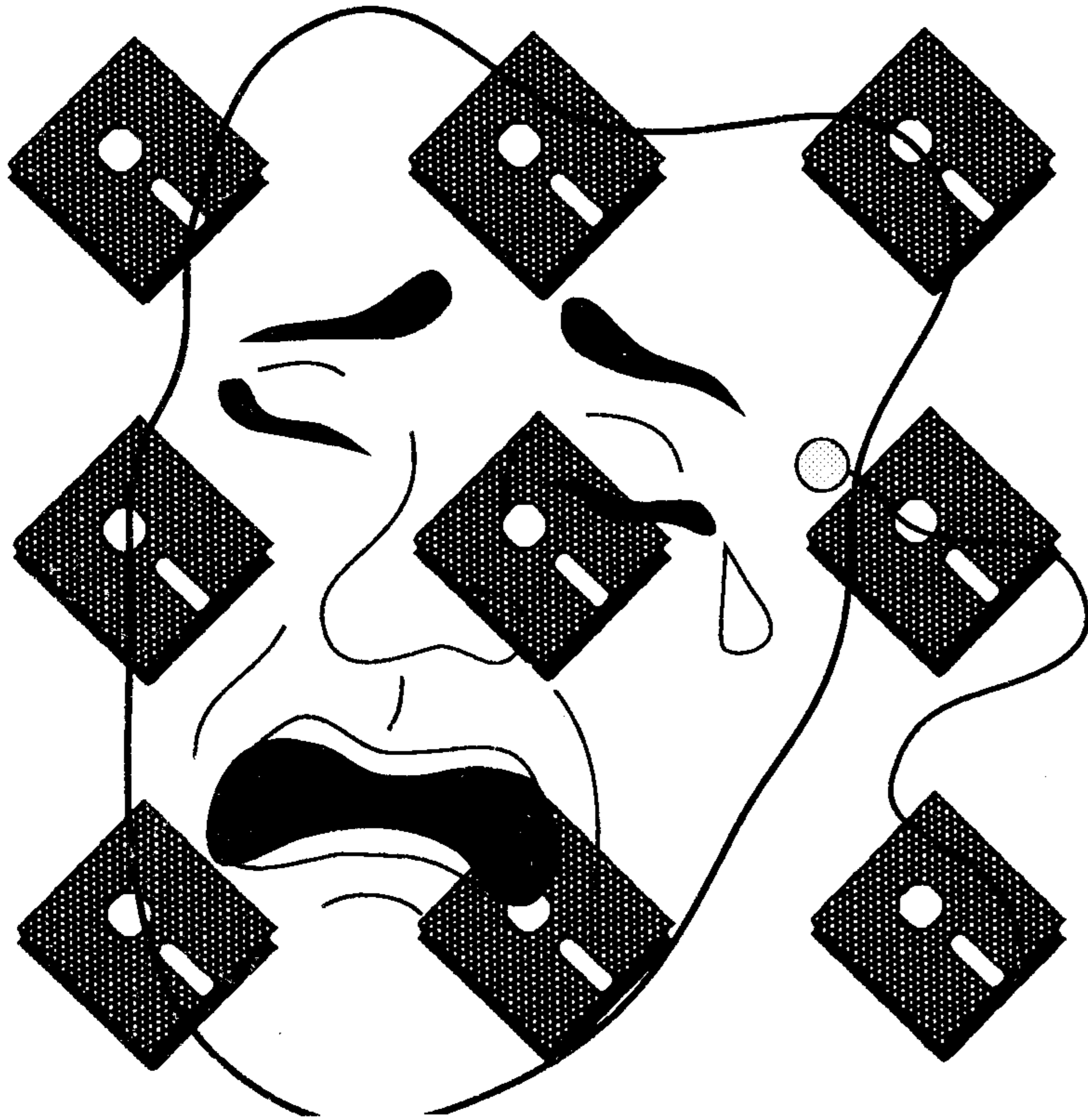


MICROpendium

Volume 9 Number 12

January 1993

\$2.50



Say it ain't so!

Virus infects TI disks!

(See report on page 28)

Reviews

Armor Ambush *List of Labels Labeler*

Page Pro Cataloger *Wing Quest*

Musical Christmas Tree

Regena presents
Crazy Eights

• • •

Barry Traver offers a
disk labeling program
in Extended BASIC

• • •

Bruce Harrison
tackles sprites and
joysticks in assembly

• • •

A load program for
Myarc Advanced
BASIC users

• • •

And User Notes this
month presents
Ten-High and more

TEX+COMP DOLLAR DAYS

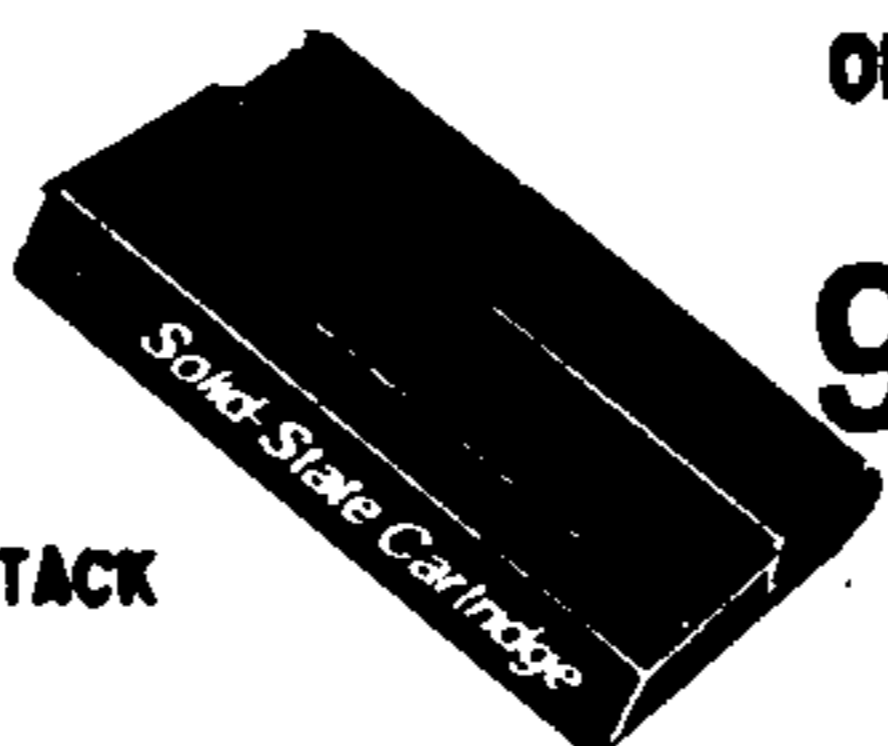
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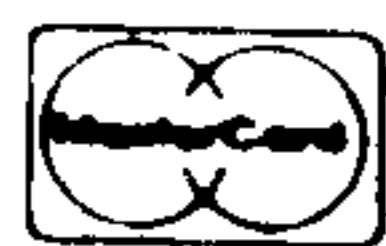
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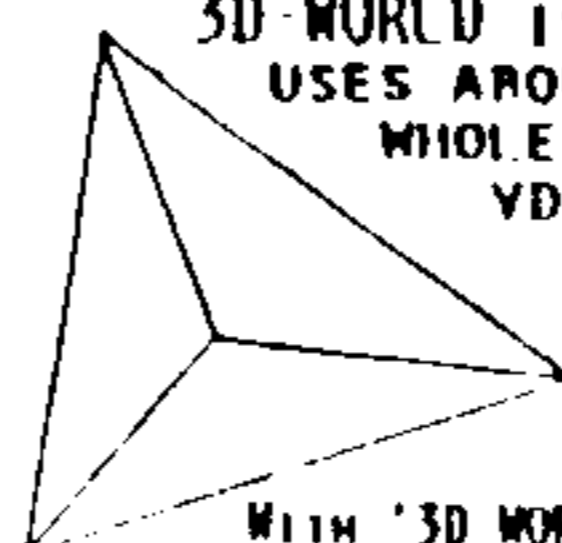
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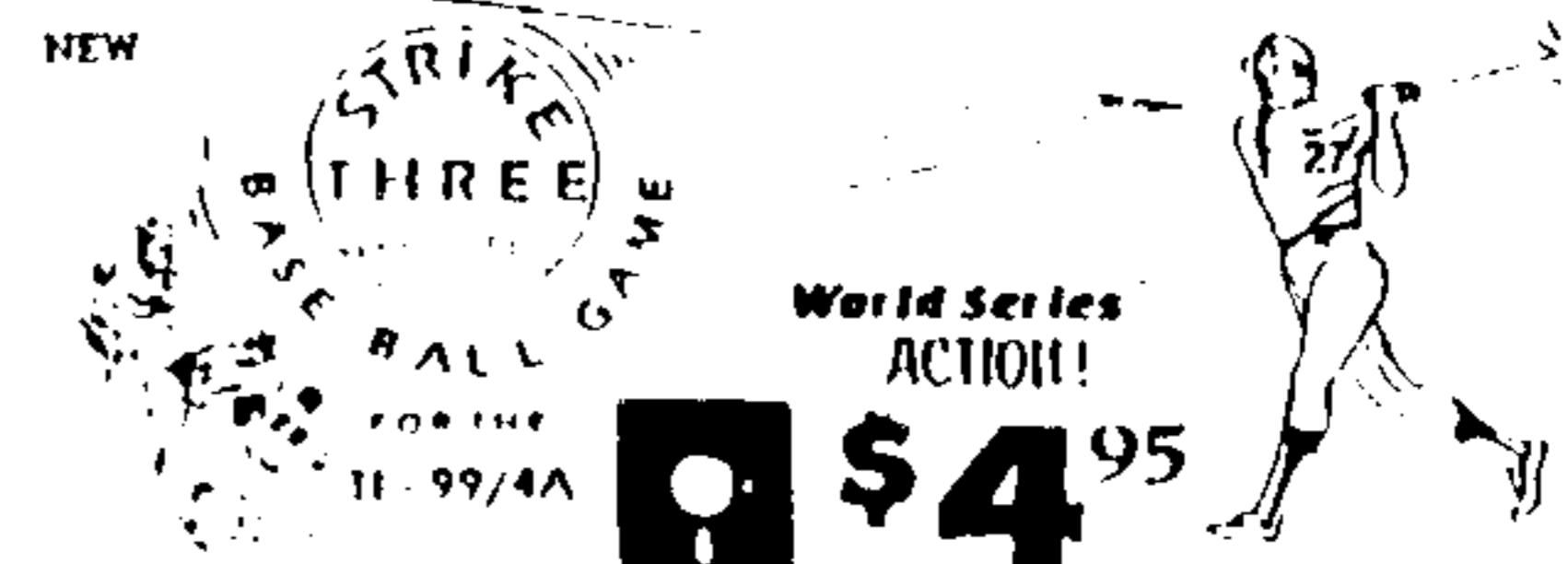
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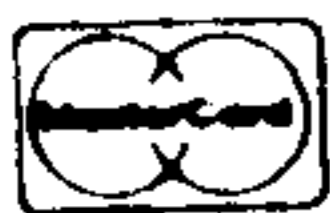
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*READ THIS

Here are some tips to help you when entering programs from MICROpendium:
1. All BASIC and Extended BASIC programs are run through Checksum. the numbers that follow exclamation points at the end of each program line. Do not enter these numbers or exclamation points. Checksum is available on disk from MICROpendium for \$4.
2. Long XBASIC lines are entered by inputting until the screen stops accepting characters, pressing Enter, pressing FCTN REDO, cursoring to the end of the line and continuing input.

Comments

Price hike inevitable, but not this month

We're still considering a price increase, but to address some issues and suggestions brought up by readers over the past several months, I submit the following:

- What about including other orphan computers in MICROpendium?

Orphan computer users who do not already have a magazine to support them, never will. There is no way to reach these people except through advertising in a magazine or user group. The cost of finding these potential subscribers would be enormous, probably more than we'd get back in subscription revenue. In most cases, if these orphans no longer have magazines, it is because the advertising revenue disappeared, so this wouldn't help us increase the number of pages.

Additionally, by including other orphans, we'd end up reducing the amount of coverage for the TI, which would be counterproductive for TI/Geneve users.

- How about increasing the number of pages to attract additional subscribers and advertisers?

There are no potential advertisers who do not already advertise in MICROpendium. Everyone who sells TI products knows who we are and how to reach us. If there were additional advertisers, we would be happy to increase the number of pages to accommodate them. After all, their advertising pays for the additional pages.

Increasing the number of pages isn't likely to increase our subscriber base. I know of no one who has said that he would subscribe to MICROpendium if it had 40 pages. Nor do I know of anyone who does not subscribe simply because it has 32 pages. What would increase our subscriber base is if people who share copies of MICROpendium rather than buying their own subscription would subscribe. If enough of these people subscribed, then we might be able to increase the number of pages.

So where does that put us? I know I've said that this the month we would make our decision about raising the price of a subscription. Readers have sent dozens of letters with their views and,

while the majority seem to favor the increase, we're not prepared at this time to do it. But I think you can be certain that eventually we will have to raise the price. Reluctantly, yes. But I think it is inevitable.

A GENEVE PUBLISHING PROJECT

Don Walden, of Cecure Electronics, suggests that we compile a book with all of the articles and programs that MICROpendium has published about the Geneve. I'm going to look into this. If we can do it without investing months of labor (most of the articles we've got on disks), we'll do it. Don says the Geneve market is picking up, citing the confidence that users feel since his company has agreed to perform repairs on Myarc products while Beery Miller has obtained the code to MDOS.

—JK

1993 TI FAIRS

FEBRUARY

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

APRIL

Northeast TI Fair, April 17, Waltham High School, Waltham, Massachusetts. Contact Ron Williams, 14 East St., Avon, MA 02322.

MAY

Lima Multi User Group Conference, May 14-15, Ohio State University Lima Campus, Lima, Ohio. Contact Dave Szippel, 4191 Patterson Haplin, Sidney, OH 45365; phone (513) 498-9713 (evenings).

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

BUGS AND BYTES

Battling isolation

One of the far-flung groups in the far-flung TI community is the North Bay 99ers in Canada. North Bay's nearest user group neighbors are in Sudbury, Ontario, 85 miles away, according to Pat Graham of the group. Nonetheless, Graham says, the newsletter tries to point the readers "in the right direction to find out what they might want."

Newsletter delay

Persons on the mailing list of the Chicago TI Users Group got a delayed copy of their most recent newsletter. Hal Shanafield of the group wants them to know that Tony Zlotorzynski, the

editor, ignored symptoms until he was unable to continue on his job as a truck driver, then found out he had a ruptured appendix. Zlotorzynski developed pneumonia and spent three weeks in the hospital.

Australia fair

More than 100 attendees from several states in Australia attended the TI-Faire in Ashfield, New South Wales, Nov. 28-29. There were 16 stands at the fair, plus an animated display and a showing of the videotapes from the Lima Multi User Group Conference.

Feedback

Changed opinion

Re: "Comments" October 1992, \$1.25 per issue to users groups does seem a bit generous. One wonders how many of them there are. Since the word "subsidize" was used it may be detrimental. Several years ago users groups ran ads for membership in MICROpendium. Membership required dues and maybe a one-time membership fee, attendance to meetings was not required. The cost to become a member was nominal, on the order of the users group discount subscription rate. This money was used to finance the group's activities, one of which was to publish a newsletter. Newsletters are primarily of use to the group. A side effect was reduced revenues for MICROpendium, something of use to everyone.

Our opinion of users groups in general has changed somewhat in the past year. The initial release of OS/99 was to 15 users groups. Each had a letter soliciting comments/criticisms and an SASE to mail them in. While what response there was was enthusiastic, the number was disappointing. The inclination is to agree with the reader who found things unresponsive (February 1992 Feedback). Those who did respond were exceptionally helpful. Notably, they were also regular contributors to MICROpendium.

A partial solution might be to give the discount only to groups that are active and contribute to MICROpendium.

Guy Neuberg
Kirkland, Washington

Moderate increase

I will support a price increase for the following year because I think the publication has the best unifying effect on the TI99/4A world, and we need it. However, were you to increase the size to 40 pages, I hope the major increase in space would be devoted to the 99/4A and not the Geneve. I seriously doubt that I would purchase a Geneve, unless I acquired it at an unbelievable bargain!

Why do you not consider a more moderate price increase to \$30? I don't know your in-house economics, but it seems to me that some extra space would enable

more advertising and that would contribute to the additional costs of added pages. In addition, the larger better magazine should attract some new subscribers at the more moderate price.

Harry W. Guenther
Syosset, New York

Live long and prosper

Even though I, like most, have gone on to the IBM clone world (mainly because of compatibility with machines at work), I still revisit my Geneve regularly and my TI99/4A from time to time. The TI99 taught me about computers, and abolished my early fears that I could never learn all that high tech stuff. As long as there are enough of us who are stubborn enough to keep the old machines going, and people like Miller, Harrison, Pulley, Regena, Mills, the Asgard folks and many others who continue with hardware and software support, our little machine could outlive Star Trek.

And, of course, MICROpendium. The only real link between all of us, MICROpendium keeps us informed and makes sure we don't give up. Even though I am not a contributor, I remain an avid reader and follower of all the news. Please don't stop, you are responsible for several TIs that have been dusted off and revived because of back issues I have passed on to friends. They were surprised to discover that there was still so much activity in the TI user world.

Geoff Frusher
Lake Echo, Nova Scotia, Canada

Minimizing investment

I am not in support of increasing the price of a subscription to your magazine because I am trying to minimize any further investment in my TI. I believe that the Geneve is dead, so any article devoted to it does not interest me. I do look forward to MICROpendium each month just to see what is still being done with it. But each month I get closer to breaking down and investing in an IBM compatible machine. Besides the cost, the other major reason I use my TI is the fact that I know how to operate it, and have some knowledge of its basic language. I can still modify some pro-

grams to suit my needs. With an MS-DOS machine, I would be stuck with someone else's idea of how a program should look and work. The TI does everything I want it to do, though another system may open up other areas in computing. I would also hate to throw my system in a closet (since it is almost worthless to anyone else) while it is still useful. If only I could get my young son interested in using it.

Frank D. Ormonde Jr.
Petaluma, California

Beatles were wrong

This is just a quick note to let you know about two things. First, I received a letter from a fellow MICROpendium reader who typed in the improvements to Sink-It (User Notes, November 1992) and immediately began getting "BAD VALUE" messages upon the first hit to whatever flagship on the "US" screen. This is probably happening to everyone who typed in these additions, because there is a typo in line 1810. Instead of SUB ALERT(1), it should read SUB ALERT (A).

