

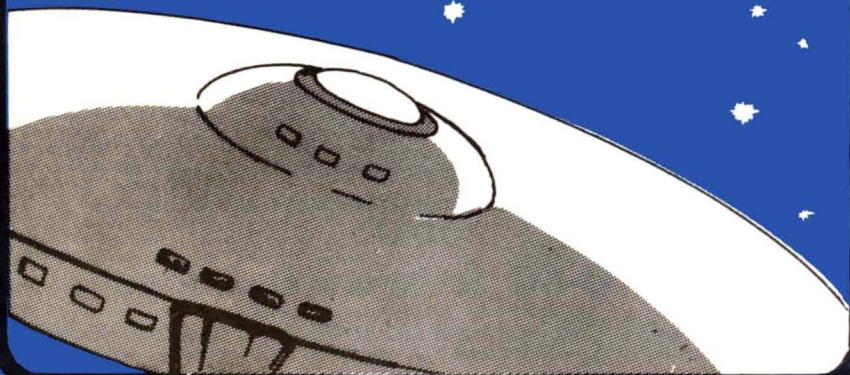
May 1979

\$1.50

SoftSide™

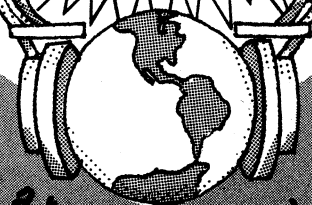
"your BASIC software magazine"

DOG STAR ADVENTURE



AMATEUR RADIO SYSTEM

A comprehensive software package, custom-designed for the amateur radio buff who has a TRS-80 Operates in a real-time mode in conjunction with



a.i.s. version 1.1
M. Kelleher

on-the-air activities, support for line printer reports in addition to disk data storage functions. Minimum 32K disk system with one drive.

PROGRAM HIGHLIGHTS INCLUDE:

- **Complete amateur radio routine** Output/input for call sign, time/date contact, frequency, mode, location, name, signal report, QSO end time, QSL sent/received confirmation.
- **Comprehensive amateur DX prefix file** Information on DX prefixes, zone, country, great circle bearing, access anytime
- **Q-signal file** All international Q-signals and ARRL net
- **Special net log routine** Review and print contact stations, check in/out times, net control name and call sign, net start/end, net operating frequency
- **Operating frequency schedule** Allowable modes and requirements for 80-, 40-, 20-, 15-, 10-, 6-, 2-meter bands
- **Propagation forecast** Based on solar flux and K-index
- **Memo/message pad** CW contacts; video and print notation of QSO information or copied message

Available for single disk, 32K TRS-80 system

Two drives will greatly increase storage capabilities

\$24.95

TSE TRS-80 Software Exchange

17 BRIAR CLIFF DRIVE MILFORD, NEW HAMPSHIRE 03055

SoftSide™

May 1979

“ your BASIC software magazine ”

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SoftSide magazine is continually seeking original articles and software for publication. Imagination and variety in concept and content are the rules at **SoftSide** — not the exceptions. Articles are purchased on a per-page basis, based on content and applicability. Our policies with respect to software purchase are highly individualized, and offer the programmer several options, including one-time publication rights, outright purchase, and royalties on sale of pre-recorded cassettes. For more information, please write: **SoftSide**, PO Box 68, Milford, NH 03055.

For uniformity, we have adopted the Radio Shack TRS-80 Level II BASIC as the BASIC dialect used within the pages of this magazine. It was chosen because it stands to become the most commonly used dialect among microcomputer users and because it shares a common heritage with the many microcomputer languages produced by Microsoft.

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Just to let you know...

The really important advances in civilization, like the beginning of agriculture, indoor plumbing and SoftSide, are often made possible by advancements in measurement technology. For example, the rise of civilization in ancient Egypt was made possible by the invention of the calendar, a method of measuring time in order to predict annual flooding of the Nile River. Farmers learned not to plant crops just prior to the deluge and lose them just before harvest. It became possible to take advantage of the flood rather than consider it a disaster.

Here in our research lab, the staff has been conducting primary experiments into the measurement of **flow**, the quality that makes games fun. We haven't found it helpful to measure individual elements, since the complex relationship of the factors makes an overall assessment more desirable. Currently, we are experimenting with two units of measurement: **ASH** and **SAK**. **ASH** is an acronym for **Adult Sleepless Hours**; **SAK** represents **Screaming And Kicking**. We have found that flow tends to affect adolescents and adults in different ways, thus making it necessary to devise separate categorical measurement methods.

ASH The number of hours past normal bedtime that an adult male will continue playing a computer game, even though he must go to work the next morning

SAK The number of adults required to drag a screaming and kicking adolescent female away from a computer within the time period of one minute from start of effort

The ASH Test

Introduce two adult males of slightly-above-average ability in any field to a computer game one hour before bedtime. One of them should have a good general knowledge of computers; the other must be an enthusiastic newcomer. A good way to select such people is to choose as the first person a regular reader (6 months or longer) of SoftSide and for the second, a new subscriber. Select people who normally retire nine hours before the last possible moment they could leave for work and not be late. The average of the number of hours past normal bedtime that the two play the game is the ASH rating for that game. Should either subject still be playing one hour past time to leave for work the next day, terminate the experiment and record an ASH of 10 for that person.

The SAK Test

The selection of a female subject for this test doesn't reflect sexism, but rather the fact that church youth groups (from which the subjects were drawn) tend to have more female than male participants. For standardization purposes, the ideal subject is defined arbitrarily as a 13-year-old girl weighing 95 pounds and described by her parents as "difficult to handle". Adults in this test should consist of an evenly divided group of women and men, all of whom are healthy parents between the ages of 25 and 40, with an average weight of 125 pounds. To reduce the potential for damage to the test subject and equipment, any adults weighing over 160 pounds soaking wet were eliminated from the test group. Introduce the subject to the game one hour before it is necessary for her to go home. At the time when it's absolutely necessary to leave, she is to be told she must give up the computer so the adults can play **Adventure**. The number of adults necessary to enforce this edict and actually accomplish it within one minute is the SAK rating for the test. If ten adults fail the rating is established at 10.

General Considerations

Arbitrary minimum and maximum ratings of 0 and 10 have been established for both measurements. For acceptance as an article in SoftSide, we require an average $(ASH + SAK)/2$ rating of 2. Here are some typical test results made on programs:

Divebomb ASH 1 SAK 1, **X-Wing Fighter** ASH 1 SAK 5
Adventure ASH 8 SAK 7.

The outstanding judgment manifested in computerists who subscribe to SoftSide leads us to propose an alternative method of testing: we believe our subscribers have such excellent critical judgment that their personal estimates of the SAK and ASH ratings for a game should be so close to actual test results as to make laboratory experiments unnecessary. We invite you to make your own assessments. Let us know how you rate your favorites.

While we're still on the subject of measurement, the results of our first poll so impressed us that we've decided to ask you to respond to another. As a result of our first poll, we've launched **Cassette SoftSide**, **PROG/80** and **BUS-80** and clearly defined the content of SoftSide. Please use the poll to indicate your desires for the future direction of SoftSide.

SOFTSIDE READER POLL

If you were publisher of SoftSide and had \$1.00 per copy to spend on articles after you paid for printing and postage, how many cents would you spend for each of the following:

- Artwork..... Feature Program..... Moderate Length Programs.....**
Short Programs..... Editorials..... Explanatory Articles.....
Take A Part..... Programming Hints..... Other (please list):

.....
 Please go back through these and place a plus + by things we should have more of, and a minus - by things we already have too much of.

Out of every 100 programs in SoftSide, how many should be:

- 4K Games..... 16K Games..... Personal Applications.... Other....**

What other categories do you suggest:.....

Here is a list of programs and articles from recent issues. Please rate them using this scale (1 to 9)

		You spent money for this??						
Garbage				Average			Good	Outstanding
1	2	3	4	5	6	7	8	9
....	'Round the Horn							....Can You See Through This?
....	Writing Good Computer Games							....Personal Finance
....	Kiddy Slot							....Jig Saw
....	Ten Pin Bowling							....Don't It Make My Brown Eyes Blue?
....	High Speed Graphics							....Safari
....	Comput-A-Sketch							....Series Circuits
....	Programming Hints							....Take A Part
....	Form 1040							....Rabbits & Foxes
....	Concentration							....Spring Flowers
....	Elements Quiz							....Pages from The BASIC Handbook
....	Tarot							
....	Metric/English Converter							

Please go back over the list and place a check mark after any program you actually typed into your computer. If you wish to give ASH or SAK ratings to any programs, indicate A or S and place your rating after the check mark. (Note: see editorial for ASH and SAK explanation)

Do you agree with our policy of emphasizing games for 16K Level II TRS-80 computers?

What type of equipment do you presently use:

- TRS-80..... Other (specify)..... Level II.....**
4K..... 16K..... 32K..... Printer..... 1 Disk..... 2D.....
3D..... 4D..... Speech Unit..... Other Equipment.....

ST80- SMART TERMINAL

by Lance Micklus

Turn Your TRS-80 Into A Computer Terminal

Radio Shack gives you a TERM program with its RS-232-C board, but that's just to whet your appetite. **ST80** was written by the author of **Renumber 1.2**, so you know what kind of features to expect: CONTROL key, ESC key, REPEAT key, a RUN key, and a functioning BREAK key. Also lets you list incoming data on your lineprinter. You can reprogram the RS-232-C switches from the keyboard, making baud rate changes simple. Full upper/lower case keyboard and video driver are included, plus instructions on how to make a simple hardware modification to display upper/lower case letters (This change is optional. Unmodified TRS-80 will display capital (upper case) letters only.). Supplied on tape, loads with SYSTEM command. Disk users can also load and run the program under DOS.

Requires at least 16K Level II BASIC, a RS-232-C serial board, and a modem to work with a timesharing computer. The cursor control format includes clear screen, backspace, advance, down and up space, clear to end of line and home, using the most common control character format currently in use (similar to CDC terminals). **Level II, 16K Price, \$49.95 on tape**

NEW ST80D FOR DISK
Yes! Data Spooling is here, and MORE . . .
For 32K Disk systems — \$79.95

TSE TRS-80 Software Exchange

17 Briar Cliff Drive Milford, New Hampshire 03065



**DOG
STAR
ADVENTURE**

I, your computer-puppet, am hidden aboard Princess Leya's ship. It's possible, although very difficult, to save the day by rescuing the princess and recovering her necklace of Shinestones and the treasury of the Freedom Fighting Force.

Even if we are unsuccessful, anything we can do to deter General Doom may help win a victory in the battle for peace in the galaxy.

by LANCE MICKLUS

The evil General Doom and his Roche Soldiers are ready to launch an attack against the Forces of Freedom, led by Princess Leya. Enroute to a secret command center on the planet Harris 7, Princess Leya's ship was attacked by Doom. She is now being held prisoner on one of his battle cruisers. It is a sorry day indeed!

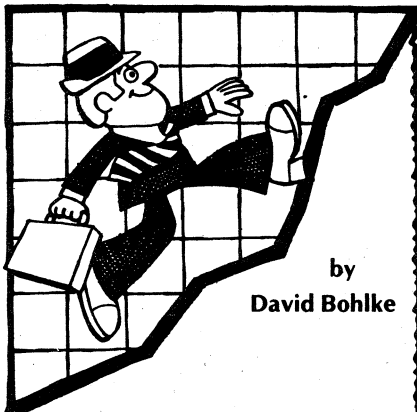
The capture holds extra prizes for Doom and his men: onboard Princess Leya's ship is the entire treasury of her Freedom Fighting Force in a chest containing - Melidium Crystals, the currency used in this galaxy. The Princess is also wearing a necklace made of Shinestones. Encoded in one of the stones is the location and strength of her Freedom Fighting Force. Hopefully, Doom has not yet discovered the secret of the necklace.

I, your computer, am your puppet. I'm hidden aboard the Princess's ship. It is possible, although very difficult, that we may be able to save the day by rescuing Princess Leya, her necklace, and the treasury. But even if

we don't, anything we can do to foil General Doom's plans may help win a victory for peace in the galaxy.

We must be very careful of guards who are all over the ship. We could easily be caught and imprisoned. Sometimes you may only have enough time to give me one command, which if not the appropriate action to take, could easily end the game for both of us.

I understand ordinary English in one- or two-word commands. If you want me to go somewhere, just give me a direction. I can GET or DROP something just by your typing GET or DROP plus the name of the object. You can SAVE a game on either tape or disk by typing SAVE. A previously saved game can be restored with the command LOAD. Other words I understand include HELP, INVEN, LOOK, SCORE, and QUIT. In addition to these, there are many other words in my vocabulary. The fun of playing ADVENTURE is not only trying to figure out what to do, but how to explain it to me.



by
David Bohlke

TYCOON

Take the helm of a small manufacturing business - set pay standards, advertising budgets, etc. Your progress is well-charted.

This game can accommodate up to four would-be financial wizards... last one to make \$10,000,000 becomes the janitor!



Level II, 16K

Price, \$7.95

TSE TRS-80 Software Exchange
17 Briar Cliff Drive Millard, New Hampshire

HISTORY, HINTS, AND TIPS

The game of ADVENTURE was developed several years ago at the Artificial Intelligence Lab at Stanford University. The original game was written in FORTRAN and required a rather large amount of disk drive storage space. The object of the game was to explore an immense cave and bring back to a building aboveground the many treasures found beneath the earth.

Had it not been for the difficulties involved in implementing the game on various computer systems, ADVENTURE might very well have become more popular than STAR TREK. With the advent of microcomputers, a new effort was made to overcome the need for disk drives and large amounts of memory. As a result of this effort, several new versions of ADVENTURE have been released, not only for the TRS-80, but for other systems as well. Even though these new micro versions of ADVENTURE may deviate substantially from the original, they all share that same childish logic characteristic of ADVENTURE.

In playing the game, you are basically trying to solve a puzzle. At times you may find yourself running around in circles; you may even go somewhere and find you actually went nowhere. Use your imagination and apply childlike logic. Finally, never forget that everything in this strange computer-created world has a purpose... there are clues everywhere!

Good luck!

```
100 CLS:PRINT"  
DOG STAR  
BY LANCE MICKLUS,  
WINOOSKI, VT. 05404  
COPYRIGHT 1979"  
150 CLEAR200:RANDOM:DEFINTA-Z  
200 GOSUB30300  
450 LC=2:SL=64:BL=4:GF=50:RV=16396  
600 GOTO10300  
2125 IFTC<250RRND(GF)>1THEN2425  
2150 IFTC=300LETGF=20  
2175 IFLC<30RLC=90RLC=260RLC=360RLC=37THEN2425  
2200 IFLC>26ANDLC<31THEN2425  
2225 PRINT"HOLY SMOKES. AN ARMED GUARD JUST WALKED IN. "  
2250 GOSUB20350:IFVB<>120RNO<>15THEN5575  
2275 X=13:GOSUB21450:IFY<>-1THEN5575  
2300 IFBL=0CLS:PRINT"I'M OUT OF AMMUNITION. ":PRINT:GOTO5600  
2325 PRINT"ZZZAP! NO MORE GUARD. "  
2350 BL=BL-1:IFBL=0PRINT"I'M OUT OF AMMUNITION. "  
2425 IFMD<>TCTHEN2550  
2450 X=22:GOSUB21450:IFY<>-1THEN2550  
2475 PRINT"YOUR MCDONALD'S HAMBURGER IS COLD. "  
2550 GOSUB20350:TC=TC+1  
2575 IFVB=0ANDNO=0THEN2650ELSE2800  
2650 PRINT"I DON'T KNOW HOW TO DO THAT. ":GOTO2125  
2725 PRINT"NOTHING HAPPENED. ":GOTO2125  
2800 IFVB>10RNO>7THEN3175  
2825 IFNO=0THEN2650  
2850 IFDS(LC,NO-1)=0PRINT"I CAN'T GO THAT WAY!":GOTO2125  
2875 IFDRANDDS(LC,NO-1)>2ANDDS(LC,NO-1)<6PRINT"I CAN'T GO THAT W  
AY. FLIGHT DECK DOORS ARE OPEN.  
NO AIR!!!":GOTO2125  
2900 IFNO=3ANDLC=31ANDNOTDJPRINTM0$:GOTO2125  
2925 IFLC=35ANDDS(LC,NO-1)=36ANDOB(21,1)<>0PRINT"THE ROBOT WON'T  
LET ME THROUGH. ":GOTO2125  
2950 IFLC=17ANDOB(13,1)=17THEN5575  
2975 IFLC=9ANDOB(5,1)=9THEN5575  
3000 IFLC=90RLC=17LETHE$(LC)=""  
3025 LC=DS(LC,NO-1)
```

```
3050 IFLC=34LETHE$(LC)=""
3075 IFLC=26THEN11800
3100 GOTO10300
3175 IFVB=3GOTO10300
3250 IFVB<>2THEN3700
3275 IFNO=0PRINT"I DON'T KNOW WHAT A ";CHR$(34);NO$(0);CHR$(34);
" IS. ":GOTO2125
3300 IFCR>5PRINT"I CAN'T CARRY ANY MORE.
HINT: DROP SOMETHING. ":GOTO2125
3325 FORI=1TOLO:IFOB(I,0)=NOXTHEN3350ELSENEXTI:GOTO2650
3350 IFOB(I,1)=-1PRINT"I'M ALREADY CARRYING IT. ":GOTO2125
3375 IFOB(I,1)<>LCPRI"NT"I DON'T SEE IT. ":GOTO2125
3400 IFNO<>37THEN3475
3425 X=13:GOSUB21450:IFY<>-1PRINT"I DON'T HAVE A BLASTER TO PUT
IT IN. ":GOTO2125
3450 BL=4:OB(I,1)=0:PRINT"MY BLASTER'S RELOADED. ":FORI=1TO1:NEXT
I:GOTO2125
3475 IFNO=15ORNO=25ORNO=34PRINT"HE LOOKS PRETTY MEAN TO ME. ":GOT
02125
3500 CR=CR+1:OB(I,1)=-1:PRINT"O. K. ":FORI=1TO1:NEXTI
3525 IFNO=14ANDNOTCMPRINT"A VOICE SAYS: ";CHR$(34);"SESAME";CHR$(
34);". ":CM=-1
3550 IFNO=22ANDMD=0LETMD=TC+50
3575 IFNO=12LETHE$(2)=""
3600 IFNO=13LETHE$(7)=""
3625 GOTO2125
3700 IFVB<>4THEN3875
3725 PRINT"I'M CARRYING:"
3750 K=0:FORI=1TOLO:IFOB(I,1)=-1PRINTOB$(I):K=1
3775 NEXTI:IFK=0PRINT"NOTHING"
3800 PRINT:GOTO2125
3875 IFVB<>5THEN3950ELSEGOSUB21050:GOTO2125
3950 IFVB<>6THEN4200
3975 IFNO=0THEN3275
4000 IFLC=2PRINT"THERE'S NO ROOM HERE. ":GOTO2125
4025 IC=0:FORI=1TOLO:IFOB(I,1)=LCLETIC=IC+1
4050 NEXTI:IFIC>12PRINT"THERE NOT ENOUGH ROOM. GET RID OF SOMETH
ING. ":GOTO2125
4075 FORI=0TOLO:IFOB(I,0)=NOXTHEN4100ELSENEXTI:GOTO2650
```

