

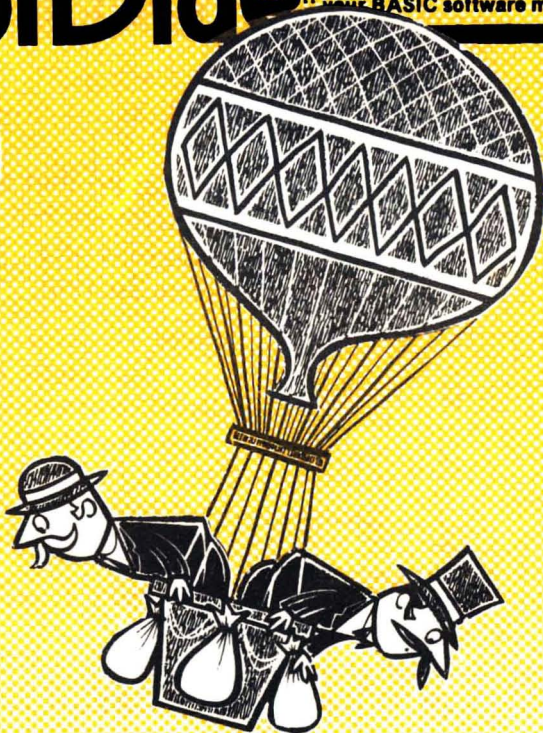
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SoftSide™

TM

June 1979

"YOUR BASIC software magazine"



# ATLANTIC BALLOON CROSSING



# GENERAL LEDGER I

by Michael Kelleher

Designed for application in a small to medium volume business not requiring the implementation of a "double-entry" bookkeeping system.

Capabilities include:

- ✓ Ability to establish, define, delete and sort up to 400 general ledger accounts.
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**TSE TRS-80 Software Exchange**  
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“ your BASIC software magazine ”

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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.

**SoftSide** is published monthly by SoftSide Publications, 17 Briar Cliff Dr. Milford, NH 03055 Telephone: 603-673-5144. Subscription rates: USA bulk rate-\$15 per year. USA first class, APO FPO, Canada, Mexico, overseas surface mail-\$22 per year. Overseas airmail-\$27 per year. **All remittances must be in U.S. funds.** Mail subscription inquiries to: **SoftSide Subscriptions**, PO Box 68, Milford, NH 03055. Entire contents copyright 1979 © SoftSide Publications. All Rights Reserved.

# Outgoing Mail

We're beginning to see a parting of the ways in programming methods which may be significant for our magazine and the TRS-80 Software Exchange in the coming months. The battle lines are drawn between style and program efficiency. On the one hand we have the well commented, easy to read, stylish program that's a joy to print in the magazine and easy to understand and modify. On the other hand we have the tightly written, memory-efficient, high speed program that can really only be sold by the Software Exchange.

The stylists demand well commented, elegantly written programs. A programmer should be able to look at any part of one of their programs and know exactly what is done by that part, and be able to modify it easily. The stylists indent FOR NEXT loops, leave spaces between items, limit themselves to one operation per line, and use variable names that are easy to understand.

The efficiency experts see style as a waste of good memory. With a limited number of bytes in any home computer, they want to make every byte count. Multiple statement lines, unnecessary spaces, and long variable names only fill up memory and slow down the BASIC interpreter. Since the interpreter has to identify every byte, even a space, it takes more time to run a stylish program. This can be important in complex programs, even crucial in graphics routines, especially in animation. The really heavy artillery in the arsenal of the efficiency experts is super graphics.

SoftSide magazine must cast its vote on the side of the stylists. We take our teaching function seriously, and want programs that help others to become good programmers. We also choose programs with an eye to the ease with which they can be adapted to other purposes, like the German program in this issue. Any program that is to be adapted, modified, or changed really ought to be written by a stylist.

Super graphics is a complex method of storing TRS-80 graphics characters in memory using far less memory than SET, POKE, and PRINT graphics, while executing far faster. The basic method is to use a machine language monitor or BASIC routine to modify a print statement in memory to contain graphic characters. This technique is not suited for magazine use, as a listing of the program shows BASIC tokens like CLS, REM, and DEFINT instead of the graphic characters. Such listings

are too confusing in print, but the method gives marvelous graphics, as any user of one of Leo Christopherson's recent programs will attest.