Also, I wanted to take this opportunity to give you my feelings on the issue of number of pages vs. subscription increase. Rather than see a decrease in pages (or in TI related content, should any other computer begin to get coverage), I would rather pay more. Any reader who can afford the products advertised in MICROpendium can certainly afford a price increase in the magazine itself. Considering that the last increase was back in October 1989 (and even that was after holding firm more than two years), it is inevitable.

Sure, there will be those who will complain. Who likes inflation? But it is a fact of life in this world. Publishing a magazine is a business. It may be a labor of love, but if love was all you needed (a la the Beatles), all the bellies in Somalia would be full right now.

Walter Chmara
Bensalem, Pennsylvania

Don't raise the price

Re expanded issue: My vote is don't raise the price.

A price increase is sure to lose some subscribers.
(See Page 7)

Feedback

(Continued from Page 6)

scribers, whom we need to keep in the community, and inevitably lead to further price increases and further losses.

Die hards will stick with an eight-page issue.

Suggestion: Expand User Notes and drop duplicate advertising for MICROpendium Disks as in November issue.

Ed Machonis
Floral Park, New York

32 pages not enough

When I first noticed the change to 32 pages, I attributed it to a lack of publishable information, not a financial constraint.

The TI community needs you to publish as much as you can as fast as you can!

Please take whatever steps you deem necessary to get back to 40 pages as soon as possible.

MICROpendium remains the best method available to distribute TI information.

Ken Gladyszewski
Northcoast 99ers
Cleveland, Ohio

Goodbye if price rises

I'm on a fixed income — rarely do I get cost of living increases. I guess you know that I'm a retiree and have to watch my pennies. I'm 73. Over the past few years I've cancelled subscriptions to several magazines that keep me up with computing. Yours is the only one I receive *now*, simply because I have a TI set up.

When you raised the price previously, I went along with it. At \$25 per year, I'll stay with MICROpendium, but if it goes up again, regardless of a few more pages, I'll drop it altogether.

Please think this increase over — maybe include a bit about other orphans and get advertising to help.

Name withheld

Thoughts on support

I would be willing to pay \$40 or \$50 over \$25 I am now paying, and say this much because MICROpendium is the only magazine we have in the TI99/4A world and we should be tickled pink that we have a magazine at all and furthermore, if I may,

we should all do our part or whatever it would take to continue to support MICROpendium in upgrading it.

It would help if we could have step by step instructions "in how to" concerning Assembly Language in how to blessed heck do you start off and where, and this would apply to all the other languages confined well within that lovely little TI99/4A. I would rather see more instructions on programming in the languages so those of us who don't know what the heck is going on may in the future be able to understand and write programs because we are dying out and if we don't start to take the bull by the horns it is goodbye, Jack, for all of us; all you have to do is look around. You can see for yourself what's coming.

But if we say what we have been saying down through the years ever since Texas Instruments pulled a Pearl Harbor on the TI world we'd better start doing what we can now and soon instead of trying to bleed the well dry.

What I am saying is, must we always rely on those people that are helping us now? These people are not going to last forever nor will I so why not start now and have everybody support the TI99/4A in learning and understanding *the how to*, this way we will all be doing our part to support the computer we love the best.

Al Morgan
Stratford, Connecticut

King Turambar replies

I have read the review by S. Krajewski of my program TDM 1.3 and I have a few comments to make.

Stan notices a problem when loading an uncompact picture file. He says the picture is "hidden." In fact, the picture is not hidden, and it appears normally. The only problem is that the picture appears in Transparent on Transparent, so it cannot be seen. To see the picture, just use the "Set Picture" and "Set Background" functions on the whole screen to make it appear. Please notice that "LOAD POINTS 6KB" does *not* modify colors on screen, and "LOAD COLORS 6KB" does *not* modify patterns on screen. This is the reason for the problems, Stan.

I'm working on TDM 1.4, and this new

version should be released in a few months. There are several new functions, Brush, Arcus, Text on screen, etc.; and new programs, Installation, Pictures Fusioning, Picture Analyzing, etc.

Last thing: My address has changed.

Laurent Peron
"Maine Leva"
24130 Fraisse
France

99/7 mystery

I recently came across an interesting bit of trivia that I'd not seen before and which readers were not privy to in Richard Fleetwood's excellent "TI's Unreleased Legends" series published in MICROpendium from December 1989 to March 1990. It raises a question in my mind that I hope someone in the TI community has an answer for.

Like many other TI99 history buffs, I own a copy of TI engineer Richard Tarrant's proposal for the TI99/7 computer, which is a 30-plus page document I had always assumed to be an upgrade plan for the 99/4 or 4A. However, while doing research for an article on "The Birth of a Computer" that I wrote a while back, I came across the following item in the November 1979 issue of *BYTE Magazine*, on page 81.

"... TI has also expanded its small business computer (99/7) marketing efforts. The 99/7, which starts at \$5,000, will be marketed by Moore Business Forms, through over 750 sales offices as well as through computer stores and TI's own retail outlets."

This leads me to believe that a computer designated the 99/7 already existed before Tarrant's July 1981 TI99/7 proposal, which means it must have been a minicomputer. But Tarrant's document clearly reads like a plan for a Home Computer, not a minicomputer. Can anyone sort out the facts for me and other interested 99ers? Did a 99/7 computer from TI ever exist, and, if so, was it a minicomputer? Also, if it did exist, can it be that TI or someone in the corporation decided to reuse the 99/7 designation, hence the use of the designation in Tarrant's proposal?

Bill Gaskill
Grand Junction, Colorado

BASIC

Crazy Eights

By REGENA

January is the time for fun and games. After a long day on the ski slopes you can rest in the evening by playing this game on the TI. Actually, I wrote it because my youngest son wanted a card game that was easy enough for him to play, and the computer does not always win.

"Crazy Eights" consists of a card deck of 44 cards. The cards are numbered from 1 to 11 and there are four colors — red, black, green and blue. If you play with a real deck of cards, more than two people can play, but this game written for the TI is for two players — you against the computer. You alternate turns, and you get to go first.

Each player is dealt seven cards, then the top card of the rest of the deck is turned face up. Each turn you discard one card from your hand by matching either the number or the color of the top card. The card you place then becomes the new "top card," and the opponent must then match either the number or the color.

A card with the number eight is a wild card. It may be played at any time, and when it is played you may change the color. If you cannot play any cards in your hand, you may draw from the deck. You must keep drawing until you have a card you can discard. If there are no more cards left in the deck, you must pass.

The winner of the round is the first person to discard all his cards. The score is the total value (add the face values) of the cards left in the hand at the end of the round. Each crazy eight will count 25 points, so it helps to get rid of the eights in your hand.

The computer version shows your hand on the screen. The top card is in the lower section of the screen, along with a count of the number of cards left in the deck and the number of cards in the computer's hand.

When it is your turn, a marker will appear under your cards. Use the space bar to move the marker. When it is under the card you wish to discard, press the Enter key. If you wish to draw a card, press D. If you draw too many times and fill the screen, you will automatically pass. The maximum number of cards you can have in your hand is 13. Actually, the reason for this is the programming involved in drawing another row of cards. The computer may have more than 13 cards in its hand — so that could give you a little advantage.

When you play an eight, you have the option of changing the color. Question marks appear under the color bar. Press the Space Bar to go through the colors, and press Enter when the screen shows the color you want.

Variable names starting with "A" pertain to the player's hand, and names starting with "B" pertain to the computer's hand. A(J,1) is the number of a card, and A(J,2) is the color of a card. NA and NB are the number of cards in each hand. AX is the x-coordinate where your cards are drawn. TX and TY are the coordinates for the Top card. APASS and BPASS flag when a pass is made. NU and COL are the number and color of the top card.

Lines 130-490 print the instructions while defining variables, colors and characters. The numbers are defined in different color

sets so the numbers can be printed in the four different colors. The first character in each different color set is a solid square of color used for the color of the card and the color bar.

MARK is the position of the marker, and MARKX is its x-coordinate.

Lines 500-540 initialize the deck of cards — a string C\$ is created for the 44 cards. Lines 580-650 are a subroutine for printing a message M\$. Lines 660-760 are a subroutine to randomly choose a new card from the deck. GC is the graphic character in the particular color, and N is the character number of the card number. DECK and LEN(C\$) both give the number of cards left in the deck.

Lines 770-890 are a subroutine to draw the card on the screen. Lines 900-970 are a subroutine to print the number of card left in the computer's hand.

Lines 980-1070 print the playing screen. Lines 1090-1200 deal out the first seven cards to each player. Lines 1210-1290 draw the top card to be matched.

Lines 1300-2080 contain the procedure for the player's turn. "YOUR TURN" is printed at the bottom of the screen, then the marker blinks under the cards, waiting for the player response. If the space bar is pressed, Lines 1420-1450 advance the marker. After the last card, the marker goes to the first card again.

Lines 1460-1670 are the procedure if D is pressed and a new card is drawn. The card is added to the hand and drawn, the number in the deck is reduced, and the number of cards in the player's hand is checked. If the number is 13, then the player passes.

Lines 1680-2080 are the procedure when the Enter key is pressed. The card chosen is checked to see if the number matches the number of the top card, if the color matches the color of the top card, or if the card is an eight. If the card is an eight, Lines 1940-2070 change the color. Lines 1770-1880 redraw the remaining cards in the player's hand.

Lines 2100-2930 are the procedure for the computer's turn. Lines 2150-2450 are a sort routine to put the computer's cards in order from low card to high card numerically. Lines 2460-2480 then go through the cards from high card to low card trying to match the top card in number or color (or eight). If none of the cards match, Lines 2490-2730 draw a new card and check it for a match. Lines 2740-2930 are the procedure when a card matches.

Lines 2940-3010 are a subroutine to change the top card number and color. Lines 3020-3090 are a subroutine to print the word "DRAW" and draw a new card from the deck.

Lines 3100-3460 draw the cards left in a round and calculate the score. If both players pass, the round ends and scores are tallied of all cards left in both hands. Lines 3470-3500 offer the option to play again. If you wish to end, Lines 3510-3610 print the final totals, declare the winner and end the program.

If you wish to save typing effort, you may have a copy of this program by sending \$4 to REGENA, 918 Cedar Knolls West, Cedar City, UT 84720. Be sure to specify that you need "Crazy Eights" for the TI99/4A and whether you want cassette or diskette. Have a fun January, and hope to see many of you at Fest-West '93 in Salt Lake City in February!