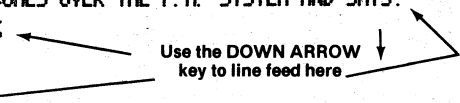
```

4100 IF0<(I,1)>-1PRINT"I'M NOT CARRYING IT. ":GOTO2125
4125 CR=CR-1:0B(I,1)=LC:PRINT"O. K. ":FORI=1TO1:NEXTI:GOTO2125
4200 IFVB<>7THEN4300
4225 IFHE$(LC)="THENPRINT"HOW AM I SUPPOSED TO KNOW WHAT TO DO?
":GOTO2125ELSEPRINTHE$(LC):GOTO2125
4300 IFVB<>8THEN4750
4375 IFNOTBTTHEN4475ELSEPRINT"PRESS (ENTER) WHEN READY TO : RECO
RD : "
4400 GOSUB22000:GOTO4525
4475 IFNO$(0)="PRINT"TRY SOMETHING LIKE ";CHR$(34);VB$(0);" FIL
ESPEC";CHR$(34);". ":GOTO2125
4500 OPEN"0",1,NO$(0)
4525 FORI=0TOLO
4550 IFBTTHENPRINT#-1,0B(I,0),0B(I,1),0B(I,2)ELSEPRINT#1,0B(I,0)
;0B(I,1);0B(I,2)
4575 NEXTI
4600 IFBTPRINT#-1,TB,TC,CM:PRINT#-1,DR,BL,MD:PRINT#-1,GF,DJ,CR:P
RINT#-1,LC
4625 IFNOTBTPRINT#1,TB,TC,CM;DR;BL;MD;GF;DJ;CR;LC
4650 IFNOTBTCLOSE
4675 PRINT"O. K. ":GOTO2125
4750 IFVB<>9THEN5150
4825 IFNOTBTTHEN4925ELSEPRINT"PRESS (ENTER) WHEN READY TO * READ
TAPE *"
4850 GOSUB22000:GOTO4975
4925 IFNO$(0)="THEN4475
4950 OPEN"I",1,NO$(0)
4975 FORI=0TOLO
5000 IFBTTHENINPUT#-1,0B(I,0),0B(I,1),0B(I,2)ELSEINPUT#1,0B(I,0)
,0B(I,1),0B(I,2)
5025 NEXTI
5050 IFBTINPUT#-1,TB,TC,CM:INPUT#-1,DR,BL,MD:INPUT#-1,GF,DJ,CR:I
NPUT#-1,LC
5075 IFNOTBTINPUT#1,TB,TC,CM;DR;BL;MD;GF;DJ;CR;LC
5100 IFNOTBTCLOSE
5125 GOTO10300
5150 IFVB<>10THEN5225ELSECLS:J=0:GOTO11200
5225 IFVB<>11THEN5725
5250 IFNO<>10THEN2650

```

```
5275 IFLC>2ANDLC>11PRINT"WHAT BUTTON.":GOTO2125
5300 IFLC=11ANDNOTTBLETTB=-1:PRINTN2$:GOTO2125
5325 IFLC=11ANDTBLETTB=0:PRINTN3$:GOTO2125
5375 X=12:GOSUB21450:IFY<1THEN2725
5425 X=24:GOSUB21450:IFY<1THEN2725
5450 IFNOTTBPRINTN3$:GOTO2725
5475 IFNOTDRPRINTN4$:GOTO2725
5500 GOTO11150
5575 CLS:PRINT"H E L P ! ! !":PRINT
5600 PRINT"ROCHE SOLDIERS ARE EVERYWHERE. I'VE BEEN CAPTURED. "
5625 PRINT"I'M NOW A PRISONER. WOE IS ME..
"
5650 GOTO11500
5725 IFVB<12ORNO=0THEN6025
5750 IFBL=0PRINT"BUT I DON'T HAVE ANY AMMUNITION LEFT.":GOTO2125
5775 X=13:GOSUB21450:IFY<-1PRINT"BUT I'M NOT CARRYING A BLASTER
.":GOTO2125
5800 X=NO:GOSUB21450:IFY=-1PRINT"I CAN'T. I'M HOLDING IT.":GOTO2
125
5825 IFNO=34PRINT"ZZZAP!":BL=BL-1:GOTO2125
5850 IFY<LCPRINT"I DON'T SEE IT.":GOTO2125
5875 FORI=1TOLO:IFOB(I,0)=NOXTHEN5900ELSENEXTI:GOTO2650
5900 OB(I,1)=0:FORI=1TO1:NEXTI:PRINT"ZZZAP!!! THE ";NO$(NO);" V
APORIZED. "
5925 BL=BL-1:IFBL=0PRINT"I'M OUT OF AMMUNITION. "
5950 GOTO2125
6025 IFVB<13THEN6275
6050 IFNO=0PRINT"SAY WHAT?":GOTO2125
6075 X=14:GOSUB21450
6100 IFY<-10RNO>19PRINT"O. K. ";NO$(NO):GOTO2125
6125 IFDRGOTO2725
6150 DR=-1:PRINT"A VOICE COMES OVER THE P. A. SYSTEM AND SAYS:
OPENING FLIGHT DECK DOORS
"
6175 IFLC>2ANDLC<6PRINT"
YIPS!!! THERE'S NO AIR!!! CROAK...":END
6200 GOTO2125
6275 IFVB<14THEN6750
6300 IFNO>20ANDNO<16ANDNO<11ANDNO<33THEN2650
```

Use the DOWN ARROW
key to line feed here



6325 IFNO=20THEN6550
6350 IFNO<>16THEN6450
6375 IFOB(6,1)=-1PRINT"SORRY. I'M NOT A CARTOGRAPHER. ":GOTO2125
6400 IFOB(6,1)=LCPRINT"TRY GET MAP. ":GOTO2125
6425 PRINT"IT'S NOT HERE. ":GOTO2125
6450 X=NO:GOSUB21450:IFYO<LCANDYO-1THEN6425
6475 IFNO=11PRINT"IT SAYS: >> NEEDS TURBO <<"
6500 IFNO=33PRINT"IT SAYS: >> OUT OF ORDER <<"
6525 GOTO2125
6550 IFLC<>13PRINT"I DON'T SEE ANY. ":GOTO2125
6575 PRINT:PRINT"IT SAYS ON THE WALL."
6600 PRINT">> YOUR MOTHER'S GOT A BIG NOSE <<"
6625 PRINT">> KILROY MADE IT HERE, TOO <<"
6650 PRINT">> SAY SECURITY <<"
6675 GOTO2125
6750 IFVBO<>15THEN6975
6775 IFNO=0PRINT"WHAT'S A ";NO\$(0);"?":GOTO2125
6800 IFNO<>22PRINT"DON'T BE REDICULOUS. ":GOTO2125
6825 X=22:GOSUB21450:IFYO-1PRINT"I'M NOT HOLDING IT. ":GOTO2125
6850 FORI=1TOL0:IFOB(I,0)=22THEN6875ELSENEXTI:PRINT"I DON'T KNOW
WHERE IT IS. ":GOTO2125
6875 OB(I,1)=0:PRINT"CHUMP - CHUMP. HUMMM, GOOD."
6900 FORI=1T01:NEXTI:GOTO2125
6975 IFVBO<>16ORNO<>23ORLC<>16THEN7125
7000 X=23:GOSUB21450:IFYO-1PRINTM1\$:GOTO2125
7025 OB(11,1)=0:OB(14,1)=16:CR=CR-1:PRINTM2\$
7050 GOTO2125
7125 IFVBO<>18ORNO<>36THEN7275
7150 IFNO<>36ORLC<>31THEN2650
7175 X=17:GOSUB21450:IFYO-1PRINTM3\$:GOTO2125
7200 HE\$(31)="":DJ=-1:PRINTM4\$:GOTO2125
7275 IFVBO<>19ORNO=0THEN7600
7300 IFNO<>34PRINT"THAT'S STUPID!":GOTO2125
7325 IFLC<>35PRINTM5\$:GOTO2125
7350 X=22:GOSUB21450:IFYO-1PRINTM6\$:GOTO2125
7375 IFNO=35PRINTM7\$:GOTO2125
7400 IFNO<>34PRINTNO\$(0);M8\$:GOTO2125
7425 IFTC<>NDPRINTM9\$:GOTO2125
7450 FORI=1TOL0:IFOB(I,0)=34THEN7475ELSENEXTI:GOTO2650

Round the Horn

by George Blank

**RELIVE THE DAYS
OF WOODEN SHIPS AND
IRON MEN!**

This program simulates three clipper ships setting sail from New York on the same day in a race to San Francisco for prestige and profit. As the captain of one ship, you must find favorable winds and ocean currents allowing you to be the first to reach San Francisco. The passage around Cape Horn is dangerous; many a voyage has ended in tragedy there. Sailing through the doldrums ... well, let's not spoil all the suspense!

Level II, 16K-\$9.95

TIERRA DEL
FUEGO

CAPE HORN

Drake Passage

TSE TRS-80 Software Exchange
17 Briar Cliff Drive Milford, New Hampshire 03055


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7475 K=1:FORI=1TOL0:IF0B(I,0)=22THEN7500ELSENEXTI:GOTO2650
7500 PRINT0$:HE$(35)=""
7525 0B(K,1)=0:0B(I,1)=0:FORI=1T01:NEXTI:GOTO2125
7600 IFVBO17THEN7700
7625 PRINT0$(0):GOTO2125
7700 IFVBO20THEN7975
7725 IFNO=0THEN2650
7750 X=NO:GOSUB21450:IFY=-1PRINT"I'M CARRYING IT. THAT'S IMPOSSI
BLE ":GOTO2125
7775 IFY=LCTHEN7850
7800 IFNO<11ORNO=19ORNO=20ORNO=30THEN2650
7825 PRINT"I CAN'T HIT SOMETHING I CAN'T SEE. ":GOTO2125
7850 IFNO=15ORNO=25ORNO=34PRINT"I'D RATHER NOT. HE MIGHT HIT ME
BACK!":GOTO2125
7875 IFNO=35PRINT"THAT'S NOT NICE!":GOTO2125
7900 GOTO2725
7975 IFVBO21THEN8000ELSEPRINT"I'M NOT STRONG ENOUGH TO KILL ANY
THING. ":GOTO2125
8000 GOTO2650
10300 CLS:PRINTDS$(LC):A$=""
10305 IFLC=35LETGF=10
10400 IFLC=7THEN10700
10450 K=0:FORI=1TOL0:IF0B(I,1)<LCTHEN10600
10500 IFK=0LETK=1:PRINT:PRINT"AROUND ME I SEE.":A$=0B$(I):GOTO10
600
10550 IFLEN(A$)+5+LEN(0B$(I))>SLTHENPRINTA$:LETA$=0B$(I)ELSEA$=A
$+" "+0B$(I)
10600 NEXTI
10650 IFA$<>"PRINTA$
10700 PRINT:PRINT"OBVIOUS DIRECTIONS ARE ";:K=0
10750 FORI=0T05:IFDS(LC,I)=0THEN10900
10800 IFK<0PRINT", ";
10850 PRINTNO$(I+1):;K=1
10900 NEXTI
10950 IFK=0PRINT"UNKNOWN";
11000 PRINT". ":GOTO2125
11150 CLS:GOSUB21050
11200 IFJ=0PRINT"WE HAVE FAILED OUR MISSION.
THE FORCES OF PRINCESS LEVA WILL BE CONQUERED.

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11250 IFJ=SCPRINT"WE ARE HEROS.
THE FORCES OF PRINCESS LEVA WILL CONQUER THE EVIL ROCHE
SOLDIERS, AND FREEDOM WILL PREVAIL THROUGHOUT THE GALAXY.
"
11300 IFJ>0ANDJ<SCPRINT"WE HAVE HELPED THE FORCES OF PRINCESS LE
YA DEFEND THE
GALAXY. LONG LIVE THE FORCES OF FREEDOM!
"
11500 PRINT
11550 INPUT"DO YOU WANT TO PLAY AGAIN (Y OR N)";A$:A$=LEFT$(A$,1
)
11600 IFA$="Y"THEN150ELSEEND
11800 CLS:PRINT"A VOICE BOOMS OUT, ";CHR$(34);"WHO GOES THERE";C
HR$(34)
11850 GOSUB20350
11900 IFVB<>13ORNO<>30THEN5575
11950 PRINTNL$
12000 GOSUB20350
12050 X=31:GOSUB21450:IFY<>-1THEN5575
12100 IFVB<>17ORNO<>31THEN5575ELSE10300
20350 IFBTTTHENINPUT"WHAT SHOULD I DO";CM$ELSELINEINPUT"WHAT SHOU
LD I DO? ";CM$
20395 VB$(0)="":NO$(0)="":VB=0:NO=0:IFLEN(CM$)=0RETURN
20400 FORZL=1TOLEN(CM$):IFMID$(CM$,ZL,1)<>" "THENVB$(0)=VB$(0)+M
ID$(CM$,ZL,1):NEXTZL
20500 FORZL=1TOLV:IFYB$(ZL)<>" "ANDLEFT$(VB$(0),LEN(VB$(ZL)))=VB$
(ZL)THENVB=ZL:GOTO20600ELSENEXTZL
20550 VB=0:NO$(0)=VB$(0):GOTO20650
20600 IFLEN(VB$(0))+1=LEN(CM$)THENNO=0:RETURNELSENO$(0)=RIGHT$(
CM$,LEN(CM$)-1-LEN(VB$(0)))
20650 FORZL=1TOLN:IFNO$(ZL)<>" "ANDLEFT$(NO$(0),LEN(NO$(ZL)))=NO$
(ZL)THENNO=ZL:GOTO20800ELSENEXTZL
20700 NO=0:RETURN
20800 FORZL=1TO1:NEXTZL:RETURN
21050 J=0:FORI=1TOLO:IFOB(I,1)=1LETJ=J+OB(I,2)
21100 NEXTI:PRINT"OUT OF A MAXIMUM OF";SC;"POINTS, YOU HAVE";J;"
POINTS. "
21150 IFJ=0PRINT"WE'RE NOT DOING TOO GOOD. "
21200 RETURN

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21450 FORZL=0T0LO:IF08(ZL,0)=XTHENY=08(ZL,1):GOTO21500ELSENEXTZL
:Y=-99:RETURN
21500 FORZL=1T01:NEXTZL:RETURN
22000 A$=INKEY$
22010 IFINKEY$=""THEN22010ELSEReturn
30300 SC=215
30450 TROFF:IFPEEK(16396)=201THENBT=-1ELSEBT=0
30600 LV=21:DIMVB$(LV)
30650 VB$(1)="GO":VB$(2)="GET":VB$(3)="LOOK"
30700 VB$(4)="INVEN":VB$(5)="SCORE":VB$(6)="DROP"
30750 VB$(7)="HELP":VB$(8)="SAVE":VB$(9)="LOAD":VB$(10)="QUIT"
30800 VB$(11)="PRESS":VB$(12)="SHOOT":VB$(13)="SAY"
30850 VB$(14)="READ":VB$(15)="EAT":VB$(16)="CSAVE"
30900 VB$(17)="SHOW":VB$(18)="OPEN":VB$(19)="FEED"
30950 VB$(20)="HIT":VB$(21)="KILL"
31100 LN=37:DIMNO$(LN)
31150 NO$(1)="NORTH":NO$(2)="EAST":NO$(3)="SOUTH"
31200 NO$(4)="WEST":NO$(5)="UP":NO$(6)="DOWN"
31250 NO$(10)="BUTTON":NO$(11)="TAG":NO$(12)="FUEL"
31300 NO$(13)="BLASTER":NO$(14)="COMMUNICATOR":NO$(15)="GUARD"
31350 NO$(16)="MAP":NO$(17)="KEYS":NO$(18)="NECKLACE"
31400 NO$(19)="SESAME":NO$(20)="GRAFFITI"
31450 NO$(21)="CAPE":NO$(22)="HAMBURGER"
31500 NO$(23)="TAPE":NO$(24)="TURBO"
31550 NO$(25)="SCIENTIST":NO$(26)="PLANS"
31600 NO$(27)="SCHEMATIC":NO$(28)="DEVICE":NO$(29)="GUN"
31650 NO$(30)="SECURITY":NO$(31)="I. D. ":NO$(32)="CRYSTALS"
31700 NO$(33)="SIGN":NO$(34)="ROBOT":NO$(35)="PRINCESS"
31750 NO$(36)="DOOR":NO$(37)="AMMUNITION"
31900 CL=37:DIMDS$(CL)
31950 DS$(1)="I'M IN THE PASSENGER & STORAGE COMPARTMENT OF MY S
PACE SHIP.
THERE'S AN EXIT HERE TO LEAVE THE SHIP. "
32000 DATA2,0,0,0,0,3
32050 DS$(2)="I'M IN THE COCKPIT OF MY SPACE SHIP.
A LARGE RED BUTTON SAYS >> PRESS TO BLAST OFF <<"
32100 DATA0,0,1,0,0,0
32150 DS$(3)="I'M STANDING NEXT TO MY SPACE SHIP WHICH IS LOCATE
D ON A
HUGE FLIGHT DECK. "

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32200 DATA18, 0, 4, 0, 1, 0

32250 DS\$(4)="I'M OUT ON THE FLIGHT DECK OF GENERAL DOOM'S BATTLE CRUISER."

32300 DATA3, 5, 4, 4, 0, 0

32350 DS\$(5)=DS\$(4):DATA4, 6, 5, 4, 0, 0

32400 DS\$(6)="I'M IN A HALLWAY. THERE ARE DOORS ON ALL SIDES. THE DOOR TO THE NORTH SAYS: >> CLOSED FOR THE DAY <<"

32450 DATA7, 0, 8, 5, 0, 0

32500 DS\$(7)="I'M IN THE SUPPLY DEPOT.

AROUND ME I SEE:

ALL KINDS OF THINGS"

32550 DATA0, 0, 6, 0, 0, 0

32600 DS\$(8)="I'M AT THE END OF ONE OF THE HALLWAYS.

I CAN HEAR VOICES NEARBY. SOUNDS LIKE GUARDS."

