :: PRINT #1: RPT$(" ",
",78)
600 FOR C=1 TO B :: PRINT #1
: M$(C);TAB(28);M$(C+B);TAB(5
5);M$(C+B*2):: NEXT C
610 PRINT #1: RPT$(" ",78)::
PRINT #1: RPT$(CHR$(10),3)::
PRINT #1: NP$(P):: GOTO 325
660 DISPLAY AT(12,5)ERASE AL
L BEEP: "D I S K E R R O R"
:: FF=FF+1 :: FOR X=1 TO 400
:: NEXT X :: GOTO 310
710 CALL INIT :: CALL PEEK(2
,K,S):: CALL LOAD(-31804,K,S

```

```

):: END
790 M$(X)=PN$&RPT$(" ",11-LE
N(PN$))&RPT$(" ",4-LEN(STR$(
I)))&STR$(I)&" "&F$(ABS(G)):
: IF ABS(G)=5 THEN 800 ELSE
M$(X)=M$(X)&RPT$(" ",3-LEN(S
TR$(J)))&STR$(J)
800 IF G>0 THEN RETURN ELSE
M$(X)=M$(X)&" Y" :: RETURN
815 !@P+
820 DATA D/F,D/V,I/F,I/V,"PG
M "

```

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