REGENA ON BASIC —

```

100 REM CRAZY EIGHTS !071      080808080808,1C22020408103E,      850 CALL HCHAR(X+2,Y+1,GC)!0
110 REM BY REGENA !071        3E04081C02023E,141424243E040      85
120 DIM A(35,2),B(35,2)!090    4,3C20203C02023C !227            860 CALL HCHAR(X+3,Y,38)!070
130 CALL CLEAR !209           480 DATA 0810102C32221C,3E02      870 CALL HCHAR(X+3,Y+1,35)!2
140 PRINT "  ** CRAZY EIGHTS  0204040808,18242418242418,18      54
S **" !045                    24241C040418,8C92929292928C,      880 CALL HCHAR(X+3,Y+2,39)!0
150 CALL COLOR(9,3,16)!235     888888888888888 !144            03
160 CALL COLOR(10,3,16)!020    490 PRINT : "ALTERNATE TURNS.      890 RETURN !136
170 CALL COLOR(11,5,16)!023    THE FIRST ONE OUT OF CARDS      900 NB$=STR$(NB)!074
180 CALL COLOR(12,5,16)!024    WINS." !136                    910 XX=22 !156
190 ASCORE=0 !116             500 PRINT : "...SHUFFLING..."    920 YY=24 !160
200 BSCORE=0 !117            !225                            930 CALL HCHAR(XX,YY,32,4)!2
210 PRINT : "YOU WILL PLAY AG   510 C$="" !236                    28
AINST THE COMPUTER AND WIL    520 FOR J=1 TO 44 !113            940 FOR J=1 TO LEN(NB$)!053
L GO FIRST." !200            530 C$=C$&CHR$(J)!209            950 CALL HCHAR(XX,YY+J,ASC(S
220 CALL COLOR(13,7,16)!027    540 NEXT J !224                  EG$(NB$,J,1)))!252
230 CALL COLOR(14,7,16)!028    550 PRINT : "PRESS <ENTER> TO      960 NEXT J !224
240 CALL COLOR(1,16,1)!225     START" !068                    970 RETURN !136
250 TX=16 !155                560 CALL KEY(3,K,S)!190            980 CALL CLEAR !209
260 TY=10 !150                570 IF K=13 THEN 980 ELSE 56      990 CALL SCREEN(8)!153
270 AX=5 !085                 0 !135                            1000 PRINT " YOUR HAND" !023
280 PRINT : "THERE ARE 44 CAR   580 REM MESSAGE !223            1010 PRINT : : : : : : : :
DS IN THE DECK--11 NUMBERS    590 YY=3 !108                    : !099
IN EACH OF FOUR COLORS." !0   600 XX=22 !156                    1020 PRINT "-----
33                             610 FOR J=1 TO LEN(M$)!242        -----" !107
290 CALL COLOR(15,2,16)!024    620 CALL HCHAR(XX,YY+J,ASC(S      1030 PRINT TAB(21);"Q-QUIT"
300 CALL COLOR(16,2,16)!025    EG$(M$,J,1)))!185                !116
310 MARKX=9 !067              630 NEXT J !224                  1040 PRINT " TOP": " CARD" !0
320 CALL CHAR(35,"FFFFFFFFF     640 CALL SOUND(100,1000,2)!1      53
FFFFFF")!016                 70                                1050 PRINT TAB(13);"COLOR";T
330 PRINT : "MATCH THE TOP CA   650 RETURN !136                    AB(21);"DECK 29" !160
RD IN NUMBEROR IN COLOR. US   660 REM NEW CARD !254            1060 DECK=44 !007
E THE SPACE BAR TO MOVE THE   670 RANDOMIZE !149                1070 PRINT :TAB(21);"COMPUTE
MARKER THEN" !230             680 CD=INT(RND*LEN(C$)+1)!12      R": : :!248
340 PRINT "PRESS <ENTER> TO    7                                1080 Y=1 !017
SELECT." !241                 690 CN=ASC(SEG$(C$,CD,1))!04      1090 FOR J=1 TO 7 !063
350 CALL CHAR(36,"071F3F7F7F   3                                1100 GOSUB 670 !240
FFFFFF")!166                  700 C$=SEG$(C$,1,CD-1)&SEG$(      1110 Y=Y+2 !044
360 CALL CHAR(37,"E0F8FCFEFE   C$,CD+1,44)!178                  1120 GOSUB 780 !095
FFFFFF")!232                  710 COL=INT((CN-1)/11+1)!061      1130 A(J,1)=NU !006
370 CALL CHAR(38,"FFFFFF7F7F   720 NU=CN-(COL-1)*11 !170        1140 A(J,2)=COL !066
3F1F07")!168                  730 GC=80+16*COL !013            1150 GOSUB 670 !240
380 CALL CHAR(39,"FFFFFFFEFE   740 N=GC+NU !250                  1160 B(J,1)=NU !007
FCF8E")!185                   750 DECK=DECK-1 !168            1170 B(J,2)=COL !067
390 PRINT : "IF YOU CANNOT MA   760 RETURN !136                    1180 NEXT J !224
TCH, PRESS <D> TO DRAW A CA   770 REM DRAW CARD !066            1190 NA=7 !077
RD." !020                     780 X=AX !175                    1200 NB=7 !078
400 FOR C=96 TO 107 !218      790 CALL HCHAR(X,Y,36)!135        1210 GOSUB 670 !240
410 READ C$ !254              800 CALL HCHAR(X,Y+1,35)!065      1220 TOPNU=NU !247
420 CALL CHAR(C,C$)!081        810 CALL HCHAR(X,Y+2,37)!068      1230 TOPCOL=COL !109
430 CALL CHAR(C+16,C$)!067     820 CALL HCHAR(X+1,Y,35,3)!2      1240 X=TX !194
440 CALL CHAR(C+32,C$)!065     40                                1250 Y=TY !196
450 CALL CHAR(C+48,C$)!072     830 CALL HCHAR(X+1,Y+1,N)!02      1260 GOSUB 790 !105
460 NEXT C !217              4                                1270 CALL HCHAR(X+1,Y+6,GC,3
470 DATA FFFFFFFFFFFFFFFF,08  840 CALL HCHAR(X+2,Y,35,3)!2      (See Page 10)
41

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REGENA ON BASIC—

(Continued from Page 9)

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) !008
1280 CALL HCHAR(X+2,Y+6,GC,3
) !009
1290 GOSUB 900 !215
1300 M$="YOUR TURN" !183
1310 GOSUB 590 !160
1320 CALL HCHAR(23,3,32,18)!
227
1330 APASS=0 !047
1340 MARK=1 !227
1350 CALL SOUND(100,800,2)!1
28
1360 CALL KEY(3,K,S)!190
1370 CALL HCHAR(MARKX,MARK*2
+2,94)!002
1380 CALL HCHAR(MARKX,MARK*2
+2,32)!250
1390 IF S<1 THEN 1360 !094
1400 IF K=13 THEN 1680 !202
1410 IF (K=81)+(K=113) THEN 3
510 !000
1420 IF K<>32 THEN 1460 !175
1430 IF MARK+1>NA THEN 1340
!115
1440 MARK=MARK+1 !207
1450 GOTO 1350 !154
1460 IF (K<>68)+(K<>100)=-2
THEN 1360 !144
1470 IF NA=13 THEN 1660 !250
1480 IF LEN(C$)=0 THEN 1620
!183
1490 GOSUB 3030 !049
1500 NA=NA+1 !151
1510 Y=NA*2+1 !031
1520 GOSUB 780 !095
1530 A(NA,1)=NU !075
1540 A(NA,2)=COL !135
1550 M$=STR$(DECK)!142
1560 XX=19 !162
1570 YY=27 !163
1580 CALL HCHAR(XX,YY,32,4)!
228
1590 GOSUB 610 !180
1600 CALL HCHAR(23,3,32,5)!1
74
1610 GOTO 1350 !154
1620 M$="NO DECK LEFT--YOU P
ASS" !217
1630 YY=3 !108
1640 XX=23 !157
1650 GOSUB 610 !180
1660 APASS=1 !048
1670 IF BPASS=1 THEN 3110 EL
SE 2100 !230
1680 IF TOPCOL=A(MARK,2) THEN
1740 !229
1690 IF TOPNU=A(MARK,1) THEN
1740 !169
1700 IF A(MARK,1)=8 THEN 174
0 !020
1710 CALL SOUND(100,330,2)!1
26
1720 CALL SOUND(100,262,2)!1
30
1730 GOTO 1360 !164
1740 TOPCOL=A(MARK,2)!022
1750 TOPNU=A(MARK,1)!218
1760 GOSUB 2950 !225
1770 FOR J=MARK+1 TO NA !186
1780 A(J-1,1)=A(J,1)!196
1790 A(J-1,2)=A(J,2)!198
1800 GC=80+16*A(J,2)!213
1810 N=GC+A(J,1)!252
1820 CALL HCHAR(AX+1,(J-1)*2
+2,N)!050
1830 CALL HCHAR(AX+2,(J-1)*2
+2,GC)!111
1840 NEXT J !224
1850 CALL VCHAR(AX,NA*2+3,32
,4)!051
1860 CALL VCHAR(AX,NA*2+2,32
,4)!050
1870 IF NA<>1 THEN 1910 !130
1880 CALL VCHAR(AX,3,32,4)!0
37
1890 NA=0 !070
1900 GOTO 3110 !129
1910 CALL VCHAR(AX,NA*2+1,37
)!134
1920 CALL VCHAR(AX+3,NA*2+1,
39)!069
1930 NA=NA-1 !152
1940 IF TOPNU<>8 THEN 2080 !
059
1950 CALL SOUND(100,440,2)!1
28
1960 CALL KEY(3,K,S)!190
1970 CALL HCHAR(20,16,63,3)!
226
1980 CALL HCHAR(20,16,32,3)!
222
1990 IF K=13 THEN 2080 !092
2000 IF K<>32 THEN 1960 !165
2010 GC=GC+16 !196
2020 IF GC<=144 THEN 2040 !1
03
2030 GC=96 !129
2040 CALL HCHAR(TX+1,TY+6,GC
,3)!176
2050 CALL HCHAR(TX+2,TY+6,GC
,3)!177
2060 TOPCOL=(GC-80)/16 !111
2070 GOTO 1950 !244
2080 IF NA=0 THEN 3110 !117
2090 CALL HCHAR(22,3,32,10)
218
2100 M$="COMPUTER " !142
2110 DR=0 !077
2120 BPASS=0 !048
2130 GOSUB 590 !160
2140 CALL HCHAR(23,3,32,23)
223
2150 NN=NB !234
2160 SS=1 !094
2170 MN=B(SS,1)!091
2180 IMIN=SS !145
2190 MX=MN !254
2200 IMAX=SS !147
2210 FOR I=SS TO NN !134
2220 IF B(I,1)<=MX THEN 2250
!150
2230 MX=B(I,1)!008
2240 IMAX=I !054
2250 IF B(I,1)>=MN THEN 2280
!171
2260 MN=B(I,1)!254
2270 IMIN=I !052
2280 NEXT I !223
2290 IF IMIN<>NN THEN 2310 !
084
2300 IMIN=IMAX !026
2310 BB=B(NN,1)!058
2320 BB2=B(NN,2)!109
2330 B(NN,1)=B(IMAX,1)!065
2340 B(NN,2)=B(IMAX,2)!067
2350 B(IMAX,1)=BB !205
2360 B(IMAX,2)=BB2 !000
2370 NN=NN-1 !178
2380 BB=B(SS,1)!068
2390 BB2=B(SS,2)!119
2400 B(SS,1)=B(IMIN,1)!073
2410 B(SS,2)=B(IMIN,2)!075
2420 B(IMIN,1)=BB !203
2430 B(IMIN,2)=BB2 !254
2440 SS=SS+1 !197
2450 IF NN>SS THEN 2170 !129
2460 FOR J=NB TO 1 STEP -1 !
061
2470 IF (B(J,1)=TOPNU)+(B(J,
2)=TOPCOL)+(B(J,1)=8) THEN 27
40 !025
2480 NEXT J !224
2490 REM DRAW FROM DECK !147
2500 IF LEN(C$)<>0 THEN 2570
!050

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(See Page 11)

REGENA ON BASIC—

(Continued from Page 10)

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2510 M$="CANNOT DRAW--PASS"
!169
2520 YY=3 !108
2530 XX=23 !157
2540 GOSUB 610 !180
2550 BPASS=1 !049
2560 IF APASS=1 THEN 3110 ELSE
1300 !194
2570 GOSUB 3030 !049
2580 NB=NB+1 !153
2590 DR=1 !078
2600 GOSUB 900 !215
2610 M$=STR$(DECK)!142
2620 XX=19 !162
2630 YY=27 !163
2640 CALL HCHAR(XX,YY,32,4)!
228
2650 GOSUB 610 !180
2660 CALL HCHAR(23,3,32,5)!1
74
2670 IF (NU=TOPNU)+(COL=TOPC
OL)+(NU=8)THEN 2710 !044
2680 B(NB,1)=NU !077
2690 B(NB,2)=COL !137
2700 GOTO 2500 !028
2710 TOPNU=NU !247
2720 TOPCOL=COL !109
2730 GOTO 2760 !033
2740 TOPCOL=B(J,2)!054
2750 TOPNU=B(J,1)!250
2760 GOSUB 2950 !225
2770 IF DR=1 THEN 2820 !090
2780 FOR K=J TO NB-1 !220
2790 B(K,1)=B(K+1,1)!199
2800 B(K,2)=B(K+1,2)!201
2810 NEXT K !225
2820 NB=NB-1 !154
2830 GOSUB 900 !215
2840 IF TOPNU<>8 THEN 2930 !
144
2850 FOR K=NB TO 1 STEP -1 !
062
2860 IF K=J THEN 2890 !165
2870 TOPCOL=B(K,2)!055
2880 GOTO 2910 !184
2890 NEXT K !225
2900 GOTO 2930 !204
2910 GC=80+16*TOPCOL !000
2920 GOSUB 2990 !009
2930 IF NB=0 THEN 3110 ELSE
1300 !217
2940 REM CHANGE TOP CARD !20
5
2950 GC=80+16*TOPCOL !000
2960 N=GC+TOPNU !237
2970 CALL HCHAR(TX+1,TY+1,N)
!192
2980 CALL HCHAR(TX+2,TY+1,GC
)!253
2990 CALL HCHAR(TX+1,TY+6,GC
,3)!176
3000 CALL HCHAR(TX+2,TY+6,GC
,3)!177
3010 RETURN !136
3020 REM DRAW !008
3030 CALL HCHAR(23,4,32,4)!1
74
3040 CALL HCHAR(23,4,68)!007
3050 CALL HCHAR(23,5,82)!004
3060 CALL HCHAR(23,6,65)!006
3070 CALL HCHAR(23,7,87)!011
3080 GOSUB 670 !240
3090 RETURN !136
3100 REM SCORES !169
3110 CALL CLEAR !209
3120 PRINT "YOUR HAND": : :
: : : "COMPUTER HAND": : : : !
134
3130 ASCOR1=0 !096
3140 X=14 !069
3150 X=15 !070
3160 Y=1 !017
3170 IF NA=0 THEN 3270 !021
3180 FOR J=1 TO NA !206
3190 Y=Y+2 !044
3200 GC=80+16*A(J,2)!213
3210 N=GC+A(J,1)!252
3220 GOSUB 790 !105
3230 ASCOR1=ASCOR1+A(J,1)!11
8
3240 IF A(J,1)<>8 THEN 3260
!234
3250 ASCOR1=ASCOR1+17 !003
3260 NEXT J !224
3270 PRINT : : "YOUR SCORE:";
ASCOR1 !090
3280 BSCOR1=0 !097
3290 X=18 !073
3300 Y=1 !017
3310 IF NB=0 THEN 3410 !163
3320 FOR J=1 TO NB !207
3330 GC=80+16*B(J,2)!214
3340 N=GC+B(J,1)!253
3350 Y=Y+2 !044
3360 GOSUB 790 !105
3370 BSCOR1=BSCOR1+B(J,1)!12
1
3380 IF B(J,1)<>8 THEN 3400
!120
3390 BSCOR1=BSCOR1+17 !005
3400 NEXT J !224
3410 PRINT "COMPUTER:";BSCOR
1 !115
3420 ASCORE=ASCORE+ASCOR1 !1
62
3430 BSCORE=BSCORE+BSCOR1 !1
65
3440 PRINT : "YOUR TOTAL:";AS
CORE !193
3450 PRINT "COMPUTER TOTAL:"
;BSCORE !049
3460 PRINT : "(LOWER SCORE WI
NS)" !001
3470 PRINT : : "PLAY AGAIN?
Y/N" !232
3480 CALL KEY(3,K,S)!190
3490 IF (K=78)+(K=110)THEN 3
510 !003
3500 IF (K=89)+(K=121)THEN 5
00 ELSE 3480 !040
3510 CALL CLEAR !209
3520 PRINT "YOUR SCORE =" ;AS
CORE !040
3530 PRINT "COMPUTER SCORE =
";BSCORE !077
3540 IF ASCORE<BSCORE THEN 3
600 !085
3550 IF ASCORE<>BSCORE THEN
3580 !000
3560 PRINT : : : "TIE GAME":
: : : !122
3570 GOTO 3610 !119
3580 PRINT : : : "COMPUTER WI
NS": : : : !051
3590 GOTO 3610 !119
3600 PRINT : : : "YOU WIN": :
: : !104
3610 END !139

```

AMS package out

Asgard has released its Asgard Memory System Development Package V1.0. The software works with the AMS 128/512K card.

Included are an editor, assembler, linker, patch utility and formatter. Also included are library files and X BASIC software support for the AMS card.

For more information, contact Asgard at 1423 Flagship Dr., Woodbridge, VA 22192; 716-778-9104 (11 a.m.-7 p.m.) or 703-491-1267 (7-10 p.m.).

THE ART OF ASSEMBLY — PART 19

Sticks and sprites may break my...

By **BRUCE HARRISON**
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One of the truly frustrating things to try in Extended BASIC is to create some kind of game using joysticks and sprites together. Everything simply takes too much time. Defining the characters that you want for your sprites takes time, but that can sometimes be “covered” by putting a title screen or instructions on-screen while it’s happening. Once you have gotten into the game part, however, there is no hiding the fact that things are just too slow. The fact that you must separately CALL JOYST to see if the stick has moved, and then also CALL KEY to see if the fire button is being pressed is an annoyance and a time-waster. Then of course there’s the little matter of CALL COINC. One can work for many hours trying to “tighten” the loop that includes this instruction, and still find that the game’s action will fail because COINCs are missed while the computer is doing something else. Usually, one must resort to slowing down the speeds of the sprites so that COINC will be detected.

In Assembly, much of that goes away. For openers, one can construct rather large data sections to define the character shapes, then dump these very quickly into VDP RAM with VMBW. One can also set the VDP registers so that the sprites have their own separate character definition area in VDP, and so have 256 characters available just for the sprites, without giving up any of the normal screen characters. For example, one can use the default character definition area starting at >800 for the “stationary” screen characters, then use the area at >1000 for 256 sprite shapes. (Do that by LI R0, >0602 then BLWP @VWTR.)

INSTANT CHANGES

Then one can change shapes of sprites “on the fly” by writing a single byte to VDP RAM at the correct place. One can also “instantly” change their horizontal or vertical velocities, their positions on the screen, and so on. Also, one now has 32 sprites available at any time, and can place all of them in automatic motion if desired.

Perhaps the most powerful difference of all is that with a single call to the KSCAN routine, one can get the joystick information, the fire button sensing, and “keypress” data for the “split” keyboard scan. This saves so much time that one usually needs to build in delays on purpose to keep the action of the game controllable by human operators.

(See Page 13)

Sidebar 19

```

* FRAGMENT OF SOURCE CODE FROM "SCUD BUSTERS" GAME
* EXAMPLE OF USE OF SPRITES AND JOYSTICKS
* FIRST SECTION SETS UP AN "AIMPOINT" AS
* SPRITE #0, MOTIONLESS AT THE MIDDLE OF THE SCREEN
*
* EQUATES
MOTBL EQU >780
ATTLLST EQU >300
DESTBL EQU >800
COLTBL EQU >380
KEYADR EQU >8374
KEYVAL EQU >8375
YVAL EQU >8376
XVAL EQU >8377
STATUS EQU >837C
* NOTE - THE SPRITE DESCRIPTOR TABLE WAS SET TO EQUAL
* THE CHARACTER DEFINITION TABLE BY:
LI R0, >0601
BLWP @VWTR
* THIS SETS VDP REGISTER 6 TO LOOK FOR SPRITE CHARACTERS STARTING AT >800
NEWSCN
INC @FIRFLG PERMIT ONE FIRING
LI R0, ATTLLST POINT AT START OF SPRITE ATTRIBUTE LIST IN VDP RAM
LI R1, >6000 MIDDLE OF SCREEN IN "Y" POSITION
BLWP @VSBW WRITE THAT TO Y-POSITION FOR SPRITE 0
INC R0 POINT AT X-POSITION
LI R1, >8000 MIDDLE HORIZONTAL POSITION
BLWP @VSBW WRITE THAT TO X-POSITION SPRITE 0
INC R0 POINT TO CHARACTER FOR SPRITE 0
LI R1, >0000 MAKE IT CHARACTER 0
BLWP @VSBW WRITE THE CHARACTER NUMBER
INC R0 POINT AT COLOR BYTE FOR SPRITE 0
LI R1, >0F00 MAKE IT WHITE
BLWP @VSBW WRITE THAT TO SPRITE 0 COLOR BYTE
LI R3, 2 SET FOR SPRITE 2
BL @DELX DELETE THAT ONE
* NOW A RANDOM DELAY BETWEEN 1/2 AND 1 1/2 SECONDS OCCURS BEFORE
* THE SCUD APPEARS
LI R3, 60 SET R3 TO 60
BL @RANDNO RANDOM NUMBER WILL BE 0-60
AI R5, 30 ADD 30 TO THE RANDOM NUMBER, SO IT'S 30-90
CLR @>8378 CLEAR THE VDP INTERRUPT TIMER
DLY1
LIMI 2 ALLOW INTERRUPTS
LIMI 0 TURN THEM OFF
C @>8378, R5 COMPARE TIMER TO R5
JLT DLY1 IF LESS, CONTINUE LOOPING
*
* FOLLOWING ESTABLISHES THE STARTING POSITION AND MOTION FOR THE SCUD
* THEN STARTS THE SCUD FALLING FROM THE TOP OF THE SCREEN
*
LI R0, ATTLLST+4 POINT AT Y-POSITION BYTE FOR SPRITE 1 (SCUD)
LI R1, >0A00 VERTICAL POSITION AT DOT-ROW 10
BLWP @VSBW PLACE THE SPRITE THERE
INC R0 POINT TO X-POSITION SPRITE 1
LI R3, 226 SET RANGE FOR RANDOM NUMBER AT 226
BL @RANDNO GET A RANDOM NUMBER 0-226
AI R5, 10 ADD 10 SO NUMBER IS 10-236
SWPB R5 SWAP SO NUMBER IS IN LEFT BYTE R5
MOVB R5, R1 MOVE THAT BYTE TO R1
MOVB R5, R7 AND STASH IT IN R7
BLWP @VSBW WRITE THE HORIZONTAL POSITION FOR SPRITE 1
INC R0 POINT AT CHARACTER BYTE SPRITE 1
LI R1, >5300 SET CHARACTER VALUE
BLWP @VSBW WRITE THAT
INC R0 POINT AT COLOR BYTE SPRITE 1
LI R1, >0100 SET FOR BLACK
BLWP @VSBW WRITE THAT
INC R0 POINT TO Y-POSITION FOR SPRITE 2
LI R1, >D000 SET FOR "DELETE" POSITION
BLWP @VSBW WRITE THAT BYTE
CLR R1 CLEAR REGISTER 1
LI R0, MOTBL POINT TO SPRITE MOTION TABLE
BLWP @VSBW WRITE 0 TO Y-MOTION FOR SPRITE 0
INC R0 INCREMENT TO X-MOTION SPRITE 0

```


THE ART OF ASSEMBLY—

(Continued from Page 12)

In the sidebar is a little "snippet" from our game SCUD BUSTERS, in which we are placing a sprite on the screen and moving it around within a defined area based on the joystick. To simplify the example, we have shown only joystick No. 1 being used. This is just a loop operation, but there are delays built into it so the sprite will not move too quickly. If this loop is performed without the delay, the sprite being controlled "zips" to the edge of the screen as soon as the joystick is moved.

The delay can of course be modified to make the game respond at any chosen pace. In this game, for example, there were three levels of skill involved, with the joystick response speed tailored to each skill level. The single call to KSCAN with the byte at >8374 set to a value of one gives us the pressing of a key from the left side of the keyboard, or the fire button, reported into the byte at >8375, and gives us the Y and X positions of the stick in the bytes at >8376 and >8377. In other words, that call to KSCAN gives us all the information we need to control the game's action from either joystick or keyboard. In this instance, we ignored the keyboard except for the Q key, which would give us the same .ey value as the fire button.

To make the action proceed smoothly in single pixel advances of the sprite, we divided the bytes from >8376 and >8377 by four, so that 0 still is 0, but +4 became +1, and -4 became -1. We then simply got the sprite's current position from VDP RAM and added the appropriate byte to that value, then moved it back to VDP RAM to move the sprite by one pixel. Checks were included in the process to keep the sprite always in the screen area designated as our playing field. Diagonal motion was also allowed here, and of course that's made easier by taking both X and Y inputs on one scan.

While all this was going on, there was a sprite in motion by itself, falling in a ballistic arc toward the bottom of the screen. This sprite's motion was modified every 26 passes through the loop, so it would appear to be influenced by the acceleration of gravity. Its constant horizontal velocity and accelerating vertical velocity makes the appearance of a parabolic path like that of a falling ballistic missile. To keep that sprite in motion, we included the LIM1 2 and LIM1 0 instructions in the loop to allow the VDP to produce automatic motion.