32650 DATA6, 10, 0, 9, 0, 12

32700 DS\$(9)="I'M IN THE STRATEGY PLANNING ROOM ":DATA11, 8, 0, 0, 0, 0, 0

32750 DS\$(10)="I'M IN THE DECONTAMINATION AREA ":DATA0, 14, 0, 8, 0, 0

32800 DS\$(11)="THIS AREA IS THE TRACTOR BEAM CONTROL ROOM.

A LARGE SIGN WARNS: >> DO NOT PRESS ANY BUTTONS <<"

32850 DATA0, 0, 9, 0, 0, 0

32900 DS\$(12)="I'M IN ANOTHER HALLWAY. TO THE EAST IS A RESTROOM"

32950 DATA15, 13, 0, 0, 0, 0

33000 DS\$(13)="THIS IS WHAT IS COMMONLY CALLED ON EARTH, THE BATHROOM.

THERE'S GRAFFITI WRITTEN ALL OVER THE WALL.

PIPES LEAD UP THROUGH THE CEILING."

33050 DATA15, 0, 0, 12, 27, 0

33100 DS\$(14)="THIS APPEARS TO BE AN INTERROGATION ROOM ":DATA0, 0, 0, 10, 0, 0

33150 DS\$(15)="I'M IN A LOUNGE. ":DATA0, 0, 13, 12, 0, 0

33200 DS\$(16)="THIS IS A COMPUTER ROOM. THERE'S A TRS-80 IN HERE

ON THE SCREEN IT SAYS: >> SAVE TAPE <<":DATA17, 0, 18, 0, 0, 0

33250 DS\$(17)="I'M IN A TESTING LABORATORY. ":DATA0, 0, 16, 0, 0, 0

33300 DS\$(18)="I'M IN A HALLWAY.

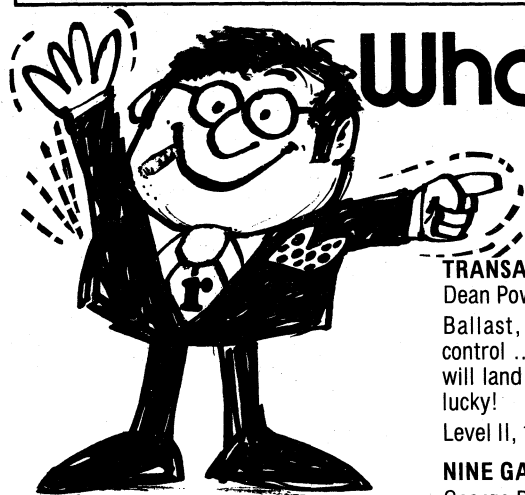
A LARGE ARROW POINTS EAST AND SAYS: >> TO THE VAULT <<"

33350 DATA16, 25, 3, 19, 0, 0

33400 DS\$(19)="THIS IS THE ENTRANCE TO THE DEVELOPMENT LAB SECTI
ON":DATA20,18,21,20,22,0
33450 DS\$(20)="I'M IN A LONG CORRIDOR. THERE ARE LABORTORIES ALL
AROUND ME. ":DATA19,23,21,20,22,24
33500 DS\$(21)="I'M IN A RESEARCH LAB. ":DATA20,0,0,0,0,0
33550 DS\$(22)="I'M LOST!":DATA22,22,22,22,22,20
33600 DS\$(23)=DS\$(21):DATA0,0,0,20,0,0
33650 DS\$(24)=DS\$(21):DATA0,0,0,0,20,0
33700 DS\$(25)="I'M NEAR THE ENTRANCE TO THE VAULT.
A SIGN HERE SAYS: >> AUTHORIZED PERSONEL ONLY <<"
33750 DATA0,26,0,18,0,0
33800 DS\$(26)="I'M IN THE VAULT. ":DATA0,0,0,25,0,0
33850 DS\$(27)="I'M IN A PIPE TUNNEL WHICH LEADS IN EVERY DIRECTI
ON. ":DATA28,27,27,27,27,13
33900 DS\$(28)=DS\$(27):DATA29,29,29,29,30,29
33950 DS\$(29)="I'M LOST IN A MAZE OF PIPES. ":DATA28,29,29,29,29,
27
34000 DS\$(30)="I'M IN THE PIPE MAZE.
BELOW ME I THINK I CAN SEE THE JAIL. "
34050 DATA29,29,28,29,29,31
34100 DS\$(31)="I'M IN THE JAIL. "
34150 DATA32,33,34,35,0,0
34200 DS\$(32)="I'M IN A JAIL CELL. ":DATA0,0,31,0,0,0
34250 DS\$(33)=DS\$(32):DATA0,0,0,31,0,0
34300 DS\$(34)=DS\$(32):DATA31,0,0,0,0,0
34350 DS\$(35)="I'M AT THE SECURITY DESK.
TO THE NORTH AN ELEVATOR. ":DATA36,31,0,0,0,0
34400 DS\$(36)="I'M IN THE ELEVATOR. ":DATA0,0,35,0,37,0
34450 DS\$(37)=DS\$(36):DATA0,0,14,0,0,36
34850 LO=23:DIMOB\$(LO)
34900 OB\$(1)="A TAG WHICH SAYS: >> NEEDS TURBO <<":DATA11,5,0
34950 OB\$(2)="ANTI-MATTER FUEL":DATA12,5,5
35000 OB\$(3)="BLASTER":DATA13,7,0
35050 OB\$(4)="COMMUNICATOR":DATA14,9,0
35100 OB\$(5)="A VERY SURPRISED GUARD":DATA15,9,0
35150 OB\$(6)="MAP OF THE SHIP":DATA16,29,20
35200 OB\$(7)="SOME KEYS":DATA17,9,0
35250 OB\$(8)="A SHINESTONE NECKLACE":DATA18,10,20
35300 OB\$(9)="PRINCESS LEVA'S CAPE":DATA21,14,5

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35350 OB$(10)="MCDONALD'S HAMBURGER":DATA22,15,0
35400 OB$(11)="A CASSETTE TAPE":DATA23,7,0
35450 OB$(12)="A TURBOENCABULATOR":DATA24,17,5
35500 OB$(13)="AN EVIL LOOKING SCIENTIST":DATA25,17,0
35550 OB$(14)="SECRET ATTACK PLANS":DATA26,0,20
35600 OB$(15)="DEATH RAY SCHEMATIC":DATA27,9,20
35650 OB$(16)="CLOAKING DEVICE":DATA28,17,20
35700 OB$(17)="MICRO LASER GUN":DATA29,24,20
35750 OB$(18)="I. D. CARD":DATA31,17,0
35800 OB$(19)="MALIDIUM CRYSTALS (THE TREASURY)":DATA32,26,30
35850 OB$(20)="A SIGN WHICH SAYS: >> OUT OF ORDER <<":DATA33,3,0
35900 OB$(21)="ATTACK ROBOT":DATA34,35,0
35950 OB$(22)="PRINCESS LEVA":DATA35,34,50
36000 OB$(23)="AMMUNITION":DATA37,7,0
36150 DIMD$(CL,5):RESTORE
36200 FORZL=1TOCL:FORZD=0T05
36250 READD$(ZL,ZD):NEXTZD:NEXTZL
36300 DIMOB$(LO,2)
36350 FORZL=1TOL0:READOB$(ZL,0),OB$(ZL,1),OB$(ZL,2):NEXTZL
36500 DIMHE$(CL)
36550 HE$(1)="I THINK WE'RE SUPPOSE TO LEAVE THE STUFF HERE. "
36600 HE$(2)="I WONDER IF WE HAVE ENOUGH FUEL?"
36650 HE$(7)="HOW 'BOUT A BLASTER. "
36700 HE$(9)="TRY SHOOT GUARD. "
36750 HE$(13)="IT MIGHT BE INTERESTING TO READ THE GRAFFITI. "
36800 HE$(17)="TRY SHOOT SCIENTIST. "
36850 HE$(22)="I'M AS CONFUSED AS YOU ARE. ":HE$(29)=HE$(22)
36900 HE$(31)="IT MIGHT HELP IF WE HAD SOME KEYS TO OPEN ANY LOC
KED DOORS. "
36950 HE$(35)="DID YOU BRING ANYTHING TO EAT?"
37100 M0$="I CAN'T GO THERE. THE DOOR IS LOCKED. "
37150 M1$="I'M NOT CARRYING ANY BLANK TAPE. "
37200 M2$="THE TRS-80 RECORDED SOMETHING ON THE TAPE, AND THEN I
T PRINTED:
>> ATTACK PLANS -- VERY SECRET <<"
37250 M3$="I CAN'T. I'M NOT CARRYING ANY KEYS. "
37300 M4$="O. K. THE DOOR TO THE JAIL CELL IS UNLOCKED. "
37350 M5$="THERE'S NO ROBOT HERE. "
37400 M6$="BUT I DON'T HAVE ANY HAMBURGERS. "
```

37450 M7\$="CHUMP...CHUMP BURP!
 THE PRINCESS THANKS YOU FOR A DELICIOUS MEAL."
 37500 M8\$="DOESN'T EAT HAMBURGER."
 37550 M9\$="NOTHING HAPPENED. THE HAMBURGER IS COLD YOU KNOW."
 37600 N0\$="THE ATTACK ROBOT EATS THE HAMBURGER AND DISSAPEARS."
 37650 N1\$="I'M AT THE IDENTIFICATION TERMINAL.
 ON THE SCREEN IT SAYS: >> SHOW I.D. <<"
 37700 N2\$="THE TRACTOR BEAM IS OFF."
 37750 N3\$="THE TRACTOR BEAM IS ON."
 37800 N4\$="YOU FORGOT TO OPEN THE FLIGHT DECK DOORS."
 37850 RETURN



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AWARI

by Scott Adams

While on Safari last month, you disappeared and haven't been heard from since. Actually, you stopped in a native village and got to talking with the medicine man. He offered you a bowl of native beer and then dug 14 little holes in the ground, dropping 3 tiny pebbles into each of twelve of them.

Your knowledge of Swahili, the common tongue, was limited at first, but the game was easy to learn, and over the past 30 days you've learned much of the language. The medicine man's 26 hard working wives are good cooks and they brew plenty of beer. He has even given you 3 of his daughters to keep you warm at night ... they work hard to meet your needs.

Still, the game goes on; you take a sip of beer, lean back against a tree and muse, "And I thought I'd have to wait until 65 to retire."

1 *****
* SOFTSIDE PRESENTS *
* A W A R I *
* BY SCOTT ADAMS *

2 DEFINT A-E,G-Z

3 'MODIFIED AWARI BY SCOTT ADAMS. 1-305-862-6917

4 DEFDBL F:N=0


```

5 DATA1095754,1094447,1115657,1562299,1107407,1004462,1076966,10
93151,115665,864412,800122,1090974
6 DATA1009143,1095736
8 DATA-1:READ F:IF F<0 THEN N=N+1 :GOTO 8ELSECLS:INPUT"DO YOU
NEED RULES TO MODIFIED ANARI";A$:IFLEFT$(A$,1)="Y"THENGOSUB20000
10 DIM B(13),G(13),F(150) : V=N 'SAVE CURRENT LENGTH
15 RESTORE:FOR I=0TO N-1:READ F(I):NEXT
20 CLS : PRINT CHR$(23) :E=0
25 FOR I=0TO12:B(I)=3:NEXT
30 C=0 : F(N)=0 : B(13)=0 : B(6)=0
35 GOSUB500 : Y=7 'IF THIS IS LAST MOVE WE'LL REMOVE MEN FROM OT
HER SIDE
40 PRINT" YOUR MOVE? (HOLE 1 TO 6)"; : GOSUB110
45 IF E=0 THEN 80
50 IF M=H GOSUB100 : IF E=0 THEN 80 ELSE 50
60 Y=0 : Z=10 :PRINT : PRINT"MY MOVE IS "; : GOSUB800
65 IF E=0 THEN GOSUB 500 : GOTO 80
67 Z=Z+2
70 IF M=H FOR I=1TO2000 : NEXT : GOSUB 500 : PRINT@(64*7+2*Z),
", "; : GOSUB 800 : GOTO65
71 FOR I=1TO2000:NEXT
75 IF E>0 THEN35
80 PRINT : PRINT"GAME OVER"
82 K=0: I=Y 'REMOVE MEN FROM WHOEVER DIDN'T HAVE THE LAST TURN
84 FOR J=IT0I+5:K=K+B(J):NEXT:B(I+6)=B(I+6)-K : M1=M1+B(6) : M2=
M2+B(13) 'REMOVE MEN FROM LOSERS SIDE
85 D=B(6)-B(13) : IF D<0 PRINT"I WIN BY";-D;"POINTS" : LO=LO+1
: GOTO97
90 IF D=0 PRINT"DRAW GAME" : TI=TI+1 : GOTO97
95 PRINT"YOU WIN BY";D;"POINTS" :WI=WI+1
96 N=N+1 'SAVE THIS GAME WE LOST!
97 PRINT"WINS=";WI;" LOSES=";LO;" TIES=";TI : PRINT"I HAVE";M2
;"MEN SO FAR":PRINT"YOU HAVE";M1;"MEN SO FAR":IF M2<M1 THEN PRIN
T"YOU ARE WINNING" ELSE IF M2<>M1 PRINT"I AM WINNING"
98 INPUT"ANOTHER ROUND";A$:A$=LEFT$(A$,1):IFA$="N"THEN 900 ELSE
20
100 PRINT"AGAIN? (HOLE 1 TO 6)";
110 M$=INKEY$:IF M$=""THEN110ELSE M=VAL(M$):PRINTM; : IF M<7 AND
M>0 THEN M=M-1 : GOTO130
120 PRINT"ILLEGAL MOVE" : GOTO100

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130 IF B(M)=0 GOTO120
140 H=6 : GOSUB 200
150 GOTO 500
200 K=M : GOSUB 600
205 E=0 : IF K>6 THEN K=K-7
210 C=C+1 : IF C<9 THEN F(N)=F(N)*6+K
215 FOR I=0 TO 5 : IF B(I)>0 THEN 230
220 NEXT
225 RETURN
230 FOR I=7TO12 : IF B(I)>0 THEN E=1 :RETURN
235 NEXT I : RETURN
500 PRINT@0, " "; : FOR I=6TO1STEP-1 : PRINT USING " ##";I;:NE
XT : PRINT : PRINT " ";
505 FOR I=12 TO 7 STEP -1 : GOSUB 580
510 NEXT I
515 PRINT : I=13 : GOSUB 580
520 PRINTTAB(27) B(6) : PRINT " ";
525 FOR I=0 TO 5 : GOSUB 580
530 NEXT I
535 PRINT : PRINT " "; : FOR I=1TO6 : PRINT USING " ##";I; : NE
XT : PRINT : PRINT : RETURN
580 IF B(I)<10 PRINT " ";
585 PRINT B(I); : RETURN
600 P=B(M) : B(M)=0
605 M=M+1 : IF M>13 THEN M=M-14
610 IF P=1 OR (M>6 AND M>13) THEN B(M)=B(M)+1 ELSE P=P+1
611 P=P-1 : IF P>=1 THEN 605
615 IF B(M)=1 THEN IF M>6 AND M>13 THEN IF B(12-M)>0 THEN 625
620 RETURN
625 B(H)=B(H)+B(12-M)+1 : B(M)=0 : B(12-M)=0 : RETURN
800 D=-99 : H=13
802 IF B(12)=1 THEN A=12 : GOTO890
803 IF B(11)=2 AND B(12)=0 THEN A=11 : GOTO890
805 FOR I=0TO13 : G(I)=B(I) : NEXT
810 FOR J=7 TO 12 : IF B(J)=0 THEN 885
815 Q=0 : M=J : GOSUB 600
820 FOR I=0TO5 : IF P(I)=0 THEN 845
825 L=I : R=0 : X=B(I)
826 FOR X=B(I) TO 1 STEP -1 :L=L+1 : IF X>1 AND ( L=13 OR L=6 )
THEN L=L+1

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827 NEXT X
830 IF L>13 THEN L=L-14 : R=1 : GOTO830
835 IF B(L)=0 AND L<6 AND L<13 THEN R=B(12-L)+R
840 IF R>Q THEN Q=R
845 NEXT I
850 Q=B(13)-B(6)-Q : IF C>8 THEN 875
855 K=J : IF K>6 THEN K=K-7
860 FOR I=0TON-1 : IF F(N)*6+K=INT(F(I)/6I(7-C)+.1) THEN Q=Q-2 :
  GOTO 875
870 NEXT I
875 FOR I=0 TO 13 : B(I)=G(I) : NEXT
880 IF Q>D THEN A=J : D=Q
885 NEXT J
890 M=A : PRINT CHR$(42+M); : GOTO200
900 INPUT"HIT ENTER TO CONTINUE";A$:CLS:IF V<=N-1 PRINT"TO MAKE
ME A BETTER PLAYER, SAVE THE GAME AFTER FIRST
ADDING THE FOLLOWING TO LINE 6 DATA STATEMENT:":FOR I=V TO N-1 :
  PRINT", ";F(I);:NEXT I
901 PRINT
905 IF M1<M2 THEN PRINT "I WON!!!" ELSE PRINT"YOU WON!!!"
1000 INPUT"HIT ENTER TO GO BACK TO MENU";A$:RUN"MENU"
20000 CLS:PRINT"AWARI IS PLAYED WITH 36 BEANS AND 12 HOLES IN TH
E GROUND.
THE HOLES ARE LAID OUT LIKE AN EGG CARTON. 6 ON EACH SIDE. "
20010 PRINT"AT BOTH ENDS IS A SPECIAL HOLES CALLED HOME. EACH
PLAYER'S HOME IS ON HIS RIGHT. THE PLAYERS SIT FACING EACH OTHER
ACROSS THE HOLE. "
20020 PRINT"THE OBJECT OF THE GAME IS TO GET THE HIGHEST NUMBER
OF BEANS
IN A SERIES OF GAMES. DURING A MOVE A MAN PICKS UP ALL THE BEANS
IN ONE POT AND THEN DROPS THEM ONE AT A TIME IN EACH POT GOING
COUNTER-CLOCKWISE. "
20030 PRINT"THE HOME PITS ARE SKIPPED UNLESS IT IS THE LAST BEAN
IN YOUR
HAND IN WHICH CASE IT IS DROPPED IN THE HOME PIT. THE OTHER WAY
TO SCORE IS TO DROP THE LAST BEAN IN AN EMPTY PIT. YOU THEN GET
THAT BEAN AND ALL BEANS IN THE OPPOSITE PIT. "
20033 PRINT:INPUT"HIT ENTER TO CONTINUE";A$:CLS

```

20034 PRINT"IF YOUR LAST BEAN ENDS UP IN THE HOME PIT YOU GET TO GO AGAIN.

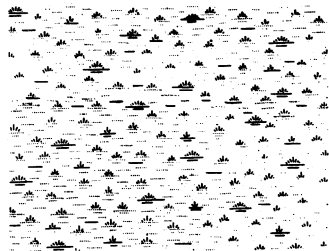
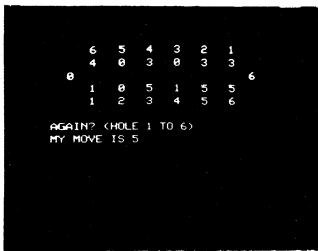
20035 PRINT"WHEN A PLAYER REMOVES ALL BEANS FROM HIS SIDE OF THE BOARD

HE WINS THAT ROUND. THE OPPONENT GETS THE NUMBER OF BEANS IN ANY OF HIS HOLES SUBTRACTED FROM HIS TOTAL. A TALLY IS KEPT OF THE TOTAL NUMBER OF BEANS IN EACH MAN'S HOLE AT";

20036 PRINT"THE END OF A ROUND.

THE WINNER IS THE ONE WITH THE MOST BEANS AFTER MANY GAMES"

20040 PRINT:INPUT"HIT ENTER TO CONTINUE";A\$;RETURN



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ALL THE BUGS WE SAW FIT TO PRINT!

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

Sharp-eyed Chuck Moffitt of Spokane, Washington pointed out to us that in line 2170 of **Santa Paravia En Fiumaccio**, the computer was feeding the cathedral instead of the clergy. To relieve the ministry of this distress, change variable C(E) to Q(E) so that the line now reads as follows:

$$2170 D! = N(E)*100 + Q(E)*40 + M(E)*30 + P(E)*10 + S(E)*5$$

TAKE A PART:

AWARI

In Awari, Scott Adams uses DATA statements to establish strategy, with the option of adding additional winning strategies. In order to make it easy to modify the game, he has the computer determine how many DATA statements there are before DIMensioning the DATA array by doing a dummy READ. This is done by the first part of line 8, as follows:

```
8 DATA-1: READ F: IF F = -1 THEN N=N+1: GOTO 8
```

This counts the DATA items and stores the count in the variable N. Then he uses line 15 to read the data, after leaving lots of room in his DIM statement in line 10 for more DATA:

```
10 DIM F(150)  
15 RESTORE: FOR I=0 TO N-1: READ F(I): NEXT
```

The RESTORE statement causes the computer to go back and start with the first item of DATA. Then the items are READ again, and stored in the array.

Now, if anyone wishes to add DATA, all they have to do is add a comma as a data separator after the last regular item of DATA, and the data itself. The computer will automatically recognize the new count and store the appropriate number of items in the array.

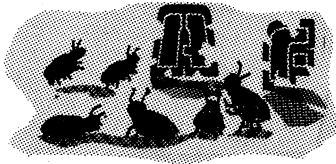
Using the DATA statement for the last item as the first instruction in line 8 was a clever touch, preventing most people from accidentally adding their DATA after it. Our appreciation to Scott for showing us how to make programs easy for the user to modify!

By numbering the last DATA line 6 and the test 8, Scott limits the number of DATA items that can be added without Renumbering, effectively preventing people from exceeding the array size in his DIM statement. This is a nice touch to avoid a program crash.

LETTER GRUNGH

by David Bohlke

SoftSide is proud to present a demonstration of how "bugs" survive inside your TRS-80. As we all know, life is only possible if you have something to eat. We guessed that the bugs in our computers ate the contents of memory, but had no real knowledge until David Bohlke actually managed to interview a bug.



He learned that eating is a major form of pleasure for bugs — so much so that they've turned dining into a game of strategy. The game played by the bugs was described in detail enough that we're able to present a simulation with the same strategy. Now, the next time a program bug eats up your computer memory, you'll know how the process works!

The bugs base their game on simple rules that tell how much

memory they can gobble in one bite and how delicious that memory is. They love the taste of plusses (+++), but hate asterisks (**). Spaces are tasteless, and do not count. All other memory contents are nourishing and satisfying, but have only one taste point per space occupied.

To play the game, you select a row and get to eat the letter directly to the right of the row number. In several cases, you also get to eat adjacent characters. If you select the letter B, you get to eat the memory cell directly below the one you select. These options are displayed graphically for you at the bottom of the screen when it's your turn. The letter A gives you only the cell that it is in, while B-F give you additional cells, and additional points if there are characters in those cells.

To win, you must not only select the option which gives you the best score, but also avoid giving your opponent a good opportunity. That may be tougher than it looks!

```

5 DIM A(10,11)
10 CLS:PRINTTAB(10),"L E T T E R   C R U N C H":PRINT:PRINT
12 PRINT"=ENTER= YOUR OPTION (1-3)":PRINT
14 PRINT"1     PLAYER VS PLAYER"
16 PRINT"2     PLAYER VS COMPUTER"
18 PRINT"3     DIRECTIONS"
20 PRINT@220,"":INPUT OP
21 IFOP=3GOTO1000
22 CLS:PRINTCHR$(23)
25 INPUT"NAME OF PLAYER # 1";P$(1)
30 IFOP=2THENP$(2)="TRS-80":GOTO80
35 PRINT:INPUT"NAME OF PLAYER # 2";P$(2)
80 FORR=0TO10:FORC=0TO11:A(R,C)=32:NEXT:NEXT
90 CLS:GOSUB900:GOSUB950
95 PN=RND(2)
100 FOR TURN = 2 TO 21
110 PRINT@960,"TURN ";INT(TURN/2);"    ";
112 PRINT"SCORE:  ";P$(1);S1;"    ";P$(2);S2;
115 IF PN=2 AND OP=2 GOSUB500:GOTO150
120 PRINT@896,P$(PN);
130 PRINT" :   =ENTER=  ROW # YOU WISH TO CRUNCH (1-9
) ";
140 INPUT R
145 IFR<10RR>90RR<>INT(R)PRINT@640,CHR$(31):GOSUB950:G
OTO130
150 PRINT@640,CHR$(31);
155 GOSUB700
156 PRINT@640,CHR$(31)
160 GOSUB950
164 IFPN=1 THEN S1=S1+S ELSE S2=S2+S
165 IFS=0PRINT@640,CHR$(31):GOSUB950:GOTO110
170 IF PN=1 THEN PN=2 ELSE PN=1
190 NEXT TURN:PRINT@640,CHR$(31)
192 PRINT@768,"F I N A L   S C O R E"
194 PRINTP$(1);" ";S1;"    ";P$(2);" ";S2;
198 PRINT@960,"PRESS =ENTER= FOR ANOTHER GAME ";
199 INPUTA$:RUN
499 GOTO499
500 PRINT@640,CHR$(31):PRINT@725,"TRS-80'S  BRAIN";
505 FORR=1TO9:P(R)=0:NEXT

```

```

520 FOR R=1 TO 9: FOR C=1 TO 10
525 PRINT@704+INT(R/2)*64+C*5.5+RND(5),CHR$(RND(62)+12
8);
530 IFA(R,C)=32GOTO590
535 IFA(R,C)=43THEN P(R)=5:GOTO595
540 IFA(R,C)=42THEN P(R)=-5:GOTO595
542 P(R)=1:
545 ON A(R,C)-64 GOTO 550,555,560,565,570,575
550 GOTO595
555 A=R+1:B=C:GOSUB690:GOTO595
560 A=R-1:B=C:GOSUB690:GOTO595
565 A=R+1:B=C:GOSUB690:B=C+1:GOSUB690:A=R:GOSUB690:GOT
0595
570 A=R:B=C+1:GOSUB690:A=R-1:GOSUB690:B=C:GOSUB690:GOT
0595
575 A=R-1:B=C:GOSUB690:A=R+1:GOSUB690:GOTO595
590 NEXT C
595 NEXT R
600 M=RND(2):R=1:FORI=2TO9
602 IFM=2GOTO605
603 IFP(1)>P(I)GOTO610
604 GOTO609
605 IFP(1)>=P(I)GOTO610
609 R=I:P(1)=P(I)
610 NEXTI
620 IFP(R)=0THENP(R)=-30:GOTO600
630 RETURN
690 IFA(A,B)=43THENP(R)=P(R)+5:RETURN
691 IFA(A,B)=42THENP(R)=P(R)-5:RETURN
692 IFA(A,B)=32THEN RETURN
693 P(R)=P(R)+1:RETURN
700 P=R*64+9:PRINT@P,CHR$(94);:P1=P:S=0
720 PRINT@704,CHR$(31)
730 PRINT@P1," ";:P1=P1+3:IFP1=P+18GOTO740
735 PRINT@P1,CHR$(94);:GOTO730
740 P=P+18:C=1:PRINT@P,CHR$(94);
750 IFA(R,C)=32THENC=C+1:PRINT@P," ";:P=P+3:PRINT@P,CH
R$(94);: IFC<11THEN750ELSEPRINT@P," ";:RETURN

```



```

760 IFA(R,C)=43THEN A(R,C)=32:S=5:PRINT@P+2,CHR$(149);"
+";      CHR$(170);:PRINT@832,"EARN 5 POINTS";:
FORI=1TO2000:      NEXT:PRINT@P," ";:RETURN
770 IFA(R,C)=42THEN A(R,C)=32:S=-5:PRINT@P+2,CHR$(149);
"*";      CHR$(170);:PRINT@832,"FORFEITS 5 POINTS
";:FORI=1TO2000:      NEXT:PRINT@P," ";:RETURN
775 PRINT@832,"POINTS FOR CRUNCH ";
777 PRINT@P+2,CHR$(149);CHR$(A(R,C));CHR$(170);:S=S+1
780 I=A(R,C)-64:ON I GOTO 810,820,830,840,850,860
810 GOSUB880:PRINT@P," ";:A(R,C)=32:RETURN
820 A(R,C)=32:R=R+1:PP=P+66:GOSUB890:A(R,C)=32
822 GOSUB880:PRINT@P," ";:PRINT@P+66," ";:RETUR
N
830 A(R,C)=32:R=R-1:PP=P-62:GOSUB890:A(R,C)=32
832 GOSUB880:PRINT@P," ";:PRINT@P-62," ";:RETURN
840 A(R,C)=32:PP=P+5:C=C+1:GOSUB890:A(R,C)=32
842 R=R+1:C=C-1:PP=P+66:GOSUB890:A(R,C)=32
844 PP=P+69:C=C+1:GOSUB890:A(R,C)=32
846 GOSUB880:PRINT@P," ";:PRINT@P+66," ";:
RETURN
850 A(R,C)=32:PP=P+5:C=C+1:GOSUB890:A(R,C)=32
851 R=R-1:PP=P-59:GOSUB890:A(R,C)=32
852 C=C-1:PP=P-62:GOSUB890:A(R,C)=32
855 GOSUB880:PRINT@P," ";:PRINT@P-62," ";:
RETURN
860 A(R,C)=32:PP=P+66:R=R+1:GOSUB890:A(R,C)=32
862 PP=P-62:R=R-2:GOSUB890:A(R,C)=32
864 GOSUB880:PRINT@P," ";:PRINT@P-62," ";
866 PRINT@P+66," ";:RETURN
880 PRINT@852,S;:FORI=1TO2000:NEXT:RETURN
890 PRINT@PP,CHR$(149);CHR$(A(R,C));CHR$(170);
895 S=S+1:IFA(R,C)=42THENS=5-6
896 IFA(R,C)=43THENS=5+4
897 IFA(R,C)=32THENS=5-1
898 RETURN
899 GOTO899
900 PRINT@9,"L E T T E R  CRUNCH";
902 FORI=1TO9:PRINT@I*64,"ROW ";I;CHR$(94);:NEXT
905 FOR I=1 TO 80

```