WHAT THE USER SEES

Let's digress for just a moment here to discuss what the user sees at this point in the game. There's a black object (the SCUD) falling in an arc toward the bottom of the screen. There's a white object (the

(See Page 14)

```

BLWP @VSBW      MAKE THAT ZERO TOO
AI  R0,3        POINT AHEAD TO Y-MOTION FOR SPRITE 1
MOVB @INIV,R1   MOVE AN INITIAL VELOCITY INTO THAT BYTE
BLWP @VSBW      WRITE INITIAL Y-MOTION
LI  R3,15       SET FOR RANDOM NUMBER
CLR  R10        CLEAR REGISTER 10
BL  @RANDNO     GET A RANDOM NUMBER 0-15
INC  R5         ADD ONE SO IT'S 1-16
CB  R7,@HEX80   SEE WHICH HALF OF SCREEN SPRITE 1 IS IN HORIZONTALLY
JLE  POSXV      IF LOW OR EQUAL, JUMP
NEG  R5         ELSE MAKE R5 = - R5
INC  R10        INCREMENT R10
POSXV SWPB R5    SWAP BYTES IN R5
MOVB R5,R1      PLACE BYTE IN R1
INC  R0         POINT AT X-MOTION FOR SPRITE 1
BLWP @VSBW      WRITE THE X-MOTION
MOVB @MOTION,@>837A SET NUMBER OF SPRITE THAT MAY HAVE MOTION
SWPB R5

* FOLLOWING SECTION CHOOSES A SHAPE FOR THE SPRITE
* BASED ON ITS DIRECTION OF MOTION
MOV  R10,R10
JEQ  CLEAR4
NEG  R5
CLEAR4 CLR R4
DIV  @SIX,R4
LI  R1,99
MOV  R10,R10
JEQ  ADDFOR
S    R4,R1
JMP  SWAONE
ADDFOR A R4,R1
SWAONE SWPB R1
LI  R0,ATTLST+6
BLWP @VSBW
NEWLOP MOV @KEYDLY,R6
* HERE WE BEGIN THE LOOP THAT LOOKS FOR THE JOYSTICK AND FIRE BUTTON
* INPUTS. R6 IS PRESET TO 26
*
MOV  @ONE,@KEYADR SET FOR KEYBOARD SCAN UNIT ONE
LOOP CLR @STATUS   CLEAR GPL STATUS BYTE
BLWP @KSCAN      SCAN KEYBOARD AND JOYSTICK
LIMI 2           PERMIT INTERRUPTS
LIMI 0           THEN STOP THEM
CB  @KEYVAL,@FIRE HAS FIRE KEY BEEN STRUCK?
JNE  CMPN1      IF NOT, JUMP AHEAD
MOV  @FIRFLG,R1 IS FIRING PERMITTED?
JEQ  CMPN1      IF NOT, JUMP
B    @PATFIR     ELSE FIRE THE PATRIOT
* HERE WE SET UP AND ENTER A DELAY LOOP THAT SIMPLY WASTES TIME TO
* KEEP THE JOYSTICK FROM RESPONDING TOO QUICKLY
CMPN1 MOV @RPTDLY,R4 PUT A DELAY FACTOR IN R4
DLY  SRL R5,15   WASTE SOME TIME
LIMI 2           PERMIT INTERRUPTS
LIMI 0           THEN SHUT THEM OFF
DEC4  DEC R4     DECREMENT COUNTER
JNE  DLY        IF NOT ZERO, REPEAT LOOP
LI  R0,ATTLST+5 POINT AT X-POSITION SPRITE 1
BLWP @VSBW      READ THAT BYTE
CB  R1,@RTLIM   COMPARE TO RIGHT LIMIT OF SCREEN
JH  GONEW       IF HIGH, JUMP
CB  R1,@LFTLIM  COMPARE TO LEFT LIMIT
JL  GONEW       IF HIGH, JUMP
* EVERY 26TH TIME THROUGH TO THIS POINT, THE VERTICAL
* VELOCITY OF THE SCUD IS INCREASED BY FIVE
*
DEC6  DEC R6     DECREMENT OUTER LOOP COUNT
JNE  REPR3      IF NOT ZERO, JUMP
LI  R0,MOTBL+4  ELSE POINT AT Y-MOTION BYTE SPRITE 1
CLR  R1         CLEAR R1
BLWP @VSBW      READ Y-MOTION INTO LEFT BYTE R1
AB  @FIVE,R1    ADD FIVE
CI  R1,>7F00    COMPARE TO MAXIMUM VELOCITY
JH  REPR3      IF HIGH, SKIP
BLWP @VSBW      ELSE WRITE NEW Y-MOTION FOR SPRITE 1
MOV  @KEYDLY,R6 RESET COUNT IN R6
REPR3 LI R0,ATTLST+4 LOOK AT Y-POSITION SPRITE 1
BLWP @VSBW      READ THAT BYTE
CB  R1,@DWNLM  COMPARE TO BOTTOM LIMIT
JL  REPR3      IF NOT AT BOTTOM, JUMP
JMP  STOPI3    ELSE "MISS" PROCESS
REPR3 INC R0    POINT AT X-POSITION SPRITE 1

```


THE ART OF ASSEMBLY—

(Continued from Page 13)

Aimpoint) that the user is controlling position of with his joystick. The user must place this aimpoint somewhere between the SCUD and the bottom of the screen, then fire his interceptor missile (Patriot) to meet the Scud in its flight and destroy it. Both the position of the aimpoint and the timing of the firing must be right to make an intercept happen. The speed of the Patriot will be directly proportional to the distance between the aimpoint and the launch point at the lower left corner of the screen. We're a little ahead of ourselves here, so let's get back to the source code.

When the fire button is pressed, the program moves on to a new section of code at label PATFIR. First, it determines the horizontal and vertical speeds for the Patriot, by doing some math on the distance to the aimpoint.

That's all done very quickly by integer math operations. Next the shape is selected from a group of preloaded shapes so the missile will look like it's flying in the correct attitude for its path. (At least approximately.) The position, velocities, and character information are loaded into VDP RAM, and that launches the Patriot. There's also a sound effect.

Once the Patriot is launched, we enter a new loop operation. This one has no delays in it. It's purposes are to see whether the Scud or Patriot has left the active screen area on the sides, bottom, or top, and to see whether the two sprites have come within a predetermined distance of each other. This distance criterion is a larger number (8 pixels) for beginner's skill level than for more advanced players (5 pixels). Thus the loop is doing nothing but reading out from VDP RAM the horizontal and vertical positions of the two sprites that are moving independently, and making comparisons of those numbers. We did not bother looking at the VDP Status byte, as that would not give us the information we needed, and would simply have wasted time.

HERE'S HOW IT GOES

We've omitted from this source code the part that makes results happen, but here's how it goes. If the SCUD reaches the bottom of the screen, there's a loud explosion sound effect, and a "miss" is scored for the player. If the SCUD leaves the field by the side of the screen, it doesn't count. (The game is designed to make this a very rare happening.) If the Patriot flies off the screen without intercepting the Scud, it simply disappears into the night, and the Scud continues to the ground. If the two sprites get into "coincidence", then an "air burst" explosion occurs, and the two sprites disappear into a "fire

(See Page 15)

```

BLWP @VSBR      READ THAT
CB R1,@RTLIM   CHECK RIGHT LIMIT
JL REPRT2      JUMP IF NOT OKAY
GONEW B @NEWSCN
REPRT2 CB R1,@LFTLIM CHECK LEFT LIMIT
JH REPRT1      JUMP IF OKAY
B @NEWSCN      ELSE CANCEL SCUD
* IN THIS SECTION THE JOYSTICK INPUTS ARE USED TO CHANGE
* THE POSITION OF THE AIMPOINT SPRITE
* POSITION IS CHECKED TO KEEP THE POINTER WITHIN THE
* RECTANGULAR AREA OF THE SCREEN DESIGNATED FOR PLAY
REPRT1 LI R0,ATTLST POINT AT Y-POSITION SPRITE 0 (AIMPOINT)
BLWP @VSBR      READ THAT INTO R1
MOVB @YVAL,R2   MOVE THE BYTE FROM >8376 INTO R2
SRA R2,2        DIVIDE BY FOUR
SB R2,R1        SUBTRACT FROM POSITION IN R1
CB R1,@UPLIM    COMPARE TO UPWARD LIMIT
JL XCHK         IF NOT OKAY, JUMP AHEAD
CB R1,@DNLIM    ELSE COMPARE TO LOWER LIMIT
JH XCHK         IF NOT OKAY, JUMP
BLWP @VSBW      ELSE WRITE NEW Y-POSITION FOR SPRITE 0
XCHK INC R0      POINT AT X-POSITION BYTE FOR SPRITE 0
BLWP @VSBR      READ THAT
MOVB @XVAL,R2   MOVE THE BYTE FROM >8377 INTO R2
SRA R2,2        DIVIDE BY FOUR
AB R2,R1        ADD THAT TO X-POSITION IN R1
CB R1,@RTLIM    COMPARE TO RIGHT SIDE LIMIT
JH LOOP        IF NOT OKAY, SKIP BACK
CB R1,@LFTLIM   COMPARE TO LEFT SIDE LIMIT
JL LOOP        IF NOT OKAY, JUMP BACK
BLWP @VSBW      ELSE WRITE NEW X-POSITION SPRITE 0
JMP LOOP        THEN GO BACK TO START OF LOOP

STOPIT
* THE SECTION AT STOPIT MAKES DECISIONS ABOUT WHETHER A HIT OR MISS
* HAS HAPPENED, UPDATES SCORE, DISPLAYS SCORE, AND SO ON
* SCUDC - THIRD PART OF MAIN CODE
*
PATFIR
LIMI 0          SHUT OFF INTERRUPTS
FIRIT
CLR @FIRFLG    ONLY ONE FIRING PER SCUD PERMITTED
LI R0,ATTLST   POINT AT Y-POSITION SPRITE 0 (AIMPOINT)
BLWP @VSBR     GET THAT BYTE IN R1
INC R0         POINT AT X-POSITION SPRITE 0
SWPB R1        SWAP BYTES IN R1
BLWP @VSBR     LEFT BYTE IS XPOS SPRITE 0
*              RIGHT BYTE IS YPOS SPRITE 0
MOV R1,R3      TEMPORARILY STORE R1 IN R3
MOVB @LFTLIM,R1 GET LEFT EDGE OF SCREEN IN R1
SWPB R1        SWAP R1
MOVB @DNLIM,R1 PUT BOTTOM OF SCREEN IN R1
LI R0,ATTLST+8 POINT AT Y-POSITION SPRITE 2 (PATRIOT)
BLWP @VSBW     PLACE THAT BYTE
SWPB R1        SWAP BYTES
INC R0         POINT AT X-POSITION SPRITE 2
BLWP @VSBW     WRITE THAT (LEFT SIDE OF SCREEN)
MOV R1,R2      LEFT BYTE IS XPOS SPRITE 2
*              RIGHT BYTE IS YPOS SPRITE 2
LI R1,>680F    >68 IS STARTING CHARACTER FOR SPRITE 2, HEX F IS COLOR
INC R0         POINT AT CHARACTER BYTE SPRITE 2
BLWP @VSBW     WRITE THAT
SWPB R1        SWAP BYTES IN R1
INC R0         POINT AT COLOR BYTE SPRITE 2
BLWP @VSBW     WRITE COLOR WHITE
SWPB R3        SWAP BYTES IN R3
SWPB R2        AND IN R2
MOV R2,R4      STASH R2 IN R4
MOV R3,R1      GET R3 BACK IN R1
SRL R2,8       RIGHT JUSTIFY R2
SRL R1,8       RIGHT JUSTIFY R1 ALSO
S R2,R1        SUBTRACT THESE NUMBERS
SRA R1,1       NOW CUT NUMBER IN R1 IN HALF
JLT LDYV2     IF LESS THAN ZERO, JUMP
NEG R1         ELSE MAKE R1= -R1
LDYV2 SWPB R1   NOW SWAP BYTES
MOVB R1,R9     SAVE THE BYTE IN R9
LI R0,MOTBL+8 POINT AT Y-MOTION BYTE FOR SPRITE 2 (PATRIOT)
BLWP @VSBW     WRITE THAT MOTION
MOV R4,R2      GET R4 BACK INTO R2
SWPB R3        SWAP R3
SWPB R2        AND R2
MOV R3,R1      PUT R3 IN R1

```


THE ART OF ASSEMBLY—

(Continued from Page 14)

ball” of three sprites overlapping one another. A hit is scored for the player, then the game goes back to decide by a random number when to launch its next Scud.

The code in this section of the game gets rather involved, but we think that with the annotations, you'll be able to follow the action if you really want to. It also may appear that many operations are performed in each run through the “Coinc” loop, and that is so, but execution takes very little time. The “Patriot” sprite can fly very quickly, but we have never seen a case where a coincidence has been missed in playing the game. As we look at it now, there probably are some unnecessary steps taken in there, but it doesn't slow anything down enough to cause trouble. That, of course, is the ultimate test. If it works, we are going to leave it alone.

What we have shown is of course just a fragment of the code for the game, and without its other parts it won't assemble. The point of showing this is to illustrate using an actual section of code that does work as intended in its context.

We expect you'll quickly reach the conclusion that dealing with sprites and joysticks in Assembly is a tedious business, with all those tiny steps to be performed. It's certainly a long way from the Extended BASIC CALL SPRITE, CALL JOYST, CALL KEY, and CALL COINC to what's shown here. Maybe it's not worth all that, but you can find out only by doing it yourself and seeing that the performance of a program is worth the effort.

If you are programming for yourself, not for commercial sales, then it will always be worth the effort to prove that it can be done. On the other hand, writing commercial stuff, sometimes a program that eats months of time to create will sell five or six copies and then die. That can become a real pain! It gets worse! At the '92 TICOFF show, there was a youngster who kept re-visiting our table and playing Scud Busters for what seemed hours at a time. His father came by, looked at what was going on, but instead of offering to buy this for his child, made the assertion that “That's on the BBS.” We pointed out to him that this program was a unique copyrighted product of Harrison, and that it was definitely not on anyone's BBS! He was sure something like this was available on the BBS. No sale!

Next month's topic is undecided at this time. We'll leave you with this little joke, which originally applied to farming, but seems appropriate in this business. “How do you make a small fortune writing software?” Start out with a large fortune and write software for a while.

```

SRL R1,8      RIGHT JUSTIFY
SRL R2,8      AND R2 AS WELL
S R2,R1       SUBTRACT THESE NUMBERS
SRA R1,1      CUT R1 IN HALF
JGT LDXV2     IF POSITIVE, JUMP
NEG R1        ELSE MAKE R1= -R1
LDXV2 SWPB R1  SWAP THE BYTES
MOV B R1,R7   STASH BYTE IN R7
INC R0        POINT AT X-MOTION FOR SPRITE 2
BLWP @VSBW    WRITE THE X-MOTION
* FOLLOWING CODE CHOOSES A SHAPE FOR SPRITE 2 BASED ON
* ITS DIRECTION OF MOTION
LI R1,>6A00
SRA R9,8
JEQ PUTPAT
NEG R9        R9 IS POSITIVE #
LI R1,>6600
SRL R7,8
JEQ PUTPAT
CLR R8
DIV R7,R8
CI R8,8
JGT PUTPAT
AB @ONE,R1
CI R8,2
JGT PUTPAT
AB @ONE,R1
CI R8,1
JEQ PUTPAT
SLA R9,1
C R9,R7
JGT PUTPAT
AB @ONE,R1
SLA R9,2
C R9,R7
JGT PUTPAT
AB @ONE,R1
PUTPAT LI R0,ATTLST+10 POINT AT CHARACTER BYTE FOR SPRITE 2
BLWP @VSBW    WRITE SELECTED SHAPE
LI R10,>2200   POINT AT "IN FLIGHT" SOUND EFFECT
MOV R10,@>83CC SET THAT FOR SOUND PROCESSING BY VDP
SOCB @ONE,@>83FD AND START THE SOUND
MOVB @ONE,@>83CE EFFECT
* THE LOOP STARTING AT LABEL COINC KEEPS CHECKING THE POSITIONS OF SPRITES 1 & 2
* TO SEE IF EITHER SCUD OR PATRIOT LEAVES ACTIVE SCREEN AREA
* OR IF THEY "MEET" WITHIN THE PRESET LIMITS
COINC LIM1 2   ALLOW INTERRUPTS
LIM1 0        THEN STOP THEM
LI R0,ATTLST+4 POINT AT Y-POSITION SPRITE 1 (SCUD)
BLWP @VSBW    READ THAT BYTE
SWPB R1       SWAP R1
INC R0        POINT AT X-POSITION SPRITE 1
BLWP @VSBW    READ THAT BYTE
CB R1,@RTLIM  HAS SPRITE GONE OFF TO RIGHT?
JL CHKL       IF NOT, CHECK LEFT
B @STOPIT     ELSE GET OUT OF HERE
CHKL CB R1,@LFTLIM HAS SPRITE GONE OFF TO LEFT?
JH CHKX       IF NOT, JUMP AHEAD
B @STOPIT     ELSE GET OUT OF HERE
*
* IN THE NEXT SECTION, THE DIFFERENCES BETWEEN THE POSITIONS OF SPRITES 1 & 2
* ARE COMPARED TO THE TOLERANCES UPTOL AND DWNTOL, TO SEE IF COINCIDENCE HAS
* OCCURRED. AT BEGINNER LEVEL, UPTOL AND DWNTOL ARE SET TO +8 AND -8,
* WHILE AT HIGHER SKILL LEVELS THEY ARE +5 AND -5, RESPECTIVELY.
*
CHKX MOV R1,R3  STASH R1 IN R3
AI R0,3        R3 HAS X,Y SPRT 1
BLWP @VSBW     READ Y POSITION SPRITE 2 (PATRIOT)
SWPB R1        SWAP R1
INC R0         POINT AT X POSITION SPRITE 2
BLWP @VSBW     READ THAT BYTE
MOV R1,R2      R1 HAS X,Y SPRT 2
SB R3,R2       SUBTRACT THE X POSITIONS OF THE TWO SPRITES
CB R2,@UPTOL   COMPARE RESULT TO UPWARD TOLERANCE
JLE CHKY       IF LOW OR EQUAL, CHECK Y TOLERANCE
CB R2,@DWNTOL  ELSE COMPARE X POSITION TO DOWN TOLERANCE
JHE CHKY       IF HIGH OR EQUAL, JUMP
JMP POSCKS     ELSE JUMP AHEAD, NO COINCIDENCE
CHKY SWPB R2    SWAP THE BYTES IN R2
SWPB R3        AND IN R3
SB R3,R2       SUBTRACT

```


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By **BARRY TRAVER**

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The program I have for you in this month's column is published here "by popular request," even though I still have some reservations about releasing it as I will explain in just a moment. It's the program I use to make disk labels to put on disk envelopes, just that and "never more," so it's hard to understand why people are "ravin'" about getting a copy for their own use. (By the way, if you examine the previous sentence, you may find a Poe-etical reference or two. < grin >) True, it can be a very useful program if you have lots of disks whose contents are often changing, but — until now — I have almost always refused requests from people wanting a copy of the program.

Since the program is a spin-off of my earlier 3/COL/CAT program which I did release publicly, why then my reluctance to release this one? Well, one reason is that I don't want people to become angry with me if they run into problems with their printer! For efficient operation of the program, you must line up the labels rather exactly. When you are working on getting things lined up properly, there is a terrific, er, terrible temptation to roll the labels backwards instead of forwards to save yourself from wasting labels while setting things up at the beginning.

IMPORTANT: NEVER ROLL LABELS BACKWARDS IN YOUR PRINTER!

In spite of knowing better, I have more than once persuaded myself that it won't really be a problem if I'm very careful in doing it. What inevitably happens is that the labels come off on

the platen, and I'm out of operation until I can get someone to fix things for me. (Plus it's rather embarrassing to have to pay a printer repairman \$50 or so to fix something that was the result of something stupid that you did!)

It's a bit like practicing (supposedly) "safe sex." Most of the time you may get away with it, but it's sure to catch up with you sooner or later if you continue. If the odds are only 9 to 1 against your running into any problems, the odds may be with you the first time around, but if you're going to try it half a dozen times, the odds are that you will have problems! And it's important to realize that there's no guarantee that you'll even get away with it the first time, so take my advice: in the matter of rolling labels backwards in the printer, the only really safe practice is total abstinence. If you disobey this guideline, I refuse to be held accountable for the consequences.

OK. Now that I've warned you, let's move on to a discussion of DISKLABEL and how it works. (I do have two other reasons for reluctance in releasing this program, but I'll mention them a bit later.) To use the program, you will need to track down labels that measure 4" x 1¹/₁₆". It is not designed to be use with the more common 3¹/₂" x 1⁵/₁₆" labels. Check your local Staples or Paper Cutter or other local stationery store: they should have the proper size labels in normal stock.

The next thing to do is to make sure that your printer is set to print in elite type. If you can't do this on the printer itself (e.g., by setting it on a front panel), the following short TI XB program may work:

```
100 OPEN #2:"PIO", OUTPUT
110 PRINT #2:CHR$(27);"M"
120 CLOSE #2
```

If that doesn't work, you may (as a last resort?) have to check your printer manual.

Incidentally, that is the second reason I was reluctant to release the program. This version of DISKLABEL works fine on my Panasonic KZ-P1124 printer and my Epson LQ-850 printer (well, at least it did, before the printhead went bad on the latter), but I don't know whether it will work on YOUR printer. It should work fine on most Epson-compatibles, but if the spacing isn't right, you may need to make some changes in line 110 and/or line 640. ESC\$ is "ESCAPE", ESC\$+"0" tells the printer to use 1/8" line spacing, SI\$ is "Shift In" (for condensed type), SO\$ is "Shift Out" (for double-width printing), and DC4\$ (don't ask me what the "D" or "C" or "4" stand for!) cancels double-width printing on my printer. They should also work for yours, but if they don't, you're on your own to find equivalent commands!

The third reason for reluctance is some complications caused by Myarc disk controllers, complications for which there is no simple answer. One of these complications affects only people who are using a Myarc floppy disk controller, which (perhaps to achieve greater speed?) is not as smart in detecting errors as a TI

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SIDEBAR 19—

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```
SWPB R3          SWAP R3 AGAIN
CB  R2,@UPTOL    COMPARE Y POSITION DIFFERENCE
JLE  EXOUT       IF LOW OR EQUAL, COINCIDENCE HAS HAPPENED
CB  R2,@DWNTOLELSE COMPARE TO DOWN TOLERANCE
JHE  EXOUT       IF HIGH OR EQUAL, COINCIDENCE HAS OCCURRED

POSCKS
CB  R1,@RTLIM    COMPARE SPRITE 2 POSITION
JH  PAST         IF HIGH, DELETE PATRIOT
CB  R1,@LFTLIM   COMPARE TO LEFT LIMIT
JL  PAST         IF LOW, SAME ACTION
SWPB R1          SWAP R1
CB  R1,@UPLIM    PAST UPPER LIMIT?
JL  PAST         IF SO, DELETE PATRIOT
CB  R1,@DWNLIM   DOWN LIMIT?
JH  PAST         IF SO, DELETE PATRIOT

* NEXT SECTION DOES SIMILAR COMPARISONS FOR THE SCUD (SPRITE 1)
*
CB  R3,@RTLIM
JH  CANSCU
CB  R3,@LFTLIM
JL  CANSCU
SWPB R3
CB  R3,@UPLIM
JL  PAST
CB  R3,@DWNLIM
JH  PAST
JMP COINC        BOTH SPRITES CONTINUE "FLYING", JUMP BACK TO REPEAT
EXOUT
```

* CODE FROM THIS POINT ON IS DEVOTED TO SCORING, MAKING SOUND EFFECTS, ETC

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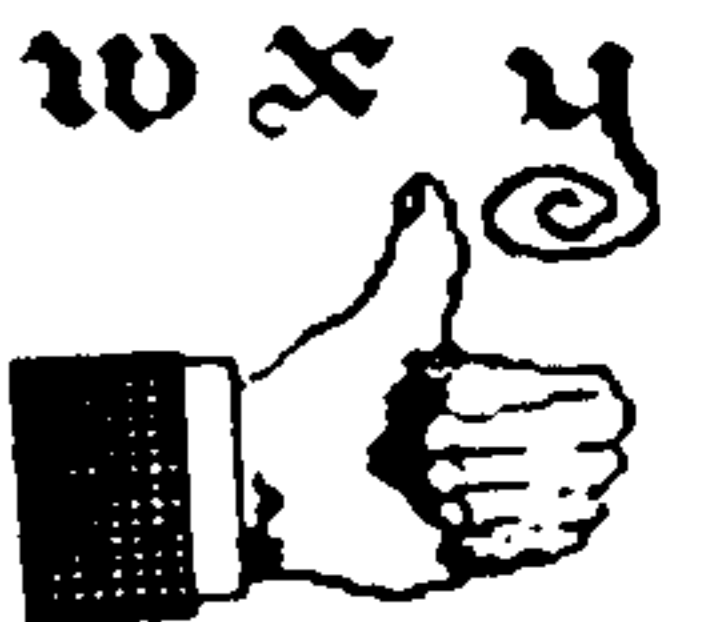
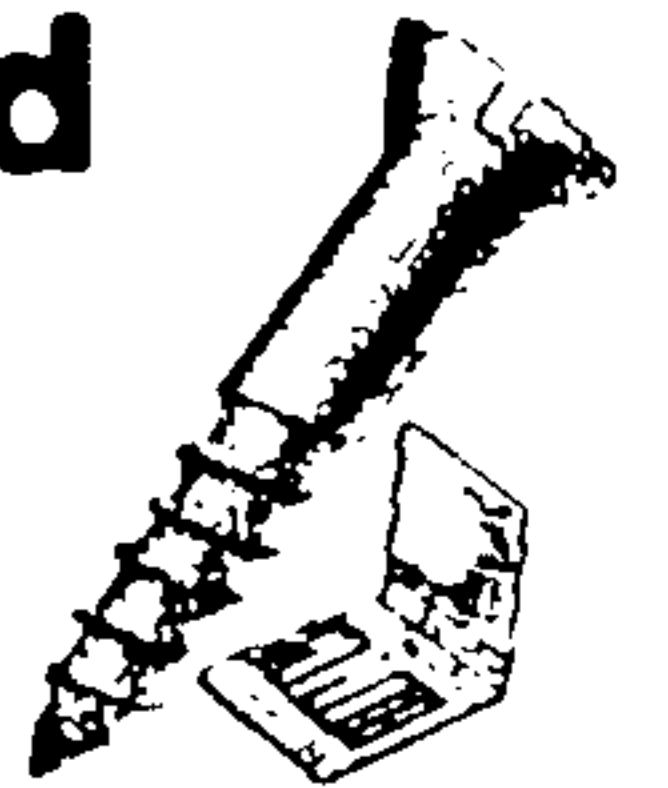
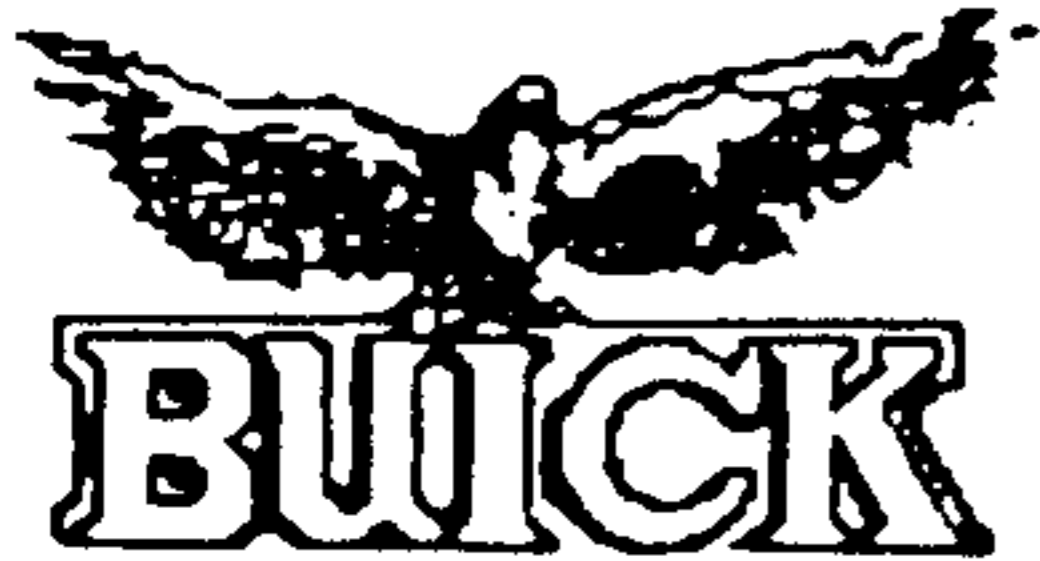
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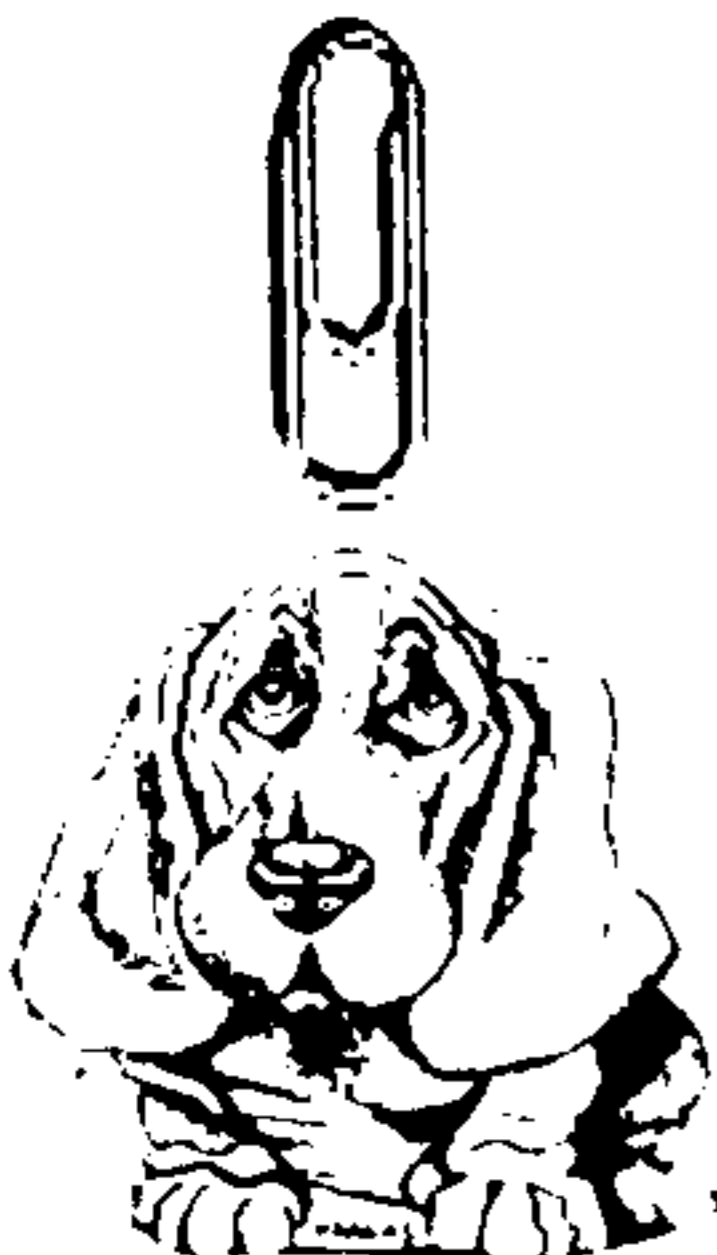
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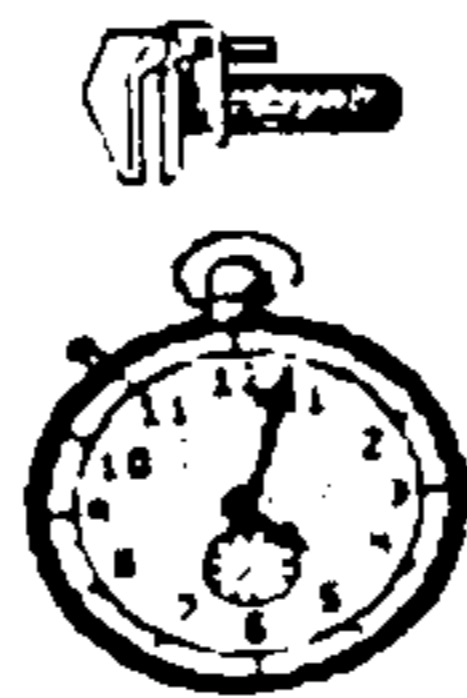


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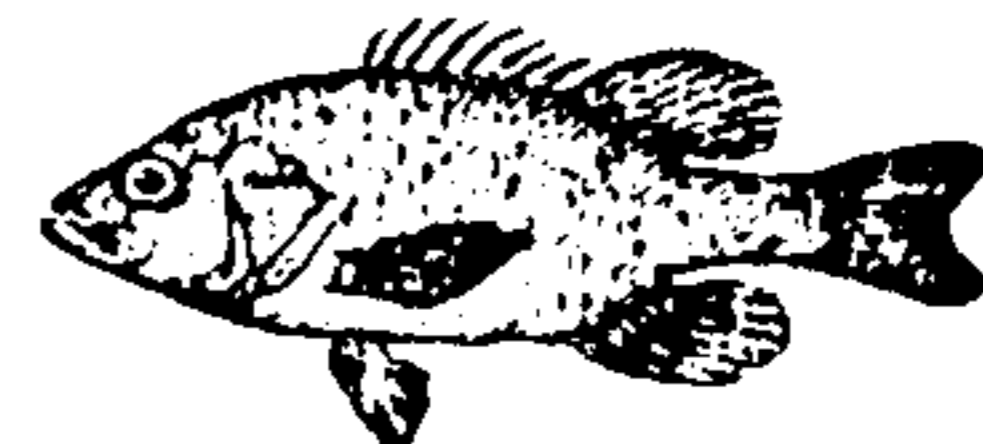


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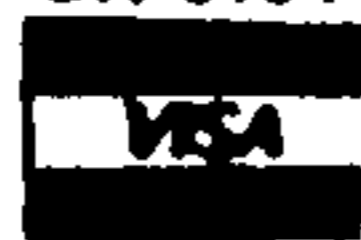
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EXTENDED BASIC PLUS—

(Continued from Page 16)

or CorComp disk controller. For some reason, the Myarc disk controller has problems recognizing when there is no disk in the drive or when the drive door is open. Not smart!

Suppose you are running DISKLABEL and there is no disk in the drive that the program is trying to read. If you're using a TI or CorComp controller, the screen will turn red and warning messages will appear advising you to check the drive. But if you're using a Myarc disk controller, the screen will not change color, and you'll be returned to the prompt for drive number. (At least that's what happens with my Myarc disk controller.) When I do a TRACE when using my Myarc system, I'm told that the program operation goes to line 320(!) after experiencing problems in line 330. Since line 330 says ON ERROR 340 (which is where in fact it does go with the TI or CorComp controllers), I have no present explanation for this strange behavior.

If you don't have a Myarc controller, you won't have this problem, and even if you do have a Myarc controller, this particular problem is rather trivial. The Myarc HFDC (Hard Floppy Disk Controller), however, can cause problems not just for Myarc HFDC owners but for all who try to catalog a floppy disk from a BASIC program. TI designated certain bytes of byte 12 in the file header as "reserved," which Myarc apparently took to mean "reserved for Myarc." Consequently, the Myarc HFDC sometimes changes these bytes, which ordinarily causes NO problems EXCEPT that you can no longer catalog that disk from BASIC without a "crash" occurring!

If you get a file that come from someone's hard drive (for example, by downloading the file from CompuServe, Delphi, or GENIE), DISKLABEL (or any BASIC catalog program) will have problems cataloging that file. If DISKLABEL crashes while you are cataloging a disk, that will be the problem essentially 100% of the time < sigh >. If you run into this situation, my only advice is to skip that disk or to use my CHANGE/12 program (available on the networks and elsewhere) to reset the reserved bits that the Myarc HFDC tinkered with. I wish I had a better suggestion, but apart from adding assembly routines to DISKLABEL, I don't know of another solution.

Apart from the occasional headaches caused by a file that the Myarc HFDC messed with, DISKLABEL should work fine for you. Even if you have disks that have lots and lots of files that require two or three labels, you should have no problems. If you have trouble setting up the exact up-and-down position for the labels, you may want to modify line 680 from reading IF CTR=12 THEN PRINT #2: "" to read IF CTR=11 THEN PRINT #2: "" "" ". The effect of that change will be that 10 lines of print rather than 11 will appear on each label, making the labels easier to adjust.

The program uses only one subprogram, ACCKEY, to get the user's single-key response at various places in the program. Unfortunately, DISKLABEL is not a shining example of clarity in programming; rather, it's one of those examples of how BASIC (for good or ill) lends itself to writing programs that work and perform the intended task, whether or not they look especially "pretty."

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EXTENDED BASIC PLUS—

(Continued from Page 18)

Incidentally, if you have no labels, you can also, of course, use this program to print out the disk catalogs on regular and then "cut and paste" the results onto the disk sleeves, but the big advantage of DISKLABEL is that it's so simple to just peel off the labels and apply them to the disk sleeves, something you'll appreciate if you're working with scores (or hundreds?) of disks! (If you do use regular paper, I recommend that you set your printer to pica rather than elite.)

So there ... you asked for it, and you have it, "warts and all." I hope the program is as useful to you as it has been to me (since I have lots of disks to manage, I use this program perhaps more than any other, except for something like TI-Writer!). Now that people won't be pestering me any more for a copy of this program, next time we can get back to regular business (such as taking another look at that JUMP-A-PEG program, and suggesting how one of the programming tricks can be

used to write a crossword puzzle program!). I'm out of Time and space, so Till next month, keep on computin'.

DISKLABEL