```

910 R=RND(9): C=RND(10): IF A(R,C)<>32 GOT0910
920 X=RND(8)+64:IFX=71THEN A(R,C)=43:GOT0934
925 IFX=72 THEN Z=Z+1:IFZ>5THEN910ELSEA(R,C)=42:GOT0935
930 A(R,C)=X
934 IFC<3AND A(R,C)=43 THENA(R,C)=32:GOT0910
935 PRINT@R*64+C*3+27,CHR$(A(R,C));
940 NEXT: RETURN
950 PRINT@704,CHR$(94);CHR$(149);"A";CHR$(170);"
";
962 PRINTCHR$(94);CHR$(149);"B";CHR$(170);" ";
964 PRINT" ";CHR$(149);" ";CHR$(170);" ";
966 PRINTCHR$(94);CHR$(149);"D";CHR$(170);CHR$(149);"
";CHR$(170);" ";
968 PRINT" ";CHR$(149);" ";CHR$(170);CHR$(149);" ";CHR
$(170);" ";
970 PRINT" ";CHR$(149);" ";CHR$(170);
972 PRINT@779,CHR$(149);" ";CHR$(170);" ";
974 PRINTCHR$(94);CHR$(149);"C";CHR$(170);" ";
976 PRINT" ";CHR$(149);" ";CHR$(170);CHR$(149);" ";CHR
$(170);" ";
978 PRINTCHR$(94);CHR$(149);"E";CHR$(170);CHR$(149);"
";CHR$(170);" ";
980 PRINTCHR$(94);CHR$(149);"F";CHR$(170);
982 PRINT@889,CHR$(149);" ";CHR$(170);
999 RETURN
1000 CLS:FORR=0T010:FORC=0T011:A(R,C)=32:NEXT:NEXT
1010 GOSUB900
1020 PRINT@704,"ABOVE IS THE -LETTER CRUNCH- GRID.
TO PLAY, JUST ENTER THE"
1022 PRINT"ROW NUMBER YOU WISH TO CRUNCH. THE CRUNCH
WILL BE DIRECTLY"
1024 PRINT"TO THE RIGHT. NOTICE THE SYMBOLS : A-F,*,+
, AND A FEW SPACES. "
1025 PRINT
1026 INPUT"PRESS =ENTER= TO CONTINUE";A$:CLS
1030 GOSUB950:PRINT@0,"";
1032 PRINT" BELOW ARE THE CRUNCH INDICATORS. FOR
EXAMPLE, IF YOU"
1034 PRINT"ENTER ROW # 2 AND THE FIRST LETTER DIRECT
LY TO THE RIGHT IS"

```

1036 PRINT "A -F- ; THEN THAT LETTER, THE ONE DIRECTLY ABOVE, AND THE ONE"

1038 PRINT "DIRECTLY BELOW WILL BE CRUNCHED. YOU WILL RECEIVE ONE POINT"

1040 PRINT "FOR EACH LETTER CRUNCHED. "

1042 PRINT " ALSO, IF YOU CRUNCH A + ; YOU GET 5 EXTRA POINTS. "

1044 PRINT "AND, IF YOU CRUNCH A * ; YOU LOSE 5 POINTS. THE WINNER"

1046 PRINT "IS THE ONE WITH THE MOST POINTS AT THE END OF THE GAME. "

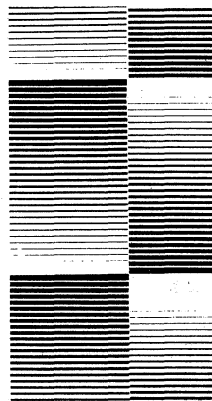
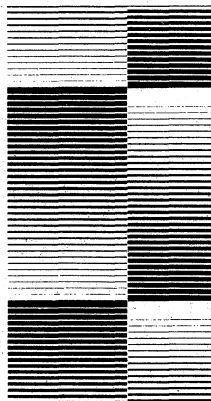
1048 PRINT "PLACE AN AM RADIO NEARBY FOR INTERESTING VIBES !"

1050 INPUT "PRESS =ENTER= TO BEGIN"; A\$: RUN

BELOW ARE THE CRUNCH INDICATORS. FOR EXAMPLE, IF YOU ENTER ROW # 2, AND THE FIRST LETTER DIRECTLY TO THE RIGHT IS A -F- ; THEN THAT LETTER, THE ONE DIRECTLY ABOVE, AND THE ONE DIRECTLY BELOW WILL BE CRUNCHED. YOU WILL RECEIVE ONE POINT FOR EACH LETTER CRUNCHED.

ALSO, IF YOU CRUNCH A + ; YOU GET 5 EXTRA POINTS, AND, IF YOU CRUNCH A * ; YOU LOSE 5 POINTS. THE WINNER IS THE ONE WITH THE MOST POINTS AT THE END OF THE GAME. PLACE AN AM RADIO NEARBY FOR INTERESTING VIBES ! PRESS =ENTER= TO BEGIN .

→A | →B | →C | →D | →E | →F



LETTER CRUNCH

ROW 1 →		B	A	F	A	A	F			
ROW 2 →			E	+	C	D	F			
ROW 3 →	C	D	B	A	F	C	D	B	D	C
ROW 4 →		+	E	D	+	D	F	F	A	
ROW 5 →		+	F	A	B	E	A	C	E	
ROW 6 →	F	F	A	E	+	B	B	E	E	
ROW 7 →	A	A	A	B	F	B	C	E		
ROW 8 →	B	B	E	C	F	F	B	+		
ROW 9 →	C	E		A	F	A	D	F		

POINTS FOR CRUNCH : 7

$$\begin{array}{r} 65 \\ + 78 \\ \hline \end{array}$$

$$9 \overline{) 801}$$

$$35 \times 9 = ?$$

If you've ever had to endure comments that a computer in the house is nothing more than a fancy toy, use this program to introduce your TRS-80 to a friend. Of course, you'll want to subtly set the time delay at the minimum, to make sure that your friend doesn't find it too easy, but this is an effective and attractively presented educational program that meets a basic need.

$$\begin{array}{r} 67 \\ \times 48 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 526 \\ - 23 \\ \hline \end{array}$$

$$25 \times 4 = ?$$

MATH DRILL

by D.L. Brown

In flash card drilling, the computer has a major advantage over a parent. It's very patient, and doesn't show exasperation when a child misses the same problem for the fifth time. However, human interaction in learning is a definite advantage; an effective way to use this program would be for two persons to use it competitively, using the time delay feature as a handicap, in a friendly and low pressure contest.

To lower the difficulty span for younger children, line 200 sets the limits for multiplication to 12 times 12, line 8050 sets the limits for addition at 99 plus 99, line 9040 sets the subtraction to cover the same range as addition, and line 9600 sets the division to the same range as multiplication. There will be no problem with limiting the random numbers to smaller numbers, but the graphic routines will have to be modified for larger ones.

Another routine to examine is at lines 5000 to 5090, which draws the numbers 0 to 9, in order, at 5000, 5010, 5020, and so on.

1 REM

MATH FLASH CARD DRILL

BY D. L. BROWN DERRY, N. H.

24 MARCH 79

5 CLS: CLEAR200: RANDOM

20 PRINT: PRINT: PRINT "HI! I'M HERE TO HELP YOU WITH YOUR MATH. ":

PRINT: INPUT "WHAT'S YOUR NAME"; N\$

21 N\$=LEFT\$(N\$, 8)

22 CLS: PRINT: PRINT "THE FIRST THING YOU MUST DO "; N\$; ", IS TELL M
E WHAT KIND OF"

24 PRINT: PRINT "MATH PROBLEMS WE'RE GOING TO DO. ": GOSUB 26: GOT032

26 PRINT"

1 - ADDITION

2 - SUBTRACTION

3 - MULTIPLICATION

4 - DIVISION"

28 PRINT: PRINT: INPUT "ENTER THE NUMBER OF YOUR CHOICE "; CH

30 IF CH<1 OR CH>4 CLS: GOT022

```

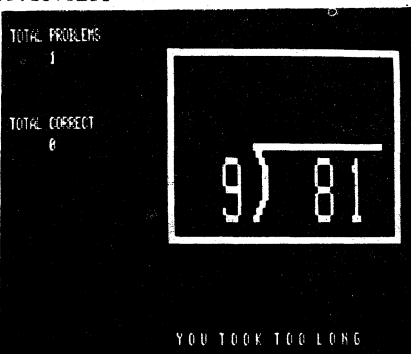
31 RETURN
32 CLS:PRINT"OK ";N$;". THIS IS HOW IT WORKS. I WILL GIVE YOU
THE"
34 PRINT"PROBLEMS LIKE FLASH CARDS. YOU WILL HAVE A SHORT TIME
TO"
36 PRINT"GIVE ME THE ANSWER. ENTER YOUR ANSWER FROM LEFT TO RIG
HT,"
38 PRINT"AND D O N O T PRESS THE ";CHR$(34);"ENTER";CHR$(34);
" BUTTON AFTER THE ANSWER. "
39 PRINT"I WILL KEEP GIVING YOU PROBLEMS UNTILL YOU GET 25 RIGHT
AND":PRINT"THEN I WILL TELL YOU YOUR SCORE. YOU SHOULD DO ALL
THE":PRINT"PROBLEMS IN THE SERIES. "
40 PRINT:PRINT"I WILL LET YOU PICK THE LENGTH OF TIME THAT I'LL"
42 PRINT"WAIT FOR THE ANSWER. TO ADJUST THE TIME, OR CHANGE THE
"
44 PRINT"TYPE OF PROBLEM, JUST TYPE ";CHR$(34);"5";CHR$(34)" IN
PLACE OF THE ANSWER. "
46 PRINT:INPUT"ENTER TIME LIMIT IN SECONDS (BETWEEN 1 AND 20)";T
I
48 IFTI<10RTI>20 CLS:GOTO46
60 T=INT(TI/.013):CLS
65 ONCHGOTO8000,9000,75,9500
75 GOSUB80:GOTO130
80 CLS:PRINT@0,"TOTAL PROBLEMS"
90 PRINT@256,"TOTAL CORRECT"
100 FORM=15385T015418:POKEM,131:POKEM+768,176:NEXT
110 FORM=15385T016153STEP64:POKEM,191:POKEM+33,191:NEXT
120 FORM=15903T015924:POKEM,140:NEXTM
125 RETURN
130 POKE15711,169:POKE15713,150:POKE15776,191:POKE15839,154:POKE
15841,169
200 X=RND(12):Y=RND(12):AN=X*Y:P=P+1:GOSUB210:GOTO300
210 IFR<10 POKE15686,R+48:GOTO240
215 IFR<20 RR=R-10:LR=R-RR:LR=LR-9:GOTO225
220 RR=R-20:LR=R-RR:LR=LR-18
225 POKE15685,LR+48:POKE15686,RR+48
240 IFF<10 POKE15430,P+48:GOTO295
250 IFF<20 RP=P-10:LP=P-RP:LP=LP-9:GOTO290
260 IFF<30 RP=P-20:LP=P-RP:LP=LP-18:GOTO290
270 IFF<40 RP=P-30:LP=P-RP:LP=LP-27:GOTO290

```

```

280 IFF<50 RP=P-40:LP=P-RP:LP=LP-36:GOTO290
285 IFF=>50 FORZ=0T0750:NEXTZ:CLS:PRINTCHR$(23):PRINT"YOU SHOULD
  STUDY MORE ";N$;":AV=INT((R/P)*100):PRINT:PRINT"YOU ONLY GOT "
;R;" OUT":PRINT:PRINT"OF ";P;" RIGHT.":PRINT:PRINT:PRINT" T
HAT'S ";AV;" PERCENT !":PRINT:INPUT"DO YOU WANT TO STOP NOW";AP$
287 IFAP$="YES"CLS:END
288 GOTO1000
290 POKE15429,LP+48:POKE15430,RP+48
295 RETURN
300 GOSUB4500:GOSUB6000:GOSUB380:GOTO200
380 AN$="":BN$="":CN$=""
390 IFAN<=99GOTO500
400 FORZ=1TOT
410 A$=INKEY$
420 IFA$<>"AN$=A$:GOTO 435
430 NEXTZ
435 IFAN$="S"GOTO1000
440 IFVAL(AN$)>1 GOTO 2010
445 IFAN$=""GOTO2000
500 IFAN<=9GOTO610

```



```

510 IFAN>99 FORZ=1T0100:GOTO520
515 FORZ=1TOT
520 A$=INKEY$
530 IFA$<>"BN$=AN$+A$:GOTO550
540 NEXTZ
550 IFBN$="S"GOTO1000
600 IFBN$=""GOTO2000
610 IFAN>9 FORZ=1T0100:GOTO620
615 FORZ=1TOT
620 A$=INKEY$
630 IFA$<>"CN$=BN$+A$:GOTO645
640 NEXTZ
645 IFCN$="S"GOTO1000
650 IFCN$=""GOTO2000
660 GOSUB7000
690 IFVAL(CN$)=AN GOTO4000
695 GOTO2000
1000 CLS:DI=0:P=0:R=0:INPUT"DO YOU WANT TO CHANGE THE TYPE OF PR
OBLEM";DY$

```

```

1020 IFDY$="YES"GOSUB26:GOTO1040
1030 IFDY$<>"NO"GOTO1000
1040 CLS:INPUT"DO YOU WANT TO CHANGE THE TIME LIMIT";DY$
1050 IFDY$="YES"GOTO46
1060 IFDY$<>"NO"GOTO1040
1070 GOTO65
2000 IFCN$=""PRINT@922,"Y O U T O O K T O O L O N G":FORZ=1TO
750:NEXTZ:PRINT@922,STRING$(32,32):GOTO2020
2010 PRINT@922,"SORRY ";N$;" THAT'S NOT CORRECT. ";:FORZ=1TO750:N
EXTZ:PRINT@922,STRING$(30,32);
2020 PRINT@915,"";:PRINT"PRESS "CHR$(34)"ENTER"CHR$(34)" TO DISP
AY CORRECT ANSWER";:INPUTA$:PRINT@915,STRING$(43,32);:GOSUB4510:
CN$=STR$(AN):IF(AN<100)*(AN>9) PP=1
2025 GOSUB7000
2030 PRINT@896,"STUDY THE CORRECT ANSWER ";N$;" , THEN PRESS "CHR
$(34)"ENTER"CHR$(34);:INPUTA$:PRINT@896,STRING$(63,32);:RETURN
3990 REM
4000 R=R+1:PRINT@931,"R I G H T ! !"
4010 IFR=25 FORZ=1TO1000:NEXT:CLS:PRINTCHR$(23):PRINT"VERY GOOD
";N$;" .":PRINT:PRINT"YOU GOT 25 OUT OF ";P;" RIGHT.":PRINT:PRINT
:AV=INT((25/P)*100):PRINT:PRINT" THAT'S ";AV;" PERCENT !":PRI
NT:PRINT:INPUT"DO YOU WANT TO STOP NOW";AP$:IFAP$="YES"CLS:END
4015 IFR=25GOTO1000
4020 FORZ=1TO750:NEXT:PRINT@931,STRING$(15,32):RETURN
4490 REM
4500 IFDI=0:FORM=15463TO15476:POKEM,32:POKEM+64,32:POKEM+128,32:
POKEM+192,32:POKEM+256,32:POKEM+320,32:POKEM+384,32:NEXT
4505 IFDI=1GOTO4600
4510 IFDI=0:FORM=15970TO15991:POKEM,32:POKEM+64,32:POKEM+128,32:
NEXT
4515 IFDI=1GOTO4610
4590 RETURN
4600 FORM=15773TO15782:POKEM,32:POKEM+64,32:POKEM+128,32:NEXTM
4605 FORM=15786TO15804:POKEM,32:POKEM+64,32:POKEM+128,32:NEXTM
4610 FORM=15532TO15548:POKEM,32:POKEM+64,32:POKEM+128,32:NEXTM
4690 RETURN
5000 POKEM,150:POKEM+1,131:POKEM+2,169:POKEM+64,149:POKEM+66,170
:POKEM+128,165:POKEM+129,176:POKEM+130,154
5005 RETURN
5010 POKEM+1,174:POKEM+65,170:POKEM+129,186:POKEM+130,144

```


5015 RETURN
5020 POKEM, 134:POKEM+1, 131:POKEM+2, 169:POKEM+64, 152:POKEM+65, 140
:POKEM+66, 134:POKEM+128, 181:POKEM+129, 176:POKEM+130, 176
5025 RETURN
5030 POKEM, 134:POKEM+1, 131:POKEM+2, 169:POKEM+65, 140:POKEM+66, 174
:POKEM+128, 164:POKEM+129, 176:POKEM+130, 154
5035 RETURN
5040 POKEM, 149:POKEM+2, 170:POKEM+64, 141:POKEM+65, 140:POKEM+66, 17
4:POKEM+130, 170
5045 RETURN
5050 POKEM, 151:POKEM+1, 131:POKEM+2, 131:POKEM+64, 131:POKEM+65, 131
:POKEM+66, 169:POKEM+128, 164:POKEM+129, 176:POKEM+130, 154
5055 RETURN
5060 POKEM, 150:POKEM+1, 131:POKEM+2, 137:POKEM+64, 157:POKEM+65, 140
:POKEM+66, 164:POKEM+128, 165:POKEM+129, 176:POKEM+130, 154
5065 RETURN
5070 POKEM, 135:POKEM+1, 131:POKEM+2, 155:POKEM+65, 150:POKEM+129, 14
9
5075 RETURN
5080 POKEM, 150:POKEM+1, 131:POKEM+2, 169:POKEM+64, 153:POKEM+65, 140
:POKEM+66, 166:POKEM+128, 165:POKEM+129, 176:POKEM+130, 154
5085 RETURN
5090 POKEM, 150:POKEM+1, 131:POKEM+2, 169:POKEM+64, 137:POKEM+65, 140
:POKEM+66, 174:POKEM+128, 164:POKEM+129, 176:POKEM+130, 154
5095 RETURN
6000 REM
6020 IFX>9 X(1)=1:X(2)=X-10:GOTO6035
6030 X(2)=X
6035 M=15463
6038 IFX<10GOTO6045
6040 ONX(1)GOSUB5010
6045 M=M+5
6048 IFX(2)=0GOSUB5000:GOTO6060
6050 ONX(2)GOSUB5010, 5020, 5030, 5040, 5050, 5060, 5070, 5080, 5090
6060 IFY>9 Y(1)=1:Y(2)=Y-10:GOTO6080
6070 Y(2)=Y
6080 IFDI=1 M=15773:GOTO6090
6085 M=15719
6090 IFY<10GOTO6110
6100 ONY(1)GOSUB5010

```

6110 M=M+5
6120 IFY(2)=0GOSUB5000:RETURN
6130 ONY(2)GOSUB5010, 5020, 5030, 5040, 5050, 5060, 5070, 5080, 5090
6150 RETURN
6190 REM
7000 M=15970:IFCN$=""GOTO2000
7010 IFDI=1 M=15532
7020 IFVAL(CN$)<100 M=M+5:GOTO7120
7040 GOSUB 5010
7100 M=M+5
7120 IFVAL(CN$)<10GOTO7200
7130 IFVAL(CN$)<100GOTO7155
7140 IFVAL(CN$)>99 CN=VAL(CN$):CN=CN-100:IFCN<10 CN$(2)="0":GOTO
7170
7150 IFVAL(CN$)>99IFCN>9 CN$(4)=STR$(CN):CN$(2)=LEFT$(CN$(4), 2):
GOTO7170
7155 IFPP=1 CN$(2)=LEFT$(CN$, 2):GOTO 7170
7160 CN$(2)=LEFT$(CN$, 1)
7170 IFVAL(CN$(2))=0GOSUB5000:GOTO7190
7180 ONVAL(CN$(2))GOSUB5010, 5020, 5030, 5040, 5050, 5060, 5070, 5080, 5
090
7190 PP=0
7200 M=M+5
7210 CN$(3)=RIGHT$(CN$, 1)
7220 IFVAL(CN$(3))=0GOSUB5000:GOTO7500
7230 ONVAL(CN$(3))GOSUB5010, 5020, 5030, 5040, 5050, 5060, 5070, 5080, 5
090
7500 RETURN
8000 REM
8010 GOSUB80
8020 FORM=15772T015778:POKEM, 140:NEXTM:FORM=15711T015839STEP64:P
OKEM, 191:NEXTM
8050 X=RND(99):Y=RND(99):AN=X+Y:P=P+1:GOSUB210:GOSUB8100:GOTO8005
0
8100 IFX>9 X(5)=X/10:X(1)=INT(X(5)):X(2)=INT((X(5)-X(1))*10+. 2):
GOTO8135
8130 X(2)=X
8135 M=15463
8140 IFX<10GOTO8200
8150 IFX(1)=0GOTO8200

```