```

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ey Drive, Philadelphia, PA 1
9128 (phone: 215/483-1379) -
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110 DC4$=CHR$(20):: ESC$=CHR
$(27):: SI$=CHR$(15):: SO$=C
HR$(14):: GOTO 160 !029
120 DATA " DF ", " DV ", " IF
", " IV ", " PGM" !172
130 DIM A$(129)!195
140 A,B,B$( ),BL$,C,CTR,C$,D,
D$,D1,D1$,D2,D2$,E,E$,ESC$,F
,F$,G,G$,H,H$,HML,I,I$,J,J$,
K,K$,L,L$,M,N,N$,O,O$,P,P$,Q
,Q$,R$,S,S$,T$,TD,U$,V$,W$ !
225
150 CALL ACCKEY :: CALL CHAR
:: CALL CLEAR :: CALL COLOR
:: CALL KEY :: CALL SCREEN

```

```

:: CALL VCHAR !194
160 !@P- !064
170 CALL KEY(3,A,B):: FOR C=
1 TO 5 :: READ B$(C):: NEXT
C :: BL$=RPT$(" ",25):: CALL
CHAR(124,"1010101010101010"
)!091
180 CALL CLEAR :: CALL SCREE
N(5):: FOR I=0 TO 12 :: CALL
COLOR(I,16,1):: NEXT I :: D
=2 :: E=0 :: F=0 :: C$="" !2
10
190 D$="Filename Size Type
P " :: E$=SEG$(RPT$(D$,3
),1,79):: F$=RPT$("-",25)::
G$=RPT$("-",76):: H$="PIO" :
: I$="1" !111
200 DISPLAY AT(1,1)ERASE ALL
:"DISKLABEL (v1.3)": " (C) Co
pyright 1993": " by Barry Al
bert Traver": " 835 Green V
alley Drive" !077
210 DISPLAY AT(5,3):"Philade
lphia, PA 19128": " (phone:
(See Page 20)

```

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EXTENDED BASIC PLUS—

(Continued from Page 20)

```

215/483-1379)": "MICROpendium
  edition": "Add 10-character
  comment?" !012
220 DISPLAY AT(10,3): "(Y/N)
  Y": "Will 10-character comme
  nt": " remain the same during
  run?": " (Y/N) Y": "Alter
  nate between 2 drives?" !042
230 DISPLAY AT(16,3): "(Y/N)
  Y": "First drive number?": "
  (1-9) 1": "Second drive num
  ber?": " (1-9) 2": "Will o
  utput device remain" !008
240 DISPLAY AT(23,2): "the sa
  me during run?": " (Y/N) Y"
  :: CALL ACCKEY(10,10,"YN",J
  $)!173
250 IF J$="Y" THEN G=22 :: C
  ALL ACCKEY(13,10,"YN",K$)ELS
  E G=23 :: DISPLAY AT(11,1): "
  ":"::" :: GOTO 260 !104
260 CALL ACCKEY(16,10,"YN",L
  $):: IF L$="N" THEN DISPLAY
  AT(17,1): ":"::"::"::"::" :: GOTO
  290 !153
270 CALL ACCKEY(18,10,"19",D
  1$):: D1=VAL(D1$)!096
280 CALL ACCKEY(20,10,"19",D
  2$):: D2=VAL(D2$):: TD=D1+D2
  :: D=D2 !218
290 CALL ACCKEY(24,10,"YN",N
  $):: DISPLAY AT(1,1)ERASE AL
  L:"3/COL/CAT by Barry A. Tra
  ver" !254
300 IF L$="Y" THEN IF D=D1 O
  R D=D2 THEN D=TD-D :: I$=STR
  $(D)!057
310 CALL SCREEN(5):: DISPLAY
  AT(2,1): "Drive (1-9): ";I$
  ;" (Quit)" !066
320 CALL ACCKEY(2,15,"19Q",I
  $):: IF I$="" OR I$="Q" THEN
  730 ELSE D=VAL(I$)!064
330 ON ERROR 340 :: OPEN #1:
  "DSK"&I$&".", INPUT ,RELATIVE
  ,INTERNAL :: ON ERROR STOP :
  : GOTO 360 !210
340 ON ERROR 350 :: CLOSE #1
  .. ON ERROR STOP !219
350 RETURN 320 !146
360 ON ERROR 370 :: INPUT #1
  :O$,H,I,J :: CALL SCREEN(13)
  :: ON ERROR STOP :: GOTO 410
  !177
370 CALL SCREEN(7)!152
380 DISPLAY AT(9,4): "ERROR I
  N DISK ACCESS!": " IS
  DISK IN DRIVE?": " IS D
  RIVE DOOR CLOSED?": " IS
  DISK INITIALIZED?" !045
390 ON ERROR 400 :: CLOSE #1
  :: ON ERROR STOP :: GOTO 32
  0 !031
400 RETURN 320 !146
410 O$=O$&RPT$(" ",10-LEN(O$
  )):: DISPLAY AT(9,1): ":"::"::"
  ":"::"::"::" !123
420 DISPLAY AT(3,1): "Disk Na
  me: ";O$ :: P$=STR$(I-J+2):
  : Q$=STR$(J):: DISPLAY AT(4,
  1): "Used: ";P$;"; Free: ";
  Q$ :: K=5 !191
430 CALL VCHAR(5,4,124,G-4):
  : CALL VCHAR(5,30,124,G-4)::
  FOR L=1 TO 127 :: INPUT #1:
  R$,M,N,O :: IF LEN(R$)=0 THE
  N 500 !132
440 R$=R$&RPT$(" ",11-LEN(R$
  )):: S$=B$(ABS(M)):: IF S$="
  PGM" THEN T$=" " :: GOTO
  460 !217
450 T$=STR$(O):: T$=T$&RPT$("
  ",4-LEN(T$))!023
460 U$=STR$(N):: U$=RPT$(" "
  ,4-LEN(U$))&U$ :: IF SGN(M)=
  -1 THEN V$="Y" ELSE V$=" " !
  207
470 A$(L)=R$&U$&S$&T$&V$ ::
  IF K<>G THEN DISPLAY AT(K,3)
  :A$(L):: DISPLAY AT(K+1,3):
  BL$;ELSE DISPLAY AT(K,3):A$(
  L):: DISPLAY AT(5,3):BL$;!2
  46
480 K=K+1 :: IF K=G+1 THEN K
  =5 !215
490 NEXT L !226
500 CLOSE #1 :: IF J$="N" TH
  EN 530 !108
510 IF K$="Y" AND F=1 THEN 5
  30 !024
520 CALL SCREEN(5):: CALL KE
  Y(5,K,S):: DISPLAY AT(23,1)B
  EEP:"Comment: ";W$ :: ACCEP
  T AT(23,11)SIZE(-10):W$ :: F
  =1 !171
530 IF E=0 THEN 550 !033
540 IF N$="Y" THEN 640 ELSE
  CALL SCREEN(5)!231
550 CALL KEY(3,K,S):: DISPLA
  Y AT(24,1): "Output: ";H$ ::
  ACCEPT AT(24,10)SIZE(-18)BE
  EP:H$ !185
560 IF H$="" OR H$="STOP" OR
  H$="END" OR H$="Q" OR H$="Q
  UIT" THEN 730 !051
570 IF E=0 THEN 610 !093
580 IF C$=H$ THEN 640 !016
590 ON ERROR 600 :: CLOSE #2
  :: GOTO 610 !178
600 RETURN 610 !181
610 ON ERROR 620 :: OPEN #2:
  H$,APPEND :: CALL SCREEN(13)
  :: E=1 :: C$=H$ :: ON ERROR
  STOP :: GOTO 640 !228
620 ON ERROR 630 :: CLOSE #2
  ON ERROR STOP !115
630 CALL SCREEN(7):: RETURN
  550 !147
640 L=L-1 :: PRINT #2:SI$;ES
  C$;"0";SO$;O$;DC4$&" "&STR$(
  L)&" Files, "&P$&" Sect's Us
  ed, "&Q$&" Sect's Free";!088
650 PRINT #2:TAB(72-LEN(W$))
  ;W$:E$ !177
660 FOR P=L+1 TO L+2 :: A$(
  )=" " !131
670 NEXT P :: Q=INT((L+2)/3)
  :: CTR=3 :: FOR A=1 TO Q !02
  2
680 PRINT #2:A$(A)&" "&A$(A
  +Q)&" "&A$(A+2*Q):: CTR=CTR
  +1 :: IF CTR=12 THEN PRINT #
  2:" " :: CTR=1 !224
690 NEXT A :: IF CTR=1 THEN
  710 !191
700 FOR I=1 TO 12-CTR+1 :: P
  RINT #2:" " :: NEXT I !196
710 I=32*(G-2):: CALL HCHAR(
  3,1,32,I)!176
720 GOTO 300 !124
730 IF SEG$(H$,1,3)<>"PIO" A
  ND SEG$(H$,1,5)<>"RS232" AND
  N$<>"Y" THEN 750 !073
740 ON ERROR 750 :: PRINT #2
  :CHR$(12);CHR$(27);CHR$(64):
  : ON ERROR STOP :: GOTO
  750 !164
750 ON ERROR 760 :: CLOSE #2
  :: ON ERROR STOP !119
760 STOP !152
770 !@P+ !062
780 SUB ACCKEY(R,C,FL$,CH$):
  : GOTO 790 :: C,CTR,DF,K,R,S

```

(See Page 21)

Newsbytes

Lima fair scheduled

The Lima Multi User Group Conference is scheduled for May 14 and 15 at the Ohio State University Lima Campus. For further information, contact Dave Szippel, 4191 Patterson Haplin, Sidney, OH 45365; phone (evenings), (513) 498-9713.

Asgard office moves

New address for Asgard Software and Asgard Peripherals is 1423 Flagship Dr., Woodbridge, VA 22192.

Phone numbers are (703) 491-1267, 7-10 p.m. EST; (716) 778-9104, 11 a.m.-7 p.m. EST.

Chris Bobbitt of the company notes that the phone company accidentally disconnected service Dec. 23, so customers calling after that date heard a message that the phone was disconnected, with no forwarding number.

DDI releases software for Geneve

DDI Software has released a number of MY-BASIC programs for the Geneve 9640, all of which require a high-resolution monitor.

MYMenu is described as a MY-BASIC program featuring a program director, word processor, spreadsheet, graphic labeler, disassembler and a six-function calculator. All features are in memory and can be selected from the menu with a single keystroke. It sells for \$25.

MYBase, a database program, features

indexing any of 10 fields and search for any specific data or range of data. A filter allows the user to select data to be displayed or printed, excluding all other data, according to the manufacturer. It comes set up as a mail list base and can be changed to other types of data base. Price is \$25.

MYPuzzell, a crossword puzzle creator or solver comes with puzzles to solve. Price is \$15. Also available are Solvum1 and Solvum2, two disks of puzzles to solve. Price is \$5 each when purchased with MyPuzzel, otherwise \$10 each.

DDI-Icon is a program package comprised of an editor viewer and convertor of icons ported from the PC. The package includes more than 200 icons and also has an option for the user to create his own designs. Price is \$25.

Grabber is a program that grabs a MY-BASIC screen and saves it in assembly language object code or assembly language source code format. It also captures redefined characters if used and allows for design of MDOS screens in MY-BASIC. Price is \$30.

MYGolf is a 9- or 18-hole golf game with graphic screens including trees, water and sandtraps. It offers pro and amateur levels. Par is described as a "tough 72." Price is \$20.

Tipspaint allows the user to load and paint a TIPS graphic and save as a picture. It also can print the picture eight different sizes. It comes with sample pictures and information on how to include pictures in the user's own programs. Price is \$25.

PXLGrabber is described as a program package that grabs a MY-BASIC screen

pixel by pixel and saves it in assembly language object code or assembly language source code format. Price is \$25.

Prices are postpaid in the United States. For information write Jim Uzzell, 615 Ashe St., Key West, FL 33040.

Guilford 99ers cease formal operations

The 11-year-old Guilford 99ers have ceased formal operations, according to Robert M. Carmany of the group.

Carmany says the step became necessary because of declining membership and interest.

Although the group has discontinued formal operations, including its newsletter, Carmany says it will continue to meet at his house on a regular basis as long as any interest continues.

Contact Carmany at 1504 Larson St., Greensboro, NC 27407.

King Turambar releases fairware

King Turambar has release a new fairware package, "King Turambar Libraries Part I." He says the DS/DD disk contains thousands of lines of assembly source and object code, designed for assembly language masters. Library subjects are Bitmap, Windows, Save/Load Pictures (TDM Format), Call Files routine, etc. The package contains sample programs which show what the libraries do.

(See Page 22)

EXTENDED BASIC PLUS—

(Continued from Page 21)

```
,CH$,FL$ :: CALL GCHAR :: CALL HCHAR :: CALL KEY :: !@P-
!051
790 CALL GCHAR(R,C+2,DF):: DISPLAY AT(R,C)BEEP:CHR$(DF);
:: CTR=0 !140
800 CALL KEY(0,K,S):: CTR=CTR
R++1 :: IF CTR=5 THEN CALL H
CHAR(R,C+2,30)!197
```

```
810 IF CTR=10 THEN CALL HCHAR
R(R,C+2,DF):: CTR=0 !166
820 IF S<1 THEN 800 ELSE IF
K=13 THEN K=DF ELSE IF K>96
THEN K=K-32 !233
830 IF FL$="19Q" THEN CALL H
CHAR(R,C+2,K):: CH$=CHR$(K):
: SUBEXIT !018
840 IF FL$="YN" THEN IF CHR$(
(K)<>"Y" AND CHR$(K)<>"N" TH
```