```

8160 ONX(1)GOSUB5010, 5020, 5030, 5040, 5050, 5060, 5070, 5080, 5090
8200 M=M+5
8210 IFX(2)=0GOSUB5000:GOTO8300
8220 ONX(2)GOSUB5010, 5020, 5030, 5040, 5050, 5060, 5070, 5080, 5090
8300 IFY>9 Y(5)=Y/10:Y(1)=INT(Y(5)):Y(2)=INT((Y(5)-Y(1))*10+. 2):
GOTO8335
8330 Y(2)=Y
8335 M=15719
8340 IFY<10GOTO8400
8350 IFY(1)=0 GOTO8400
8360 ONY(1)GOSUB5010, 5020, 5030, 5040, 5050, 5060, 5070, 5080, 5090
8400 M=M+5
8410 IFY(2)=0 GOSUB5000:GOTO8500
8420 ONY(2)GOSUB5010, 5020, 5030, 5040, 5050, 5060, 5070, 5080, 5090
8500 GOSUB380:GOSUB4500:RETURN
9000 REM
9010 GOSUB80
9020 FORM=15772T015778:POKEM,140:NEXTM
9040 X=RND(99):Y=RND(99):IFX<Y THEN Y(7)=Y:Y=X:X=Y(7)
9045 IFX=Y GOTO 9040
9050 AN=X-Y:P=P+1:GOSUB210:GOSUB8100:GOTO9040
9500 REM
9510 DI=1:CLS:PRINT00,"TOTAL PROBLEMS":PRINT0256,"TOTAL CORRECT"
9520 FORM=15449T015486:POKEM,131:POKEM+512,176:NEXTM
9530 FORM=15449T016020STEP64:POKEM,191:POKEM+37,191:NEXTM
9550 FORM=15721T015739:POKEM,140:NEXTM:POKE15719,172:POKE15720,1
56:POKE15784,171:POKE15785,148:POKE15848,170:POKE15849,149:POKE1
5911,184:POKE15912,135
9600 X=RND(12):Y=RND(12)
9610 AN=X*Y
9620 AN(1)=AN:AN=X:X=AN(1)
9630 X(1)=X(2)=X(3)=X(5)=0:IFX=YGOTO9600
9700 P=P+1:GOSUB4500:GOSUB9800:GOSUB6060:GOSUB210:GOSUB380:GOTO
9600
9800 IFX>99 X(1)=1:X(2)=X-100
9805 M=15788
9810 IFX(1)=1 GOSUB5010
9815 IFX=108 X(2)=0:X(3)=8:GOTO9860
9820 IFX<10 X(3)=X:M=M+5:GOTO9910
9830 IFX>9ANDX<100X(2)=X

```

```
9840 IFX(2)>9 X(5)=X(2)/10:X(2)=INT(X(5)):X(3)=INT((X(5)-X(2))*10+2)
```

```
9860 M=M+5
```

```
9880 IFX(2)=0 GOSUB 5000:GOTO9910
```

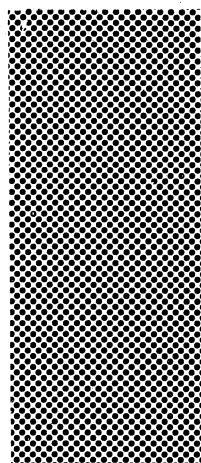
```
9900 ONX(2)GOSUB5010,5020,5030,5040,5050,5060,5070,5080,5090
```

```
9910 M=M+5
```

```
9920 IFX(3)=0GOSUB5000:GOTO9990
```

```
9940 ONX(3)GOSUB5010,5020,5030,5040,5050,5060,5070,5080,5090
```

```
9990 RETURN
```



TOTAL PROBLEMS
6

TOTAL CORRECT
2

$$\begin{array}{r} 69 \\ + 78 \\ \hline 147 \end{array}$$

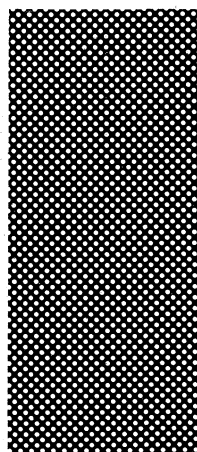
STUDY THE CORRECT ANSWER ROGER, THEN PRESS 'ENTER' ?

TOTAL PROBLEMS
4

TOTAL CORRECT
1

$$\begin{array}{r} 7 \\ 7 \overline{) 56} \end{array}$$

SORRY ROGER, THAT'S NOT CORRECT.



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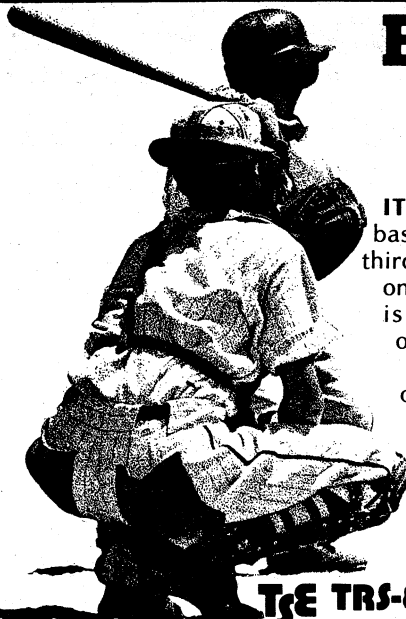
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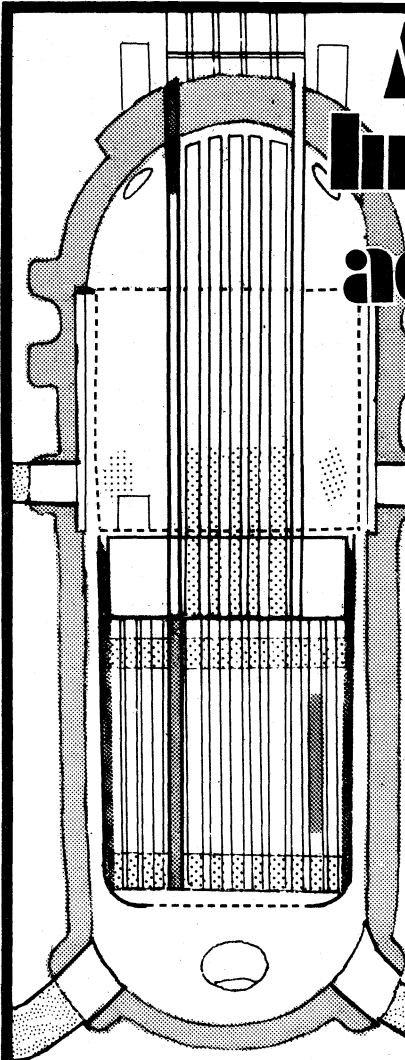
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SUPER SUB

MICHAEL
WINTER

You saw the poster outside the county courthouse. There was a dashing sailor with his arm around a beautiful girl, with grass huts and palm trees in the background. **Join the Navy and see the world.** It was the middle of winter, and you had no girlfriend,

and so you fell for it, hook, line and sinker...

You've seen the world, all right ... and discovered that it's two-thirds water. Not only that, you're in the submarine service, and all you see most of the time is steel walls, pipes and gauges. There are times when even a wave would look good. And then they had to start this miserable war. Now you don't even know if you'll live long enough to see another wave.

Still, your home port is Pearl Harbor, and they do have palm trees and beaches full of gorgeous girlsmight as well go back to playing good guys versus bad guys.

```
2 CLEAR 75
5 REM *****
10 REM *****
20 REM ***** SUPER SUB *****
30 REM ***** WRITTEN BY *****
40 REM ***** MICHAEL WINTER *****
45 REM ***** NEW CANAAN CT. 06840 *****
50 REM *****
60 REM ***** VERSION 3.2 *****
70 REM ***** JANUARY 1979 *****
80 REM *****
90 REM *****
95 REM * * GAME INITAL SET UP * *
97 TT=0
98 REM * * * * SIN WAVE FOR CREDITS * * * *
99 CLS : REM *****
*****
100 B=0
101 FOR T=0 TO 32 STEP .25
102 A=INT(26+25*SIN(T))
103 PRINT TAB(A-1);
104 IF B=1 THEN 108
105 PRINT"SUPER SUB"
```



```

106 B=1
107 GOTO 110
108 PRINT"BY MIKE WINTER"
109 B=0
110 NEXT T
120 PRINT @ 897, "DO YOU NEED INSTRUCTIONS"; : INPUT A$
: A$=LEFT$(A$,1)
130 IF A$="Y" GOSUB 25000
135 PRINT @ 961, "DEPOSIT 25 CENTS TO PLAY"; : INPUT D$
137 IF D$ <> "25" THEN GOTO 135
138 INPUT"WHAT LEVEL OF PLAY DO YOU WANT (EASY, HARD, V
ERY HARD, EXPERT)";L$: L$=LEFT$(L$,2) : IF L$="EA" THE
N DO=20
139 IF L$="HA" THEN DO=14
140 CLS : INPUT"WHAT IS YOUR NAME CAPTAIN";B$
142 IF L$="VE" THEN DO=9
144 IF L$="EX" THEN DO=4
150 RANDOM
152 F$="N" : F2$="N" : TT=DO : SC=0
155 REM * * * GETS RANDOM OCEAN * * *
160 D=RND(6)
170 ON D GOTO 180,190,200,210,220,230
180 C$="NORTH ATLANTIC" : GOTO 240
190 C$="NORTH PACIFIC" : GOTO 240
200 C$="INDIAN" : GOTO 240
210 C$="ARCTIC" : GOTO 240
220 C$="SOUTH ATLANTIC" : GOTO 240
230 C$="SOUTH PACIFIC" : GOTO 240
240 PRINT"WELL CAPTAIN ";B$;" ARE YOU READY TO COMBAT T
HE"
245 PRINT"EVILS OF THE ";C$;" OCEAN" : INPUT DUMMEY$
250 REM * * * * *
* * *
265 A=0
266 REM * * * * * ALL TORPEDOS EXPENDED ?? * * * * *
267 IF DO > 0 THEN 330 ELSE 32767
330 CLS : REM * * DRAW PLAYING AREA WITH CORRESPONDING
DEPTH * *
360 PRINT @ 0, "METER"
363 A=140 : S=0

```

```

365 FOR A5=10 TO A STEP 10 : S=5+64
370 PRINT @ S,A5
380 NEXT A5
390 FOR Q=10 TO 122 : SET(Q,0) : SET(Q,46) : NEXT Q
400 FOR W=1 TO 46 : SET(10,W) : SET(122,W) : NEXT W
401 FOR M=1 TO 47 : REM * * * * SETS RANDOM MINES * * *
*
402 Y8=RND(37)+3 : X8=RND(109)+12 : SET(X8,Y8) : NEXT M
410 REM * * * * * DRAW SUB * * * * *
420 FOR R=56 TO 64 : SET(R,45) : NEXT R : SET(59,44)
430 SET(60,44) : SET(60,43)
433 K2=56 : K3=64 : V2=59 : V3=60 : C2=60 : Y9=42 : F$=
"N" : F2$="N"
435 REM * * * SIZE AND SPEED OF SHIP IS HERE DEFINED *
* *
436 REM * * * * * ALL TORPEDOS EXPENDED ?? * * * * *
437 RANDOM : IF DO > 0 THEN 438 ELSE 32767
438 REM * * * LINE 440 DETERMINES TYPE OF SHIP * * *
439 REM * * * NOTE NO SHIP TWICE IN A ROW * * * * *
440 G=RND(6) : IF G=GB THEN 440
443 GB=G
444 REM * * * * LINE 445 FINDS RANDOM DEPTH * * * * *
445 K7=RND(32)+ -1
447 Z=K7+4
450 ON G GOTO 460,470,480,490,500,510
455 REM * * SMALL FAST P. T. BOAT * *
460 FOR T=116 TO 121 : SET(T,Z) : NEXT T : FOR K=117 TO
120 : SET(K,Z-1) : NEXT K
461 FOR B=121 TO 18 STEP -1 : GOSUB 5000
467 RESET(B,Z) : SET(B-6,Z) : RESET(B-1,Z-1) : SET(B-5,
Z-1) : NEXT B
468 FOR R=11 TO 17 : RESET(R,Z) : NEXT R : FOR R2=12 TO
16 : RESET(R2,Z-1) : NEXT R2 : GOTO 435
469 REM * * LARGE SLOW CRUISER * *
470 FOR J=112 TO 121 : SET(J,Z) : NEXT J : FOR J2=114 T
O 117 : SET(J2,Z-1) : NEXT J2 : SET(116,Z-2)
471 FOR B=121 TO 21 STEP -1 : GOSUB 5000
477 RESET(B,Z) : SET(B-10,Z) : RESET(B-4,Z-1) : SET(B-8
,Z-1) : RESET(B-5,Z-2) : SET(B-6,Z-2) : FOR H7=1 TO 03
: NEXT H7 : NEXT B

```

```

478 FOR R=11 TO 21 : RESET(R,Z) : NEXT R : FOR R2=13 TO
  17 : RESET(R2,Z-1) : NEXT R2 : RESET(15,Z-2) : GOTO 43
5
479 REM ** VERY LARGE VERY SLOW TANKER **
480 FOR N=108 TO 121 : SET(N,Z) : NEXT N : FOR M=113 TO
  119 : SET(M,Z-1) : NEXT M : FOR L=114 TO 117 : SET(L,Z
-2) : NEXT L
481 FOR B=121 TO 24 STEP -1 : GOSUB 5000
487 RESET(B,Z) : SET(B-13,Z) : RESET(B-2,Z-1) : SET(B-8
,Z-1) : RESET(B-3,Z-2) : SET(B-6,Z-2) : FOR H7=1 TO 14
: NEXT H7 : NEXT B
488 FOR R=11 TO 25 : RESET(R,Z) : NEXT R : FOR R2=16 TO
  23 : RESET(R2,Z-1) : NEXT R2 : FOR R3=17 TO 21 : RESET
(R3,Z-2) : NEXT R3 : GOTO 435
489 REM ** SAME BOATS AS ABOVE BUT FROM OPP. DIRECTION
  ***
490 FOR U=11 TO 16 : SET(U,Z) : NEXT U : FOR I=12 TO 15
  : SET(I,Z-1) : NEXT I : REM *** SMALL FAST P.T. BOAT
  ***
491 FOR B=11 TO 114 : GOSUB 5000
498 RESET(B,Z) : SET(B+6,Z) : RESET(B+1,Z-1) : SET(B+5,
Z-1) : NEXT B
499 FOR R=121 TO 113 STEP -1 : RESET(R,Z) : NEXT R : FO
R R2=120 TO 114 STEP -1 : RESET(R2,Z-1) : NEXT R2 : GOT
O 435
500 FOR W=11 TO 21 : SET(W,Z) : NEXT W : FOR Q=16 TO 19
  : SET(Q,Z-1) : NEXT Q : SET(17,Z-2) : REM ** LARGE SL
OW CRUISER **
501 FOR B=11 TO 110 : GOSUB 5000
508 RESET(B,Z) : SET(B+10,Z) : RESET(B+5,Z-1) : SET(B+8
,Z-1) : RESET(B+6,Z-2) : SET(B+7,Z-2) : FOR H7=1 TO 03
: NEXT H7 : NEXT B
509 FOR R=121 TO 111 STEP -1 : RESET(R,Z) : NEXT R : FO
R R2=119 TO 116 STEP -1 : RESET(R2,Z-1) : NEXT R2 : RES
ET(117,Z-2) : GOTO 435
510 FOR T=11 TO 25 : SET(T,Z) : NEXT T : FOR T2=16 TO 2
  3 : SET(T2,Z-1) : NEXT T2 : FOR T3=18 TO 21 : SET(T3,Z-
2) : NEXT T3
511 FOR B=11 TO 106 : GOSUB 5000

```

```

512 REM ** VERY LARGE VERY SLOW TANKER ** : REM START
S AT 510
998 RESET(B,Z) : SET(B+15,Z) : RESET(B+5,Z-1) : SET(B+1
3,Z-1) : RESET(B+7,Z-2) : SET(B+11,Z-2) : FOR H7=1 TO 1
3 : NEXT H7 : NEXT B
999 FOR R=121 TO 107 STEP -1 : RESET(R,Z) : NEXT R : F
OR R2=119 TO 112 STEP -1 : RESET(R2,Z-1) : NEXT R2 : F
OR R3=121 TO 18 STEP -1 : RESET(R3,Z-2) : NEXT R3 : GOTO
435
1000 REM *** INKEY$ SUBROUTINE NOTE: FOR LEVAL II ***
*
4999 REM *** MOVE SUB TO LEFT IF LEFT ARROW PRESSED *
**
5000 Q%=PEEK(14457) : IF Q%=32 AND K2 > 11 AND F$ <> "F
" THEN K2=K2-1 : K3=K3-1 : V2=V2-1 : V3=V3-1 : C2=C2-1
: SET(K2,45) : SET(V2,44) : SET(C2,43) : RESET(K2+9,45)
: RESET(V2+2,44) : RESET(C2+1,43)
5009 REM *** MOVE SUB TO RIGHT IF RIGHT ARROW PRESSED *
*
5010 IF Q%=64 AND K2 < 113 AND F$ <> "F" THEN K2=K2+1 :
K3=K3+1 : V2=V2+1 : V3=V3+1 : C2=C2+1 : SET(K3,45) : S
ET(V3,44) : SET(C2,43) : RESET(K3-9,45) : RESET(V3-2,44
) : RESET(C2-1,43)
5019 REM *** FIRE MISSILE IF 'I' PRESSED ***
5020 IF Q%=8 AND F$ <> "F" AND D0 > 0 THEN F$="F" : Y9=
42 : D0=D0-1
5030 IF F$="F" THEN X9=C2 : SET(X9,Y9) : Y9=Y9-1 : RESE
T(X9,Y9+2) : SET(C2,43) : IF Y9=2 THEN RESET(X9,Y9+1) :
F$="N"
5035 REM ***** TEST FOR A HIT *****
5040 IF POINT(X9,Y9-1) THEN GOSUB 10000
5045 REM ***** UPDATES STATUS REPORT *****
5050 PRINT @ 702,"TL"; : PRINT @ 764,D0; : PRINT @ 830,
"SD"; : PRINT @ 892,SC;
5055 REM **** PROGRAMS SHIPS TO FIRE AT SUB ****
5060 IF G > 3 THEN 5100
5070 IF B=C2+3 THEN YE=Z : XE=B : F2$="F"
5080 IF F2$="F" THEN YE=YE+1 : SET(XE,YE) : RESET(XE,YE
-2) : IF YE=45 THEN RESET(XE,YE) : RESET(XE,YE-1) : F2$
="N"

```

```

5090 IF POINT(XE,YE+1) AND YE=44 AND F2$="F" THEN 32000
5095 RETURN
5100 IF B=C2-3 THEN YE=Z : XE=B : F2$="F"
5110 IF F2$="F" THEN YE=YE+1 : SET(XE,YE) : RESET(XE,YE
-2) : IF YE=45 THEN RESET(XE,YE) : RESET(XE,YE-1) : F2$
="N"
5115 REM * * * * TEST FOR SUBS DESTRUCTION * * * *
5120 IF POINT(XE,YE+1) AND YE=44 AND F2$="F" THEN 32000
5200 RETURN
10000 REM * * TEST FOR A HIT * *
10010 IF (L$="EA") * (Y9-1=Z) * ((X9+1=B) + (X9+2=B) +
(X9+3=B) + (X9+4=B) + (X9-1=B) + (X9-2=B) + (X9-3=B) +
(X9-4=B)) THEN F$="N" : GOTO 10015
10011 IF (L$="HA") * (Y9-1=Z) * ((X9=B+3) + (X9=B+2) +
(X9=B+1) + (X9=B) + (X9=B+4) + (X9=B+5) + (X9=B+6)) TH
EN F$="N" : GOTO 10015
10012 IF (L$="VE") * (Y9-1=Z) * ((X9=B+3) + (X9=B+2) +
(X9=B+1) + (X9=B+4) + (X9=B+5)) THEN F$="N" : GOTO 1001
5
10013 IF (L$="EX") * (Y9-1=Z) * ((X9=B+3) + (X9=B+2) +
(X9=B+4)) THEN F$="N" : GOTO 10015
10014 GOTO 10020
10015 SET(X9,Y9-1) : RESET(X9,Y9+2) : FOR E=1 TO 75 : Y
3=RND(8)+Y9-1-5 : X3=RND(12)+X9-9 : SET(X3,Y3) : NEXT E
: SC=SC+1 : GOTO 250
10020 RESET(X9,Y9+1) : F$="N" : RETURN
25000 REM * * * * * INSTRUCTIONS * * * * *
25010 PRINT " IN THIS SIMULATION YOU ARE THE COMMANDER"
25020 PRINT "OF A SUBMARINE PATROLLING THE BOTTOM OF A"
25030 PRINT "RANDOM OCEAN. YOUR MISSION IS TO DESTROY"
25040 PRINT "AS MANY SHIPS AS POSSIBLE WITH XX TORPEDOS"
25050 PRINT "TO MOVE YOUR SUB USE THE RESPECTIVE ARROWS"
25060 PRINT "ON THE KEYBOARD. USE THE ↑ KEY TO FIRE A"
25070 PRINT "TORPEDO. IF YOUR TORPEDO HITS ONE OF THE RA
NDOM"
25080 PRINT "MINES IT WILL BE DESTROYED. THE SHIPS GOING
"
25090 PRINT "OVERHEAD WILL ALSO FIRE AT RANDOOM LOCATION
S, "

```

```

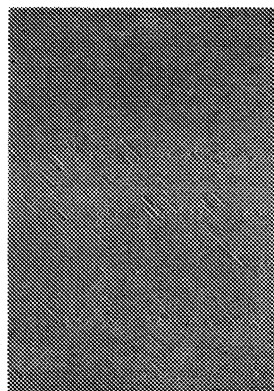
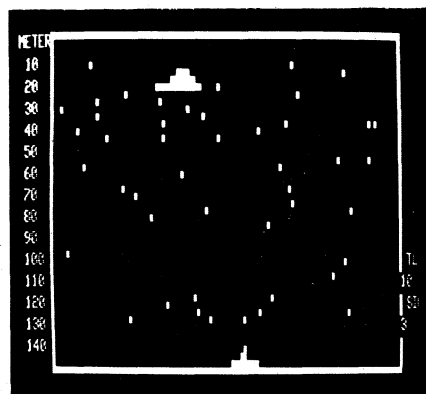
25100 PRINT"TORPEDOS AND IF ONE OF THESE HITS YOU, YOUR
SUB"
25110 PRINT"WILL BE DESTROYED. ALSO AFTER YOU HAVE FIRE
D"
25115 INPUT"HIT ENTER TO TURN THE PAGE";P$: CLS
25120 PRINT"A TORPEDO YOU WILL LOSE CONTROL OF YOUR SHI
P"
25130 PRINT"UNTIL IT IS EITHER DESTROYED OR IT REACHES
THE TOP"
25140 PRINT"OF THE DISPLAY. AT THE RIGHT OF THE SCREEN
WILL"
25150 PRINT"BE A STATUS REPORT: 'TL'=TORPEDOS LEFT, "
25160 PRINT"'SD'=NUMBER OF SHIPS DESTROYED. "
25161 PRINT"THE SKILL LEVEL YOU CHOSE WILL HAVE TWO AFF
ECTS ON"
25162 PRINT"THE DIFFICULTY OF THE GAME -1- WILL BE AS T
HE SKILL"
25163 PRINT"LEVEL INCREASES THE MEMBER OF TORPEDOS DEC
REASES, "
25164 PRINT"-2- WILL BE AS THE SKILL LEVEL INCREASE IT
WILL BE"
25165 PRINT"HARDER TO DESTROY A SHIP BECAUSE YOU WILL H
AVE TO"
25166 PRINT"HIT CLOSER TO THE SHIPS REAR TO DESTROY IT.
"
25167 PRINT"NOTE: IT MAY BE NECESSARY TO HOLD DOWN THE
'I' KEY"
25168 PRINT"FOR A FEW SECONDS TO FIRE. * * HAVE FUN * *
"
25170 PRINT"          * * * GOOD LUCK * * *          "
25180 FOR X=1 TO 7800 : NEXT X
25190 RETURN
28000 REM * * * END OF GAME: SUB DESTROYED * * *
32000 FOR Q=1 TO 75 : Y=RND(4)+41 : X=RND(9)+K2
32010 SET(X,Y) : NEXT Q
32020 FOR V=1 TO 50 : NEXT V : CLS
32030 PRINT @ 523, "YOU BLEW IT CAPTAIN ";B$;
32035 FOR R=1 TO 2332 : NEXT R
32040 CLS : INPUT"DO YOU WANT TO PLAY AGAIN";A$
32050 A$=LEFT$(A$,1) : IF A$="Y" THEN 135 ELSE 65529

```