```
EN 800 ELSE CALL HCHAR(R,C+2
,K):: CH$=CHR$(K):: SUBEXIT
!170
850 IF CHR$(K)<SEG$(FL$,1,1)
OR CHR$(K)>SEG$(FL$,2,1) THEN
800 !032
860 CALL HCHAR(R,C+2,K):: CH
$=CHR$(K)!188
870 !@P+ !062
880 SUBEND !168
```


Armor Ambush and Wing Quest

Two winning games for the Geneve

By JOHN KOLOEN

Notung Software isn't known for its inventory of entertainment software for the Geneve, and yet here we have two releases from late last year that are bound to improve anyone's library of games. One is Armor Ambush, a tank game, and the second is Wing Quest, a graphic adventure. Both were programmed by Darin Andrade.

Both programs make use the Geneve's graphic capabilities in different ways. Armor Ambush uses five highly detailed rural and urban scenes while Wing Quest uses numerous individual screens — it loaded more than 20 into memory when I booted the program. Armor Ambush also makes use of a speech synthesizer.

ARMOR AMBUSH

This is a two-player game in which the object is to destroy the opponent's tank. Each side starts with five tanks, one at a time. The first screen is of a rural scene, with a road, bridge, river and trees. Other screens are primarily urban in character with nicely detailed office buildings, houses, parkland and swimming pools. All scenes are seen from an overhead view.

Using a joystick, the dual TI sticks work just fine, each player manuevers his tank

Review

Armor Ambush
Performance...A
Documentation A
Ease of UseA
ValueA
Final GradeA

Cost: \$15.00
Manufacturer:
 Notung Software,
 7647 McGroarty
 St., Tujunga, CA
 91042; (816) 951-
 2718

Requirements:
 Geneve 9640,
 ABASIC 2.99 or
 higher, joysticks,
 speech synthesizer
 optional

Wing Quest
Performance...A
Documentation A
Ease of UseA
ValueA
Final GradeA

Cost: \$12.00
Manufacturer:
 Notung Software,
 7647 McGroarty
 St., Tujunga, CA
 91042; (816) 951-
 2718

Requirements:
 Geneve 9640,
 ABASIC 2.99 or
 higher, joysticks

to get a clean shot at the opponent's tank. You can move over roads or across rivers and fields, but not through buildings, trees or other objects. You can't fire through solid objects either, so scoring a hit on an opponent without being hit can be difficult.

After one player loses five tanks, the next screen is loaded and the battle is re-joined. Each tank that is destroyed scores 500 points. The battle continues for five screens.

The screens, which were created by Ken Gilliland, are quite good. The level of detail is impressive and makes it worthwhile to have a good monitor to display the detail. Movement of the tanks was smooth and immediate. Altogether, this is a fine programming effort.

WING QUEST

This is a one player game that also uses a joystick. The joystick is used to control a hawk whose mission is to find and recover a half dozen stolen eggs. The eggs are hidden in colored pots, which may also contain a selection of useful spells and other items. By landing on the pots, you acquire what's inside them.

Flying through the gave is done by using the joystick — up, down, left and right. By following the various passages, you can circulate throughout the entire cave. However, things are complicated by the presence of various monsters whom you must either avoid or destroy. This is where the

(See Page 23)

Newsbytes

(Continued from Page 21)

According to the manufacturer, all source codes are fully commented. Users must own the RAG Software Program Linker and the RAG Software Macro Assembler is recommended.

The package is available for \$5 plus either one DS/DD disk or three SS/SD disks from Laurent Peron, "Maine Leva," 24130 Fraise, France.

Booklet published for Funnelweb users

A booklet of documentation on Funnelweb, The Spider's Guide to FUNNELWEB Configuration by Larry Tippett, has been published.

Copies may be purchased for \$3.50 each plus 50 cents postage and handling from Tippett at P.O. Box 293, Model City, NY 14107.

Toner Transfer System released by DynaArt

Transfer paper specifically designed for making instant circuit boards is manufactured by DynaArt designs for use with any laser printer or high quality photocopier.

The material can be used to create "iron-on" printed circuit board patterns, faceplates, component overlays and custom decals.

Two quantities are available, a 5-sheet package, "TTS-5" for \$14.95, and a 10-sheet package, "TTS-10" for \$27.95. Packages contain a special iron protector cover sheet and complete documentation including detailed instructions for making instant PCBs (single and double-sided boards) and custom decals, according to the manufacturer. Shipping and handling is \$4 for the first package and \$1.50 each additional pack. California residents add 8.25 percent sales tax. Dealer inquiries are invited. No P.O. Box addresses for U.S. delivery, COD and prepaid orders only. no credit cards accepted.

Contact DynaArt Designs, 3535 Stillmeadow Lane, Lancaster, CA 93536; phone (805) 843-4746.

Page Pro Cataloger

A utility to get desktop publishers organized

By JOHN KOLOEN

Anyone who is serious about desktop publishing eventually realizes that keeping track of fonts and graphic elements may be the most time-consuming part of the job. Not only do fonts and graphics have a tendency to multiply, but even the best plans for keeping them organized often fall victim to inertia. You get to the point that the problem of keeping track of fonts and graphics looms so large that you decide to ignore it.

Of course, you are reminded of the foolishness of this approach everytime you go looking for a particular font or graphic. Which makes a utility such as Page Pro Cataloger a blessing for TI users whose desktop publishing includes popular Page Pro program.

Page Pro Cataloger was written by Norman Rokke and provides a printout of everything from fonts to pages in your Page Pro library.

Review

REPORT CARD

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

Cost: \$14.95

Manufacturer: MS Express, P.O. Box 498, Richmond, OH 43944

Requirements: TI99/4A with memory expansion and disk system, printer.

The program runs out of Extended BASIC. The only configuration on the part of the user is to select a printer type (PIO or RS232) and the line spacing, ranging from 1/72 inch to 1/216 inch. This default is saved to disk.

The program lets you do a complete catalog of all Page Pro items on a disk or a selective catalog of items you select. A complete catalog includes the following items: File Type Listing, Line Fonts, Small Fonts, Large Fonts, Borders, Pictures (cropped or full-size), Pages and Text Files. All of these items appear as a listing with the letter "Y" in front of each when the complete catalog option is selected. The only change you can make is to determine whether you want your pictures cropped or full-size.

Using the selective catalog function, you see the same list of items. However, except for File Type Listing, the other items are preceded by an "N." Using the up and down arrow keys, you may cursor from one item to the next and change the "N" to a "Y" by pressing the space bar. After you've made your selections, you press the Enter key and the selective catalog. (See Page 24)

ARMOR AMBUSH AND WING QUEST—

(Continued from Page 22)

spells come in handy. The spells available to you include: Warp Home Spell, Monster Destroyer Spell, Room Freezer Spell, Hawk Revive Spell and Unknown Spell. The Unknown Spell may or may prove useful or harmful, depending on whether it turns out to be one of the aforementioned spells, nothing or death. If you are lucky, you may also find a map of the cave in one of the pots. The map displays the layout of the cave, showing the deadends and connecting passageways. Without it, you are flying blind, so to speak.

Other things you might find in the pots include a Crested Idol, which awards you with three additional hawk revive spells or the Cave Eye.

To keep track of your possessions, there is an inventory function that is invoked whenever your hawk is touching a wall or floor while you press the fire button. The inventory function also provides a view of

the cave map, if you are carrying a map. It is also through the inventory function that you select and use spells whenever you need one.

Once you have recovered all the eggs and returned them to your nest, you are advanced to the next level where the monsters are meaner and the spells are fewer. The game ends when your hawks all die.

Because Wing Quest loads all the cave screens into memory, movement between screens is seamless. This is a very fast graphic adventure.

The graphics are colorful and uniform and the monsters are well-depicted, ranging from winged horses to blob-like monsters that shoot fireballs. I am not a fan of graphic adventures, but this one amused me. The fact that you can select difficulty levels makes it easily accessible to even the most inept would-be adventurer. (I include myself among this number, but at the "Easy" level I found the game enjoyable.)

DOCUMENTATION: Armor Ambush and Wing Quest are simple to play, requiring very little in the way of documentation. Each comes with a booklet-sized manual. Armor Ambush is four pages long, including the cover, while Wing Quest is eight pages, only four of which contain instructions. This amount of documentation is thoroughly adequate.

VALUE: At \$15 for Armor Ambush and \$12 for Wing Quest, the games represent a good value.

FINAL GRADE: Both of these games deserve their "A." Even though they run out of Advanced BASIC, you'd swear they run like assembly language games. There is none of the annoying lag time and COINC detection problems apparent in most TI Extended BASIC graphics, further illustrating the substantial differences between the two.

MICRO-REVIEWS

List of Labels Labeler and Musical Christmas Tree

By STAN KRAJEWSKI

Another Christmas has come and gone. I wish all my readers a happy and prosperous New Year.

I have been receiving about three and four programs each month over the past year and a half. This didn't leave me many programs to have as a backlog in case I didn't receive anything for a couple of months. However, now I am just about out of programs for review. A few programs are being developed for my review in the near future. So if you have or know of any programs that need to be reviewed, now is the time to send them. This goes for hardware also.

I have received a few updates from programs by D & L Software. These programs were reviewed in the November and December issues. Calendar has been revised giving the user a choice of three lines of text with a recurring memo, or eight lines of text without the recurring memo feature. Amortization has been upgraded to allow a one-time lump sum payment toward the principal each month and it will reflect the transaction when printing out the schedule of payments. The program can also handle the newer biweekly mortgages, showing how much quicker the loan would be paid off and the amount of

interest that can be saved.

As TI user groups are giving less service to their members and members are declining, something else needs to be done preserve our precious systems. A suggestion was brought to me by a user in my state. Why shouldn't all user groups merge together with all their libraries and members, and create a nationwide TI users group? Members in areas that are now active may still operate as sub groups off the main group. Libraries can be operated by several members throughout the nation by breaking the library into categories. It seems to me that a group would be stronger in this way. Group power buying of products may possibly be obtained, and everyone would know what is going on in our community without having to belong to many different groups. Projects by users would benefit us all, instead of just members of an individual group. Sounds good to me!

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

★ Leave it alone, back to the drawing board.

★★ Needs improvements, but workable.

★★★ A good program, worth trying.

★★★★ Send your money and buy it.

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

Watch for next months review, there's a mouse in my house.

★ ★ ★

LIST OF LABELS LABELER

This program can come in handy anytime you might need a list of names and addresses to be printed out. System requirements are Geneve 9640 or TI99/4A, 32K RAM, disk drive, Extended BASIC and an Epson compatible printer.

List of Labels will allow up to four lines text. It will print a "thumbs up" logo with the words "thumbs up" and an additional space allowing you to input five characters. Beside the thumbs up logo, an address you have entered will be printed. The program is made with a customized character set to print out true lower case characters and descending letters.

The main menu includes such options as:

1—To Print Out Labels

2—To Store Or Edit and

3—To Show Directory.

By pressing the Store Or Edit option, the

(See Page 25)

PAGE PRO CATALOGER—

(Continued from Page 23)

log is sent to a printer.

If you decide at any time that you want to abort a catalog, all you need to do is press FCTN 9.

So, what does a printout show? Fonts show all characters that are available in each font. Borders show the upper left corner only. Picture files, if cropped, are shown up to 16 rows by 48 columns. If full-size is selected, the pictures are displayed up to a maximum of 53 rows by 48 columns. Text files display the text contained in the file. Page files are not dis-

played WYSIWIG. Rather, a tilde represents line characters from the line font in use while picture positions are represented by non-alpha numeric characters, such as asterisks, quotation marks, etc. Each of these characters is matched with a picture filename included in legend at the end of the page.

DOCUMENTATION: Page Pro Cataloger comes with a 16-page booklet that thoroughly explains how the program works.

EASE OF USE: Since it is entirely menu driven, and there are only four of

these, there is virtually no learning curve.

VALUE: Priced at \$14.95, the program represents good value. For an additional \$5, MS-Express will include a note book with page protectors for printouts.

FINAL GRADE: Page Pro users who have difficulty keeping track of their Page Pro items will certainly want to consider Page Pro Cataloger. It provides one simple and quick way to stay organized. And there are times when you can't put a price on the value of organization.

A LOAD program for Advanced BASIC

Edwin Donovan, of Monroe, Washington, adapted a TI Extended BASIC program to run out of Myarc Advanced BASIC on the Geneve. Donovan made extensive changes, adding features and adapting the program to run in 80 columns. The original author is unknown. The program creates a directory of a disk (hard disk is not supported) and lets the user select one for loading.

The program will probably run out of most versions of ABASIC. We tested it with 3.0

```

10 ! ABasic by Donovan's Diggin's
30 CALL GRAPHICS(1,1) :: CALL CHAR(126,RPT$("FF00",4))
40 DIM A$(127),B$(127) :: CALL CHAR(96,"00FF00FF00FF0000")
50 CLS :: CALL TCOLOR(13,2) :: CALL CHAR(95,"000000007C447C00")
60 DISPLAY AT(4,6):RPT$("~",18):TAB(6);"~";TAB(23);"~":TAB(6);"~ Catalog / Load ~":TAB(6);"~";TAB(23);"~":TAB(6);RPT$("~",18) :: ON ERROR 540
70 DISPLAY AT(11,14):" ":TAB(9);" " :: DISPLAY AT(17,8)BEEP:"Drive (1-5) 2" :: ACCEPT AT(17,21)SIZE(-1)VALIDATE
E("12345"):C$ :: IF C$="" THEN 330 ELSE C$="DSK"&C$&". "
80 DISPLAY AT(17,4):"~~ Scanning Drive "&SEG$(C$,4,1)&"~~" :: DISPLAY AT(21,10):"Filename":TAB(8);RPT$("`",14):TAB(8);"~";TAB(21);"~";TAB(8);RPT$("`",14)
90 OPEN #1:C$,INPUT,RELATIVE,INTERNAL
100 INPUT #1:D$,A,B,C :: D=C :: GOSUB 600 :: E$=F$ :: D=B-C :: GOSUB 600 :: G$=F$ :: DISPLAY AT(11,4):D$,A+B+2;"Sects"
110 D$=D$&RPT$(" ",28-LEN(D$))&"Used "&G$&" Free "&E$ :: E=0
120 INPUT #1:H$,A,B,C :: E=E+1 :: IF E<10 THEN I$="0"&STR$(E) ELSE I$=STR$(E)
130 IF LEN(H$)=0 OR E=127 THEN 230
140 DISPLAY AT(23,10)SIZE(10):H$ :: ON ABS(A) GOTO 150,160,170,180,190
150 J$="D/F " :: GOTO 200
160 J$="D/V " :: GOTO 200
170 J$="I/F " :: GOTO 200
180 J$="I/V " :: GOTO 200
190 J$="Pgm " :: GOTO 210
200 D=C :: GOSUB 600 :: J$=J

```

```

$&F$
210 IF A<0 THEN E$="Y" ELSE E$="-"
220 D=B :: GOSUB 600 :: G$=F$ :: B$(E)=I$&" "&H$&SEG$(RPT$(" ",17),1,11-LEN(H$))&G$&" "&J$&" "&E$ :: A$(E)=H$ :: GOTO 120
230 CLOSE #1 :: B$(E)=I$&" Exit Pgm"
240 G=6 :: DISPLAY AT(2,1)ERASE ALL :D$ :: DISPLAY AT(4,1):"Op Filename Op Filename ":RPT$("`",28) :: DISPLAY AT(21,1):RPT$("`",28) :: H=INT(E/2+.5)
250 FOR I=1 TO H :: DISPLAY AT(G,1):SEG$(B$(I),1,14)&SEG$(B$(I+H),1,14)
260 G=G+1 :: IF G=21 THEN 290
270 NEXT I
280 IF G<21 THEN I=(21-G)*32 :: CALL HCHAR(G,1,32,I)
290 E$="Option (01-"&I$&") Next Redo N"
300 A=LEN(E$) :: DISPLAY AT(22,1):E$ :: ACCEPT AT(22,A)SIZE(-2)VALIDATE("NRr",DIGIT)BEEP :E$ :: IF E$="N" THEN 340 ELSE IF E$="R" OR E$="r" THEN 50

```

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MICRO-REVIEWS—

(Continued from Page 24)

sub-menu will allow you to either Edit or Store. If you go to Edit, you will be asked what Label Number. Pressing a used number will bring up the information on file for editing. It will then ask if this is the last change Y/N. Pressing Store in this sub-menu will bring up a unused number and let you input a new address. After each address it will ask if you would like to input another. Pressing 3, To Show Directory from the main menu, will list the directory file, showing the file number along with the file. You may delete any unwanted file showing at this time by pressing "D."

Although many label programs have been produced, no one program seems to

be the same. There are now many choices for the label you like most. List of Labels Labeler is available on a SS/SD disk from Software And More, c/o Sam Carey, 5820 SE Westfork St., Portland, OR 97206-0742. It is priced at \$10 plus \$1 S&H.

★ ★ ★

MUSICAL CHRISTMAS TREE

I'm sorry this program wasn't able to make it in time for this Christmas, but then again, Christmas comes every year so it won't go to waste if ordered.

System requirements are Geneve 9640 or TI99/4A, 32K RAM, disk drive and Extended BASIC. This program combines

music and graphics. It places a picture of a lit Christmas tree with flashing lights on the screen. While you sit back and watch the snow falling on the tree, you can listen to the music of the yuletide season. Seven songs are included that play continuously. Although the songs do not take advantage of the TI's multi-octave capability, the sounds are good enough to enjoy throughout the holiday season. Also, let it be known these are abbreviated versions of each song.

The Musical Christmas Tree is available from Software And More, 5820 SE Westfork St., Portland, OR 97206-0742. This SS/SD disk is priced at \$10 plus \$1 S&H.

ABASIC LOAD—

(Continued from Page 25)

```

320 K=VAL(E$) :: IF K<1 OR K
>E THEN 290 ELSE IF K=E THEN
330 :: GOTO 620
330 CLS :: CALL GRAPHICS(4)
:: CALL TCOLOR(2,16) :: PRIN
T "< Basic >"; :: END
340 IF I<H THEN G=6 :: GOTO
270
350 L=6 :: CLS :: DISPLAY AT
(2,1):D$ :: DISPLAY AT(4,1):
"Op Filename Size Type
P":RPT$("`,28) :: DISPLAY A
T(21,1):RPT$("`,28) :: FOR
I=1 TO E-1 :: DISPLAY AT(L,1
):SEG$(B$(I),1,28)
360 DISPLAY AT(L,1):SEG$(B$(
I),1,28) :: L=L+1 :: IF L<21
THEN 400
370 DISPLAY AT(22,6)BEEP : "A
ny Key Continues "
380 CALL KEY(0,K,N) :: IF N=
0 THEN 380
390 L=6 :: IF I<E-1 THEN CAL
L HCHAR(6,1,32,480)

```

```

400 NEXT I :: DISPLAY AT(24,
6)BEEP :STR$((E-1)-O)&" File
s on ";C$
410 DISPLAY AT(22,1):"Delete
Zap any File (Y/N) N" :: A
CCEPT AT(22,28)SIZE(-1):L$ :
: IF L$="Y" OR L$="y" THEN 4
20 ELSE 480
420 DISPLAY AT(24,1)SIZE(28)
BEEP : "Filename " :: ACCEPT
AT(24,11)SIZE(10):M$ :: IF M
$="" THEN 410 ELSE M$=M$&" "
430 FOR I=1 TO E-1 :: J=POS(
B$(I)," ",4) :: J=J-3 :: IF
J<=0 THEN 450
440 N$=SEG$(B$(I),4,J) :: IF
N$=M$ THEN 460
450 NEXT I :: DISPLAY AT(24,
1):"File not on this Disk" :
: GOTO 410
460 A=VAL(SEG$(B$(I),15,3))
:: C=VAL(SEG$(D$,34,4))-A ::
B=VAL(SEG$(D$,48,4))+A :: D
=C :: GOSUB 600 :: E$=F$ ::
D=B :: GOSUB 600 :: G$=F$ ::

```

```

B$(I)=""
470 KILL C$&SEG$(M$,1,LEN(M$
)-1) :: O=O+1 :: DISPLAY AT(
3,6):E$; :: DISPLAY AT(3,20)
:G$ :: DISPLAY AT(24,1):M$&"
is now Deleted" :: GOTO 410
480 IF O=0 THEN 530 ELSE O=0
490 FOR I=1 TO E :: IF LEN(B
$(I))=0 THEN 520
500 O=O+1 :: IF O<10 THEN I$
="0"&STR$(O) ELSE I$=STR$(O)
510 B$(O)=I$&" "&SEG$(B$(I),
4,28) :: Q=POS(B$(O)," ",4)
:: IF Q>0 THEN A$(O)=SEG$(B$
(O),4,Q-4)
520 NEXT I :: FOR I=O+1 TO E
:: B$(I)="" :: NEXT I :: E=
O :: O=0
530 DISPLAY AT(22,1)BEEP : "P
rint out Disk Index (Y/N) N"
:: ACCEPT AT(22,28)SIZE(-1)
:P$ :: IF P$="Y" OR P$="y" T
HEN 550 ELSE 240

```

(See Page 27)

D. Wright Stuff

Micro Fazer II — Print Buffer/Interface Converter
Par to Par, Ser to Par, Par to Ser w/128K \$65 w/512K \$85
Switch Boxes

36 pin Centronics A-B (Printer) \$15 w/2 cables \$25

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2 Half Heights w/cables \$80

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P-Box — Empty \$75

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READER TO READER

Zonrae Russell, P.O. Box 211, Weatherford, TX 76086, writes:

I recently had problems with the extended memory of my TI99/4A computer and I sent my expansion box to TI and they replaced the extended memory. When I received it back it would not recognize my external disk drive and nothing would go to the printer. I configured the system myself and had no problems till I sent it off to TI for diagnostic checkout. What happened? It all worked before the extended memory was replaced. Any suggestion you may have to determine the problem with the computer would be appreciated.

Jere D. Turner, 1405 Horace St., Regina, Saskatchewan, Canada S4T 5L9 writes that he has a Prowriter 8510 and that it does not work with most new programs available. He would be interested in information comparing various printers suitable for use with the TI99/4A.

Reader to Reader is a column to put TI and Geneve users in contact with other users. Address questions to Reader to Reader, c/o MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

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MICROpendium has updated its Geneve offerings to include MDOS 1.21F and MDOS 1.21H, as well as Advanced BASIC 3.0. Each is available for \$4, including shipping for readers in the US. These items are available only on double-sided disks. To order, write MICROpendium Disks, P.O. Box 1343, Round Rock, TX 78680. MICROpendium accepts checks, money orders or Visa/Mastercard. Non-US readers must use international or postal money orders or credit cards. Canadians should add \$1 per order for shipping. Other foreign readers should add \$2 per order.

User Notes

A screen dump and timer

The following is by John Hamilton. It appeared in his column 99 Tips, which appeared originally in the newsletter of the Central Iowa 99/4 User Group.

Here is my version of a screen dump to the TI (alsp Epson and Gemini) printer. It clocks in at 39 minutes and 20 seconds for an entire screen (note that you must use Extended BASIC). It will take any character definition at all 768 screen locations and faithfully reproduce them on your printer.

To use this program, save it in MERGE format. Then load the program you want to dump a screen from and place a GOTO 20000 at the point where you want the screen to be dumped. Then MERGE this screen dump into your program. Then run your program, and wait. Be patient, it'll take a minute or two before the printer starts recording the screen.