```

32767 REM * * * END DUE TO LOSE OF ALL TORPEDOS * * *
34000 CLS : PRINT"CAPTAIN YOU HAVE EXPENDED ALL OF"
34010 PRINT"YOUR TORPEDOS. "
34020 PRINT"      * * * HERE IS YOUR RATING * * *      "
34030 PRINT"    YOU DESTROYED ";SC;" SHIPS WITH "TT" TOR
PEDOS"
34031 IF TT=14 THEN SC=SC+8
34032 IF TT=9 THEN SC=SC+10
34033 IF TT=4 THEN SC=SC+10
34040 IF SC > 18 PRINT"GREAT WORK CAPTAIN I AM GOING TO
RECOMEND A PROMOTION!!" : GOTO 38070
34050 IF SC > 14 PRINT"NOT BAD COULD BE BETTER BUT NOT
BAD BETTER LUCK NEXT TIME!!" : GOTO 38070
34060 IF SC > 10 PRINT"HOPE YOU'RE BEGINER WITH A SCORE
LIKE THAT!!"
34070 IF SC > 10 PRINT"IMPROVE ON THAT A SECOND TIME AR
OUND!" : GOTO 38070
34080 PRINT"A SCORE OF ";SC;" SHIPS DESTROYED WITH ";TT
;" TORPEDOS"
34090 PRINT"IS A DISGRACE TO THE NAVY!! YOU HAD BETTER
DO BETTER NEXT TIME!"
38070 INPUT"DO YOU WANT TO TRY AGAIN";A$ : A$=LEFT$(A$,
1)
38080 IF A$="Y" THEN 135
65529 PRINT @ 530,"BYE BYE CAPTAIN!!" : END

```



TIRED OF DISK ERRORS?

**STOP BLAMING YOUR DRIVES —
FIX YOUR DOS!**

NEWDOS

NEWDOS, by Apparat, is the third generation disk operating system for your TRS-80. NEWDOS corrects over 70 errors and omissions in TRSDOS 2.1 and disk BASIC, yet the two are completely compatible! Programs and files saved under one can be used with the other interchangeably. Going from TRSDOS 2.1 to NEWDOS is like going from Level I to Level II: more power, more convenience, greater speed.

NEWDOS has the power to:

- Use all DOS commands (incl. directory) in BASIC
- Automatically load and run a BASIC program on power-up
- Produce variable cross-reference tables
- Open 'E' to add to sequential files
- Append files
- Use your line printer as a screen printer
- Renumber BASIC programs
- End keyboard bounce

And, best of all, say goodbye to system crashes, lost data and wasted time caused by your old, bug-ridden system software.

**You paid \$500 for your disk drive —
why struggle with it?**








Apparat's NEWDOS is fully documented and available for only \$49.95 from:

TSE TRS-80 Software Exchange

17 Briar Cliff Drive Millford, New Hampshire 03055

NEWDOS +

If NEWDOS is the Cadillac of disk-operating systems, then NEWDOS + has to be the Ferrari. NEWDOS + retains all the features of the original NEWDOS, and adds the following utilities:

- Editor-assembler for disk 
- Disassembler (Z80 machine code) 
- LM Offset-allows transfer of any system tape to a disk file (automatically relocated) 
- BASIC1-Level one BASIC saved on disk 
- LV1DSKSL - not a typo, this saves and loads BASIC1 programs to disk 
- DIRCHECK-tests and lists disk directory 
- Superzap-display/print/modify any location in memory or on disk 

Superzap alone is worth the price of this package. With it, we've quickly recovered lost programs, restored killed data files, and saved many hours of effort. The NEWDOS + manual is another plus: clear and concise, it even includes a byte-by-byte explanation of the directory file ... invaluable if you ever need to save a crashed disk!

The price for all this computer power? That's the best part!
NEWDOS + , Just \$99.95

NOTE: Use of this software may require documentation available only with the purchase of Radio Shack TRSDOS 2.1 and/or the Radio Shack Editor / Assembler

TSE TRS-80 Software Exchange

17 Briar Cliff Drive Millford, New Hampshire 03055

TRS-80 HOTLINE

If you ever find yourself in need of some fast answers, an easy solution or just a sympathetic ear, call **SoftSide's TRS-80 HOTLINE**. From 7 to 9:30, every Tuesday evening (EST), our resident programmers will be "on line" to offer BASIC programming assistance to Level I and II TRS-80 users in need of a fix.



HOTLINE 603-673-5144

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I need a computer consultant who can design, structure and program time series in stocks, bonds and commodities.

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For further details, please write to:

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Little Neck, NY 11363

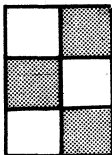
TRS-80 PROGRAMMING HINT

Suppose while writing a program, you want to display some specific graphics. How can you determine how to find them? Here's a way to figure them out:

Number the square with binary decimal equivalents as shown in the diagram at right. Find the decimal number equivalent to the graphic desired; add this number to 128. This gives you the CHR\$(-) needed to produce your desired result.

1	2
4	8
16	32

EXAMPLE:



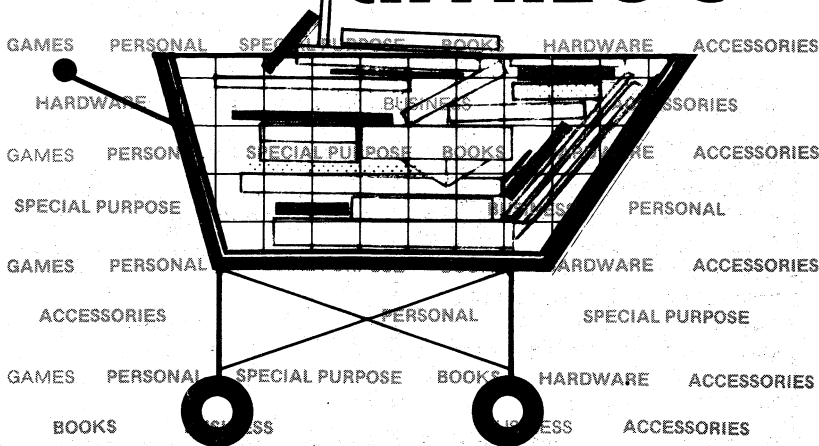
$$2 + 4 + 32 = 38$$

plus 128

CHR\$(166) results in 

GAMES PERSONAL SPECIAL PURPOSE BOOKS HARDWARE ACCESSORIES

TSE Market Basket CATALOG



GAMES

CRIBBAGE

Roger W. Robitaille, Sr.

You versus the computer in this game of cribbage played by standard rules. Computer shuffles, deals, keeps score and wins ... unless you're very careful! Featured in SoftSide premier issue.

Level I or II, 16K

\$7.95

BRIDGE CHALLENGER

George Duisman

You and the dummy play 4-person Contract Bridge against the computer. Deals hands randomly or according to your criterion for high card points. You can review tricks, swap sides or replay hands when cards are known.

Level II, 16K

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BACKGAMMON

Scott Adams

A completely different program, just waiting to beat you ... it plays a pretty mean game, so be prepared!!

Level II, 16K

\$7.95

SARGON CHESS

Dan & Kathe Spracklen

Winner of the 1978 San Jose Micro-computer Chess Tournament. One of the most challenging chess programs ever.

Level II, 16K

\$19.95

CHESS COMPANION

Michael Kelleher

Combines chess clock features with ability to record moves while action is fast and furious. Listing may be reviewed at any time.

Level II, 16K

\$7.95

MICROCHESS 1.5

Peter Jennings

In machine language, offers 3 levels of play with every move checked for legality and current position displayed on a graphic chessboard. Play White or Black, set up and play from special board positions, even watch the computer play against itself!

Level I or II, 4K

\$19.95

THREE D TIC TAC TOE

Scott Adams

Everyone knows this game, but how about a 4 x 4 x 4 version? Three skill levels for computer competition ... author warns you to practice before tackling the computer's third level of skill!

Level I or II, 16K

\$7.95

CONCENTRATION

Lance Micklus

One of the most popular television game shows ever devised now comes to the minicomputer! Win campers, boxes of nails, gifts galore ... take the chance of forfeiting them later in the game. There's something for everyone in Concentration. Most important of all, remember where the items appear on the playing board.

Level I or II, 16K

\$7.95

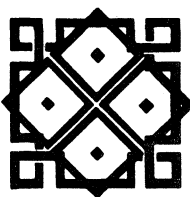
AMAZIN' MAZES

Robert Wallace

Off you go into the maze; but stop for a moment! The passageways are changing ... find the fastest way out of this nightmare. The sooner you escape, the more points you'll score.

Level II, 16K

\$7.95



TIME BOMB

David Bohlike

Somewhere inside a towering skyscraper a time bomb mechanism is ticking away. Your mission is to locate and disarm the explosive device before detonation...no easy feat in this maze-like structure!

Level I or II, 16K

\$4.95

TROLL'S GOLD

George Blank

Chase game for children of all ages! The troll is hidden deep within the caves, jealously guarding his gold. You must descend to his lair and escape with the booty without him capturing and (ugh) eating you!

Level I or II, 16K

\$4.95

ROBOT

Lance Micklus

Struggle to keep your wits about you as your stalked by an army of robots through a seemingly endless maze. It's you against them as you simultaneously try to avoid and trick them into their own trap.

Level II, 4K

\$4.95

MASTERMIND II

Lance Micklus

This version of the classic game lets you and the computer take turns making and breaking secret codes. Takes less than 3 seconds for computer to make a guess and can usually figure out a code by the 5th try. Object tape which loads in addresses 7600 to 7FF0 using SYSTEM command is supplied. Program is also DOS compatible so object code may be stored on disk using TAPEDISK and then executed under DOS. A challenging game of logic, strongly recommended.

Source Listing

\$7.95

\$20.00

BREAKAWAY

Lance Micklus

Challenging game of skill and dexterity. Real time excitement just like traditional pinball. You control speed and direction of the ball as you try to 'break away' the playing field.

Level I or II, 4K

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END ZONE

Roger W. Robitaille, Sr.

Authentic football simulation, right down to the 2-minute warning. Complete with everything except the cheerleaders. Played in four 15-minute quarters.

Level I or II, 16K

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BATTER UP

David Bohlke

Real time pitch and hit action game with the computer as designated pitcher. Will you hit a grand slam or pop out? Your skill determines the outcome in this action packed game with pleasing graphics. For one or two players.

Level II, 16K

\$5.95

SLALOM

Denslo Hamlin

A real time ACTION program! Choose between the Slalom, Giant Slalom or Downhill courses. Be fast, skillful, daring, but don't get hurt — or worse! Your run politely rated at end of course.

Level II, 16K

\$7.95

TEN PIN

Frank Rowlette

High speed graphics superbly presented in this simulation of the great indoor sport. A game of coordination, scoring true to the rules of the sport. Computer tallies for one or two players, records spares, strikes, splits, open frames.

Level II, 16K

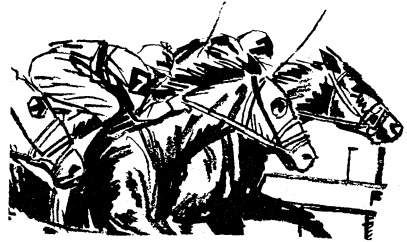
\$7.95

KENTUCKY DERBY

Place your bets and urge your favorite horse (out of the five) on to pounding victory in this exciting race game.

Level I or II, 4K

\$4.95



X-WING FIGHTER

George Blank

Put yourself into the cockpit of an X-Wing fighter! Extensive use of the INKEY\$ function puts all ship's controls at your fingertips without ever hitting ENTER. Long range sensors warn of approaching aircraft prior to visual contact. After sighting, their size increases with their proximity. Realism in Trek-type gaming.

Level II, 16K

\$7.95

STAR TREK III.3

Lance Micklus

One of the most advanced Trek-type computer games ever written! Object is to explore as much of the galaxy as possible, destroy 20 Klingons and locate five Class M planets. Exploration facet of the game gives it a whole new dimension. Extensive use of fast graphics, including 3-D galaxy. See phasers fire, hit Klingons and explode. Hazards include large stars, black holes, and a pulsar which makes space noise in adjacent quarters where Klingons hide. Docking must be precisely controlled to avoid failure or collision. At game's end, you return to Star Fleet Headquarters where collected data is evaluated by ship's computer and your performance rated. Takes about two hours to play a game.

Level II, 16K

\$14.95

DOG STAR

Lance Micklus

You're trapped aboard an enemy battlestar ... can you rescue the princess, find the plans, retrieve the treasure and escape?

Level II, 16K

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ADVENTURES

Scott Adams

Two adventure situations, pirate and land, on one diskette. You'll feel as if you're manipulating HAL, the computer from 2001. **Adventureland**-you wander through an enchanted world trying to recover the 13 lost treasures. You encounter wild animals, magical beings, many perils and puzzles. **Pirate**-Meet the pirate and his daffy bird, see many strange sights, as you attempt to go from a London flat to Treasure Island.

Disk, 32K

\$24.95

ADVENTURES ON TAPE

Scott Adams

Either of the adventures described above available on 16K, Level II tape.

Pirate's Cove Tape

\$14.95

Adventureland Tape

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MISSION IMPOSSIBLE ADVENTURE

Scott Adams

Good morning...your mission is...and so it goes. Will you be able to complete your assignment in time, or is the world's first automated nuclear reactor doomed?

Level II, 16K

\$14.95

SAFARI

David Bohlke

You're in the running for a major film contract at a Hollywood studio. To capture the contract, photograph the largest number of wild animals in their natural surroundings ... that's if your party isn't lost, or doesn't starve to death or lose all its cameras.

Level II, 16K

\$7.95

TREASURE HUNT

Lance Micklus

Explore caves in search of 20 hidden treasures ... some easy, some hard to find because you have to figure out how. The more you play, the more secrets you'll discover and the more treasure will be yours. All the treasures can be found in about an hour of play if you know what you're doing. First problem: draw a map of the caves. Good luck, you'll need it.

Level I or II, 16K

\$7.95

'ROUND THE HORN

George Blank

You're the captain of a clipper ship racing from New York to San Francisco. You must find favorable winds and currents to provide safe and expedient passage around South America through the Straits of Magellan. Superb Graphics.

Level II, 16K

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PORK BARREL

George Blank

Put yourself in the shoes of an aspiring Congressman. Given a breakdown of your constituency by percentages, how would you vote on various sensitive issues? In this simulation, you get to put your vote where your mouth is. Don't worry, the voters in your district will let you know just how they feel!

Level II, 16K

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KAMIKAZE

Russell Starkey

Command your ship against attacking suicide planes. Defend your ship and cargo against fearless enemy pilots. Will you survive to retirement or find yourself adrift in a lifeboat? A live-action game with machine language graphics (plane and ship) for fast-paced excitement and fun. Three levels of play...beginner, amateur and professional.



Level II, 16K

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TRS-80 Software Exchange

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Level II software available on disk for a \$5.00 (per order) medium charge. This extra fee is for any number of programs transferred to disk from tape when you order. If the order exceeds the capacity of a single disk, we absorb the extra cost.

Please state level and memory size on order form ... otherwise, we automatically ship Level II cassettes.

Be sure to include handling charge and any additional charges when figuring your total. All orders shipped within 48 hours.

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Signature.....

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BUS - 80 IS HERE

It costs \$100 for the documentation and/or an additional \$100 for the software on diskette. We highly recommend subscribing to the complete program — documentation PLUS software.

In adopting this approach, we're going straight for the jugular (so to speak)

We anticipate a very competitive market for business software relating to the TRS-80 within the next year, and wish to establish ourselves immediately in a dominant position. In doing so, we are presuming over 1,000 participants in the BUS-80 project. Pricing accordingly, we truly feel BUS-80 will become such a fantastic bargain that few serious businessmen who intend to use a TRS-80 within their enterprise could possibly pass up the value offered. Really, how could you pass this up?

We're sure you must be interested in just what you'll be getting ...

Well, just about everything you need! Within the year, (and probably within six months) you'll receive a disk-based Inventory system — Accounts Receivable system — Accounts Payable system — General Ledger system — Sales — and Payroll.

We're not talking about stripped-down systems

Elements of BUS-80 are already prepared and have been sold individually to satisfied customers for as much as \$150. The Name/Address system requires an entire diskette itself (over 50,000 bytes) with some optional subroutines relegated to another supplementary disk.

Our magazine, SoftSide, has proven it **can** be done: significant software **can** be offered at extraordinary prices, attracting a sufficient following to make the effort profitable.

BUS-80 is not only competitive, it will set the standard by which value is compared. And that standard will be hard to meet.

We would like it understood from the outset that while BUS-80 will deliver a core system for an extremely reasonable price, we'll also be offering other pieces of software for general sale. Usually, BUS-80 participants will be given a discount — in any event, by today's standards, tremendous value will be realized. **The first element of BUS-80 is currently being offered for general sale.** (See pages 52 and 53 for description of Inventory System II.)

That's the pitch — believe it — it's true!

BUS-80

The Business Software People®

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Okay! Sign me up - at this price, I can't go wrong

Documentation ONLY — \$100

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State

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SINK' UM

George Blank

Fire torpedoes ... er, no can do, Captain, the tubes are being reloaded. The problems keep on coming in this arcade level action simulation. To succeed requires careful planning and keen timing. What about the torpedoes ... you'll see!

Level II, 4K **\$4.95**

AIR RAID

Small System Software

High speed machine language program with large and small aircraft flying at different altitudes. Ground-based missile launcher aimed and fired from keyboard. Planes explode when hit, sometimes cause damage to nearby aircraft. Score tallied for hits and misses, saved for challenge by another player.

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BUSINESS

APPOINTMENT LOG

Michael Kelleher

Perfect for the busy professional! Accepts name, addresses, meeting times, records subject matter, derives elapsed time, gives reports.

Level II, 16K **\$9.95**

FILE HANDLING

Circle Enterprises

A must for file handling in BASIC. Lists names in file, search/edit file, record file on cassette. One suggestion for use: record names and telephone numbers, either one then callable by the other.

Level II, 16K **\$9.95**

MAIL LIST I

Michael Kelleher

Economical version of disk-based mailing list programs. Requires only 16K with a single drive — can handle up to 1400 names per disk, plus provisions made for some sorting options.

Disk Only, 16K **\$19.95**

MAIL LIST II

BUS-80-The Business Software People®

Complete mail list package for 32K, dual disk systems. Enter, update, merge, sort, print, mailing labels.

Disk, 32K **\$99.95**

PAYROLL

Stephen Hebbler

Programs included on this diskette are interactive — they ask questions in English and expect answers the same. All data files handled automatically on disk, no tapes are necessary. Comprehensive 24-page manual with step-by-step instructions included in the package.

Disk ONLY **\$59.95**

SMALL BUSINESS BOOKKEEPING

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Compatible with the popular **Dome Bookkeeping Journal** sold in stationery and discount stores all over the country. Simplify record keeping, available with or without journal.

Level I or II, 4K **with journal, \$22.00**
without journal, \$15.00

CASH REGISTER

Roger W. Robitaille, Sr.

Twelve customizable departments, stores up to 300 sale events by department and amount, shows daily sales report and performs cash-out routine. Can be used with screen printer to furnish receipts.

Level I or II, 4K **\$10.00**

ACCOUNTS RECEIVABLE

Michael Kelleher

For any small to medium volume business requiring sophisticated control of accounts receivable. Based on Radio Shack BASIC for DOS 2.1, utilizes random file method of data management. Maintains up to 329 separate ledgers on each clean diskette. Optimum system designed for use with two disk drives, however the system may be used with one drive also.

Disk, 16K **\$59.95**

INVENTORY MODULAR

Roger W. Robitaille, Sr.

Construction of this program permits user to create subroutines customized to his own needs. Allows for inclusion of alpha information and data index code in the form of data statements within the program. 240 stock items can be contained using the full 6 data areas and 2 pieces of alpha information.

Level I or II, 16K **\$20.00**

INVENTORY II

BUS-80-The Business Software People®

Keep current on price increases, low-on-stock items, shrinkage, profit versus loss, with this efficient and prompt method of surveying your inventory levels. Helps you achieve optimum management — can handle up to 1,000 items per clean disk. Complete with documentation.

\$150.00

INVENTORY 2.2

Allows for creation, maintenance and review of over 2,000 items per clean disk. Operates under Radio Shack Disk BASIC, DOS 2.1. Utilizes random files with 6 subrecords per random file buffer, allowing maximum utilization of diskette space.

Disk, 16K **\$59.95**

SPECIAL PURPOSE

MOVING SIGNBOARD

Circle Enterprises

Machine language program designed to use TRS-80 as a display device. User may type in up to a full screen of text, store in memory and then cause it to crawl across the screen in the manner of an electronic marquee. Shades of Times Square!

Level I or II, 4K **\$9.95**

EDUCATOR ASSISTANT

Steve Reisser

Five programs of value to educators. Computes percentage, individual student averages, class averages, standard test scores, final grades. Usable from elementary to post-doctoral levels.

Level II, 16K **\$9.95**

Disk, 32K **\$14.95**

8080-Z80 CONVERSION

Michael Kelleher

Permits you to enter 8080 codings and then returns with the Z80 equivalent. Also stores equivalents in the order entered, for review at later time.

Level II, 16K **\$15.00**

RENUMBER

Lance Micklus

Can renumber a 12K program in only thirty-two seconds! Offers complete user control with respect to which lines are renumbered and how, including all GOSUB's and GOTO's. Runs in 1300 bytes of high memory regardless of program size. **Loads from and operates on either disk- or tape-based programs.** Specify 4, 16, 32 or 48 K version when ordering.

Level II, (specify K) **\$15.00**

Source List **\$20.00**

Disk, all 4 versions on 1 disk **\$25.00**

MACHINE LANGUAGE MONITOR

Small Systems Software

Twenty-two commands interact directly with Z-80 processor. Examine ROM's, test RAM, enter and execute machine language programs, read and write SYSTEM tapes, enter Z-80 breakpoints, symbolic dump disassembles object code, displays Zilog standard mnemonics. Memory may be displayed in HEX or two ASCII formats and can be edited, moved, exchanged, verified, filled, zeroed, tested or searched for one- or two-byte codes. Continuous or one-line at a time memory dumps.

Level I or II, 16K **\$26.95**

THREE MONITORS FOR DISK

Small system Software

Contains three versions on a single disk to load into 16K through 48K TRS-80's with disk systems. Read your TRSDOS into memory using DISK read command, print disassembled listings with the SYMBOLIC dump and printre output command, then modify and rewrite to disk using DISK write command.

\$29.95

CALCULATOR

Roger W. Robitaille, Sr.

Allows the TRS-80 to function as a calculator with one key function codes and the ability to carry totals. The four basic arithmetic functions are included along with the reciprocal, memory storage and retrieval, and reverse sign.

Level I or II, 4K

\$2.95

RPN CALCULATOR

Russell Starkey

Self-documenting calculator program. Makes your TRS-80 function as a programmable calculator with scientific functions: add, subtract, multiply, divide, raise to power, square root, register arithmetic, Pi, kilo-, milli-. With 4-level stack, 100 memories, complete with fail-safe features to guard against user-error.

Level II, 16K

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HAM RADIO

Michael Kelleher

If you're an amateur radio buff, this powerful program can put a lot more fun into your hobby. A few of the features: Amateur Frequency Allocations, Q Signal File, ID Timer, Propagation Forecasting, Log Routine, Callsign, Date RST, Mode, QTH and other information. Permits review of previously recorded log tapes.

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Disk, 32K

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ELECTRONIC ASSISTANT

John Adamson

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Level II, 16K

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Stephen Hebbler

For use by private aviators. Aids in routine checks, fuel consumption predictions, flight plan plotting, determines ETA according to departure time and destination information.

Level II, 16K

\$20.00

KVP EXTENDER

Lance Micklus

Correcting keyboard bounce is only one of the many problems this versatile program addresses. Also corrects upper case lock, permits use as a terminal and more.

Tape

\$24.95

Disk

\$29.95

ST80 SMART TERMINAL

Lance Micklus

Turns your TRS-80 into an intelligent computer terminal. Features include CONTROL key, REPEAT key, ESC key, RUN key and a functioning BREAK key. Also permits listing of incoming data on lineprinter. You can reprogram the RS 232 C switches from the keyboard, making baud rate changes simple.

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BASIC STATISTICS

Steve Reisser

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Don Coons

Versatility in text composition and editing through the use of a non-destructible cursor, graphics capability and interface option with cassette tape or either TRS-80 printer. Commands include: Delete, Insert, ASCII Code, Repeat, Print, Save, Load, Clear, End.

Level II, 4K or 16K

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TEXT-80

Frank Rowlett

Turn your TRS-80 into a word-processing system. Includes features such as cut and paste, delete/insert by character or line, local/global change options, variable tabulation, full cursor control, upper and lower case (with proper hardware) and more... Fully supports disk and line printer. Use in conjunction with KVP and a letter-quality printer for personalized form letters.

Disk, 32K

\$59.95

PERSONAL

TAROT

Frank B. Rowlett, Jr.

Probably the best future-gazing type program ever. Unlike many programs whose appeal wears out quickly, the combination of graphics and presentation leads to continuing use. Try it -- you'll like it!

Level I or II, 16K

\$9.95

BIORHYTHMS

Frank B. Rowlett, Jr.

There is a theory that everyone is subject to a group of life cycles which affect their daily lives. The rates of the cycles are mathematically fixed, and lend themselves to computer analysis. This program unravels those interrelated formulae into a meaningful graphic representation for you to interpret.

Level I or II, 4K

\$4.95

PERSONAL FINANCE

Lance Micklus

This is a 2 program package. Checkbook is used to maintain your checking account and Checkfinder maintains a file of all your cancelled checks. Thirty-three different budgets can be set up to assign each check to. The budget names are in DATA statements at the end of both programs so they may be easily changed by the user to fit his individual needs.

Checkbook includes a test date generator which may be used to demonstrate the program, or to make test runs on the program without the need to use real checks. The menu format makes it easy to change functions, and the program is human engineered to require the least number of keyboard actions. The design of the program is such that human error is minimized. Besides maintaining a balance, the program will justify your account against the bank's monthly statements. There's even a bill estimator to help you decide who gets paid this month.

Checkfinder gets the cancelled checks from a data tape generated by the Checkbook program, and builds a cancelled checks file. It will locate cancelled checks for you and total the amount of all checks found. So, if one of your budgets was alimony, it will locate every alimony check that came back from the bank. Really impresses the IRS. A modified bubble sort will rearrange the file in memory and save it on tape. Checkfinder will store 900 checks in memory on a 16K machine. We assume no liabilities regarding the use of these programs.

Level II, 16K

\$9.95

ADVANCED PERSONAL FINANCE

Lance Micklus

This version includes all the features above PLUS an advanced analysis routine. **Supports Disk Files.**

Disk, 32K

\$24.95

KEYBOARD 80

John Adamson

Plays music on your TRS-80 keyboard. A machine language program which loads with SYSTEM command. Three-octave diatonic scale organ lets you play many of your favorite songs right on the computer's keyboard! Simply load program and plug the "AUX" line into any audio amplifier and play.

Level II, 16K **\$9.95**

HOME FINANCIAL MANAGEMENT

M. D. Kelleher

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Level II, 16K **\$9.95**

BOOKS

SARGON HANDBOOK

Dan & Kathie Spracklen

Complete documentation covering all algorithms in Sargon can be found in this guide book. Contains complete table of contents, block diagram of the program, 4 part introduction, Z-80 listing, index to subroutines. Fully annotated.

\$14.95 + \$1.00

THE BASIC HANDBOOK

Dr. David A. Lien

A definitive reference/idea book. Explains over 50 favorite versions of the BASIC language in detail as used in micros, minis and mainframes. Everything you need to know about the most important statements, functions, operators and commands. From the same author as the TRS-80 Users/Learners Manual.

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Scelbi Publications

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by Frank Rowlett

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