```
100 OPEN #1:"PIO.CR" :: PRINT
#1:CHR$(27);CHR$(65);CHR$(
```

```
8):: B$="0123456789ABCDEF"
110 FOR R=1 TO 24 :: PRINT #
1:CHR$(10);CHR$(13);CHR$(27)
;CHR$(75);CHR$(0);CHR$(1)::
FOR C=1 TO 32 :: CALL GCHAR(
R,C,A):: CALL CHARPAT(MIN(MA
X(A,32),143),H$)
120 C1,C2,C3,C4,C5,C6,C7,C8=
0 :: FOR P=1 TO 15 STEP 2 ::
```

```
X=POS(B$,SEG$(H$,P,1),1)-1
:: Y=POS(B$,SEG$(H$,P+1,1),1
)-1 :: Z=2^((15-P)/2)
130 C1=C1+Z*SGN(X AND 8):: C
2=C2+Z*SGN(X AND 4):: C3=C3+
Z*SGN(X AND 2):: C4=C4+Z*SGN
(X AND 1):: C5=C5+Z*SGN(Y AN
D 8):: C6=C6+Z*SGN(Y AND 4):
```

(See Page 28)

ABASIC LOAD—

(Continued from Page 26)

```
540 CALL TCOLOR(2,9) :: DISP
LAY AT(23,1)BEEP : "Something
Haywire on Access!" :: ACCE
PT AT(23,28):Q$ :: RETURN 50
550 DISPLAY AT(24,1)BEEP : "D
evice Name PIO" :: ACCEPT A
T(24,14)SIZE(-15)VALIDATE("D
K45.PIORS23/1"):Q$ :: IF Q$=
"" THEN 240
560 OPEN #2:Q$ :: PRINT #2:C
HR$(15);CHR$(27);CHR$(48) ::
H=INT(E-1)/2
580 PRINT #2:D$ :: PRINT #2:
```

```
RPT$("# Filename Size Typ
e P ",2):RPT$("-",60) ::
FOR I=1 TO H :: PRINT #2:B$
(I)&" "&B$(I+H) :: NEXT I
590 PRINT #2:RPT$("-",60)&CH
R$(7);CHR$(27);CHR$(64) :: C
LOSE #2 :: GOTO 240
600 F$=STR$(D) :: S=LEN(F$)
:: IF S=1 THEN F$=" "&F$
610 IF S=2 THEN F$=" "&F$
615 RETURN
620 D$=C$&A$(K) :: DISPLAY A
T(24,6): "Getting ";D$ :: RUN
D$
```

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User Notes

(Continued from Page 27)

```
: C7=C7+Z*SGN(Y AND 2):: C8=
C8+Z*SGN(Y AND 1)
140 NEXT P :: PRINT #1:CHR$(
C1);CHR$(C2);CHR$(C3);CHR$(C
4);CHR$(C5);CHR$(C6);CHR$(C7
);CHR$(C8):: NEXT C :: NEXT
R :: PRINT #1:CHR$(27);CHR$(
65);CHR$(12):: CLOSE #1
```

Now, if you try to speed up this program, you can use the following routine to time it. Start and stop the watch at the beeps.

```
1 CALL CLEAR :: CALL CHAR(32
,RPT$("F",16)):: CALL SOUND(
1000,500,0)
100 ! Enter your routine
1000 CALL SOUND(1000,500,0)
```

For those of you who would like to use a full screen editor to write your programs, you can now do so. The program, below, is also useful in taking screen dumps from Terminal Emulator II BBS programs and converting them to runnable programs. Use either TI-Writer or Editor/Assembler to create a program using all the features of these editors.

There are two rules to follow:

1. The first character(s) of each line must be a line number and have one space following it. This limits the length of each line to 80 characters.

2. Call your "text" version of the program you create "TXT."

Now, load and run this program:

```
1 CALL CLEAR :: OPEN #1:"DSK
1.TXT", INPUT :: OPEN #2:"DSK
1.PGM", OUTPUT, VARIABLE 163 :
: ON ERROR 4
2 LINPUT #1:L$ :: S=POS(L$, "
",1):: N=VAL(SEG$(L$,1,S)):
: A=INT(N/256):: B=N-A*256 :
: PRINT #2:CHR$(A)&CHR$(B)&S
EG$(L$,S,80)&CHR$(0):: IF EO
F(1)=0 THEN 2
3 PRINT #2:CHR$(255)&CHR$(25
5):: CLOSE #2 :: CLOSE #1 ::
END
4 DISPLAY "'TXT' FILE BAD -
TAKE A LOOK" :: RETURN 3
```

After the program runs, type NEW. Then type MERGE DSK1.PGM. Enter the first line number of your program, press FCTN X and FCTN 1. Keep pressing

FCTN X and FCTN 1 until you have gone through all the line numbers. Then save the program under any name you like and load and run it in the normal fashion.

Only two 3.5-inch drives to a system

In reference to a user note in the December edition, "Disk drive upgrades recommended," Richard Arthur says you can use 3.5 inch drives only as the first two drives in a system. Any additional drives must be 5.25" drives.

Using indent with TIW

This item, by P. Nordstrand and J. Owen, appeared in the Greater Akron TI User Group newsletter.

We were showing a new member how easy it is to use TI Writer to prepare and print a letter. Everything worked fine but the date on the first line, which did not indent 50 spaces like it was told to do. It did not move over one space! Then we tried

(See Page 29)

First TI virus wipes out user's disks

Source of !I GOTCHA! virus unknown

This item appeared in Bits, Bytes & Pixels, the newsletter of the Lima (Ohio) 99/4A User Group. It is by Bill Gaskill. The article as been condensed for space considerations.—Ed.

The first week of January (1993) I ran into what I have dubbed the "I gotcha" virus on the TI99. My problems with this virus started quite innocently, and unexplainably. I was saving an Extended BASIC program that should have been small enough to fit within the program image limitations imposed by VDP RAM, but it showed up on disk as an I/V 254 file the way programs do that are so large they run in two parts, one part in VDP RAM and the other in the high memory portion of memory expansion. As a general rule, I've found that this occurs with programs that are larger than 12K bytes, around 47 sectors. My program was only 41 sectors but still showed as an I/V 254 file.

I thought, maybe something's wrong with my XBASIC module, or maybe it has something to do with the fact that I saved the program to my hard disk. Let's see if the program will run anyway, I mused. It would not! Syntax errors existed throughout the XB code. So I knew I had a real problem. I just didn't know what the problem was, yet.

Later, I tried to create a subdirectory on my hard disk but was not able to. Instead, the MDM5 disk manager just told me there was some unidentified error. Cataloging the disk, I noticed to my horror that 155,000 sectors were suddenly showing up on the "used" side of the directory instead of being on the "free" side where they belonged. The free side told me I had only 672 sectors left on a hard drive I had just reformatted five days before. Now I was sure the hard disk was the problem (wrong), so I shut it down and went about finishing my business using the Horizon RAMdisk and two floppy drives in my system.

I loaded DMI000 and attempted to copy the programs and files that I was working on from DSK1 to DSK2, with a DS/SD initialization of the disk in DSK2 to take place before the copy. Everything went fine until the 720 sector initialization process ended. As soon as it did, the screen suddenly changed from showing 720 sectors free on the floppy in DSK2, to 360 sectors used, zero sectors free, and a new disk name — !I GOTCHA!

I had never even suspected a virus in the TI community, but the !I GOTCHA! message was pretty convincing evidence.

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User Notes

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the centering command (.CE) and that didn't work for the first line either. Here are the formatting commands so you see if you can spot our mistake.

.IN 50

May 20, 1991

.LM 5; RM 75; AD:FI

Dear Sir,

.IN+5

etc.

After the meeting, we reread the indent instructions in the TIW manual but did not find the answer to the problem. After rereading the formatter instructions we found that the .FI command must be used with or before using the indent (.IN) or center (.CE) commands. It is a good idea to always insert the .FI command on the first line of every document that is to be printed using the formatter. The only time to use the no fill command is when you want to print the text exactly as shown in the editor (tables and columns). The .NF command, which is the default, prevents the formatter from moving or adjusting any of the text, even though commands to do so are included.

Geneve tricks

This item is excerpted from a column by Tom Arnold that appeared in the Channel User Group newsletter. We do not know which version of MY-Word it relates to.

A rather unusual feature of MY-Word that I discovered is really neat. Our Myarc programmers are at it again, hiding little features in the programs for us to find.

Do the following: Load MY-Word, then type "H," select one of the options (anyone will do). Actually, you could just type "EK," for example, and you would accomplish the same thing. Now, press Enter and your help screen appears. Type CTRL-3. Your computer will start to play a tune! I think it is the Little Fugue by Beethoven that appeared for a TI a few years ago. I think it was written in Forth. Anyway, it is a nice tune. You can control it by the number you choose. CTRL-1 plays it the fastest while CTRL-7 is the slowest.

Pick a card, any card

This item appeared in Word Play and other TI newsletters. The author is un-

known.

The game of Ten-High is easy to learn and fun to play, but you will soon discover there is some logic required if you are to master it.

In the game you are dealt ten cards from a deck of fifty which are numbered from 1 to 50. The values are displayed on the screen. The object is to arrange your cards in ascending order in as few turns as possible. When finished, the lowest card of your hand should be at the top of the screen and the highest card at the bottom.

In each turn you draw a card and decide whether to exchange it for one in your hand or to discard it to the bottom of the deck. If you can complete the game in ten tries or less you are doing well. At first you may think it's simple, but you'll soon find out that you need to analyze each move carefully to decide whether to keep or discard each time you draw your next card.

```
100 REM *TEN-UP* !199
```

```
110 REM *FOR TI COMPUTER* !065
```

```
120 RANDOMIZE !149
```

```
130 DIM DR(50),MC(10)!151
```

(See Page 30)

(Continued from Page 28)

I tried to reinitialize the floppy in DSK2 but it did the same thing. Then I tried to delete a file from another floppy using DM12000, and the new disk was immediately wiped out and the 360 sectors used, zero free, and !I GOTCHA! diskname appeared. So, it appears that !IGOTCHA! is activated by any write to disk process, whether saving, copying or deleting. Probably the most fortunate part of this whole affair is that a virus cannot infect the TI's operating system, since it is in ROM rather than on disk like PCs.

You're probably wondering if I'm going to say where the virus came from. I only wish I could. During the two days before my encounter with the virus I downloaded a couple of Multiplan templates from a major on-line information service, received a shareware program purchased from the author, purchased a disk with Computer War, Submarine Commander and River Rescue on it and I purchased 6 or 7 disks full of assembly language games from the software library of one of several user groups I belong to. I copied virtually all of the programs to my hard disk, and it was on my hard drive that the problem started. The shareware programs and some of the games were archived, so I used my Horizon RAMdisk to unarc them, which is the most plausible explanation of how the virus got on the HRD too.

I don't suspect the shareware program, because I purchased it from the author and people who create viruses don't like to be identified. I don't know about the templates, but I had uploaded

them myself in 1988 so it's a pretty good bet they weren't the source since no one except a sysop can upload a file with my ID. The leaves the game disks. I don't suspect the Computer War disk because it came from a commercial vendor who would almost certainly have received other complaints about the virus by now, and they've received none.

That leaves the disks received from the user group. I see no benefit to anyone in revealing the name of the group, but I have notified the group so they can evaluate the information and give it what weight they decide is appropriate. Since my articles appear in several user group newsletters on a regular basis, I am stating for the record that the game disks did not come from these groups: LA 99ers, the Lima 99ers nor the Mid-South 99ers.

I have destroyed the disks in question, I've reformatted my hard drive and Horizon RAMdisk and reinstalled all software from original disks to ensure that the virus is gone. Since we have no anti-virus defenses in the TI community, there seems to be no other option. The programs that I remember copying to my hard disk and the ones that I unarced on my RAMdisk are listed below. There were many more, unfortunately, including some assembly music programs, but I don't remember all the names and, as I said, I stupidly destroyed the disks in my anger, so I can't go back and identify the program names: Bandit, Berlin Wall, Breakout, Midnight Mason, Munchman, Paddle Ball, Springer and TI Invaders.

User Notes

(Continued from Page 29)

```

140 CALL CHAR(96,"00181818DE
7E3C18")!054
150 CALL CLEAR !209
160 PRINT TAB(11);"TEN-UP" !
107
170 PRINT : "THERE ARE 50 NUM
BERED CARDS IN THE DECK.SEE
HOW MANY     TURNS IT TAKES Y
OU TO PUT" !036
180 PRINT "YOUR 10 CARDS IN
ORDER FROM LOW TO HIGH." !21
0
190 PRINT : "IN YOUR TURN YOU
CAN DRAW  A CARD AND EITHE
R EXCHANGE IT FOR ONE OF YO
UR CARDS OR DISCARD IT TO TH
E BOTTOM OF THE DECK." !114
200 PRINT : "PRESS ANY KEY TO
CONTINUE" !023
210 CALL KEY(0,KEY,STATUS)!2
34
220 X=RND !237
230 IF STATUS=0 THEN 210 !10
6
240 PRINT ;TAB(5);"PLEASE WA
IT WHILE I":TAB(6);"SHUFFLE
THE CARDS" !154
250 TURN=0 !000
260 FOR I=1 TO 50 !109
270 DR(I)=I !083
280 NEXT I !223
290 FOR I=1 TO 50 !109
300 CALL SOUND(-2,-5,6)!066
310 R=INT(RND*50)+1 !208
320 X=DR(I)!098
330 DR(I)=DR(R)!095
340 DR(R)=X !107
350 NEXT I !223
360 FOR I=1 TO 10 !105
370 MC(I)=DR(I+40)!063
380 NEXT I !223
390 CALL CLEAR !209
400 PRINT "PUT YOUR CARDS IN
ORDER FROMLOW TO HIGH, TOP
TO BOTTOM." !080
410 PRINT : "HERE ARE YOUR CA
RDS:": "(LOW)" !066
420 FOR I=1 TO 10 !105
430 PRINT " ";CHR$(96);TAB(
6);STR$(MC(I))!051
440 NEXT I !223
450 PRINT "(HIGH)" !218
460 PRINT : "PRESS D TO DRAW"
!041
470 CALL KEY(0,KEY,STATUS)!2
34
480 IF STATUS=0 THEN 470 !11
1
490 IF KEY=68 THEN 510 !219
500 GOTO 470 !038
510 TC=DR(1)!082
520 CALL SOUND(50,660,3)!088
530 PRINT : "YOU DREW";TC;"PR
ESS K TO KEEP CARD";"PRESS X
TO DISCARD IT" !178
540 CALL KEY(0,KEY,STATUS)!2
34
550 IF STATUS=0 THEN 540 !18
2
560 IF KEY=75 THEN 630 !082
570 IF KEY<>88 THEN 540 !189
580 FOR I=1 TO 39 !116
590 DR(I)=DR(I+1)!017
600 NEXT I !223
610 DR(40)=TC !134
620 GOTO 730 !043
630 INPUT "DISCARD WHICH CAR
D?":X !127
640 FOR I=1 TO 10 !105
650 IF MC(I)=X THEN 690 !013
660 NEXT I !223
670 PRINT "YOU DON'T HAVE TH
AT CARD!" !229
680 GOTO 630 !199
690 X=MC(I)!092
700 MC(I)=TC !155
710 C=X !089
720 GOTO 580 !149
730 TURN=TURN+1 !011
740 FOR I=1 TO 9 !064
750 IF MC(I)<MC(I+1)THEN 760
ELSE 860 !166
760 NEXT I !223
770 PRINT "IT TOOK YOU";TURN
;"TURNS!" !192
780 IF TURN>10 THEN 810 !094
790 PRINT "THAT'S PRETTY GOO
D!" !147
800 GOTO 820 !134
810 PRINT "SEE IF YOU CAN DO
BETTER";"NEXT TIME." !240
820 CALL SOUND(1000,262,0,33
0,0,392,0)!057
830 INPUT "PLAY AGAIN? (Y/N)
":Y$ !216
840 IF Y$="Y" THEN 240 !073
850 STOP !152
860 CALL CLEAR !209

```

870 GOTO 410 !234

An XB program to search filenames

This handy program, by Ed Hall of the MANNERS user group, has appeared in several newsletters.

What was the name of that program? Seems like it had SEARCH in the name, but that wasn't the whole name. Well, let's see FIND would work if I knew the whole name, and which hard drive or floppy I wanted to search. Maybe if I had that SYStem SEARCH program I wrote. That's it!

As here is is so others can use it, too. This program is for those who have multiple subdirectories and drives. It is set up to search for partial names so you can find all occurrences of substrings within filenames.

In order to customize it for your system, set up the first data line so it contains the basic drives of your system. In the listing I show floppies 1 through 4 and RAMdisk 5, as well as hard drives 1 and 2. If one of these drives is empty, the error routine will skip it. However, this will be slow. Alternately, a disk can be placed in the drive. Once running, all subdirectories are picked up and placed in the array so that each will be checked. The subdirectories are checked by level. This may seem strange at first, since the first level of each drive is checked before the second level is strated, which causes the program to skip back and forth between the hard drives.

When the program is run it prompts for a search string. All filenames available to the system are searched for an occurrence of the search string within them. If a match is found, the path and filename information is displayed on the screen.

```

100 DIM DEVICE$(200):: A,B=0
!151
110 INPUT "SEARCH STRING? ":
SR$ !242
120 A=A+1 :: READ DEVICE$(A)
:: IF DEVICE$(A)<>"END" THE
120 !047
130 ON ERROR 130 !139
140 B=B+1 :: IF DEVICE$(B)="

```

(See Page 31)

User Notes

(See Page 30)

```

END" THEN 230 !068
150 OPEN #1:DEVICE$(B),INTERNAL,INPUT,FIXED !104
160 INPUT #1:B$,D,E,F !140
170 INPUT #1:B$,D,E,F !140
180 IF B$="" THEN 220 !196
190 IF ABS(D)=6 THEN GOSUB 260 !194
200 IF POS(B$,SR$,1)>0 THEN PRINT DEVICE$(B),B$;: IF ABS(D)=6 THEN PRINT TAB(25);"<D>" ELSE PRINT " " !020
210 GOTO 170 !249
220 CLOSE #1 :: GOTO 130 !234
230 END !139
240 DATA DSK1.,DSK2.,DSK3.,DSK4.,DSK5.,WDS1.,WDS2. !074
250 DATA END !053
260 DEVICE$(A+1)=DEVICE$(A) !125
270 DEVICE$(A)=DEVICE$(B)&B$&". " !143
280 A=A+1 !251
290 RETURN !136

```

Using Replace String for lengthy boldface

This item, by Chick DeMarti, is excerpted from the newsletter of the LA 99ers.

Ever want to make an entire line or paragraph bold or underlined when using TI-Writer? Get tired of dozens of @s to boldface a sentence?

Here's what to do: Put the cursor at the beginning of the sentence. Then go to the Replace String (RS) command and type in the following: //@/

When the prompt (All,Yes,No,Stop) appears, select "Yes." The @ will be placed before each word. This method is in lieu of using transliteration codes.

Send your User Notes to MICROpendium User Notes, P.O. Box 1343, Round Rock, TX 78680. MICROpendium pays \$10 for items submitted by readers that appear in this column.

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