Most people shouldn't side with either the stylists or the efficiency experts all the time. It's far better to have both skills and use the appropriate one. There are some programs in which it's ridiculous to worry about speed or memory. For example, ENTRAPMENT in this issue is one of the most fascinating and fun computer games we've played. Your editor and software editor were tempted to forget about the May issue when we played it! But it uses SET and RESET, does not take a lot of memory, and simply doesn't require the skills of the efficiency expert.

We sympathize with both camps. For SoftSide, we like to have a readable program, with lots of comments that helps our readers modify the programs for their own needs, to find errors, and to understand the program and thereby increase their programming skills. We recognize that comments use extra memory. Lately, we have had difficulties squeezing our programs into the magazine as longer and longer programs have been submitted. The recent issues of SoftSide have had about fifty percent more bytes of program than early issues, and the extra bytes not only fill the memory of your computer, the line listing fills more pages. Most of the reader comment we've received has focused on appreciation of longer programs, and we are trying to meet those demands. However, one long program requires as much space as two or three short programs, and the economics of printing costs and postage limit our pages.

There is another limit to contend with, and this encourages the more compact style of programming. Most of you don't have more than 16K memory. We will not print a program in SoftSide requiring more than 16K, although we're considering programs in which comments go beyond 16K, if the program can be made to fit by omitting them.

There's an even more significant factor splitting the software camps -- graphics. The fastest and most memory-efficient form "Super Graphics", simply cannot be listed in the magazine, yet these fast, efficient graphics are far better from the standpoint of the end user of a completed program.

While SoftSide votes for the stylists, there's a lot of sympathy within the TRS-80 Software Exchange for the efficiency experts. Fast graphics, machine language subroutines, and elaborate programs that use memory efficiently make good games. We want to offer our readers the best of both worlds, and TSE makes that possible.

**GWB**

# Amazin' Maze

by Robert Wallace

Lady Stubbyfingers BEWARE! Robert Wallace has created a romping computer game which leaves lethargic, cucumber-like digital extremities "at the door". AMAZIN' MAZE is a fast paced revamp of Everyman's favorite game book pastime, combining dexterity and patience with a very nice use of graphics, randomness and frustration.

The object? Get through the maze, or course. The catch? Each of the twelve mazes in a game cycle is scored with an increasing level of difficulty, and simultaneously timed more sparingly. The use of the TRS-80 INKEY\$ function allows keyboard selection of movement for your electron escapee (it moves very fast!) to get in and, hopefully, out of one of the three maze exits. Each exit is allocated a point value depending upon its location and each exit value decreases as your time in the maze increases. The time allocation for the first maze is about 90 seconds but, by the time the 12th maze appears, this has been reduced to less than

60 seconds. Although Mr. Wallace frowns upon wasted time, he has heart. As long as your maze-inmate is on the move the time clock is suspended and the maze remains static. But watch out when you stop!

The scores for each player (up to four are allowed) is displayed when, (1) you exit the maze, or (2) you "blow it" time-wise and are penalized 2000 points(!).

Sufficient user instructions are imbedded in the program so you can get started right away. They are well written and straightforward.

This program is "just plain fun" for two or more, but won't fly solo for too long. Nice use of graphics, and a well-designed game plan make AMAZIN' Maze a good TRS-80 romp. Also, take a peek at Bob's coding. He did a very nice job.

So, grab a friend or two and be aMAZEd. (All afflictions are digital, not cerebral!)

MDK

	Great	Good	Fair	B.G.*	Absent
Instructions:	/	/	/	/	/
Program Coding:		X			
Screen Format:		X			
Graphics:		X			*Bat Guano
Peripheral Support	: none required, but bring a friend or two				
Boredom Level	: needs a second body for best results				
Best Age Group	: adolescent to (calm) adult				
Price to Value Ratio	: good				
Bugs/other problems	: none found/minor typo at line 2010				
Overall Rating	: good, clean fun — will not cause cerebral cramping				

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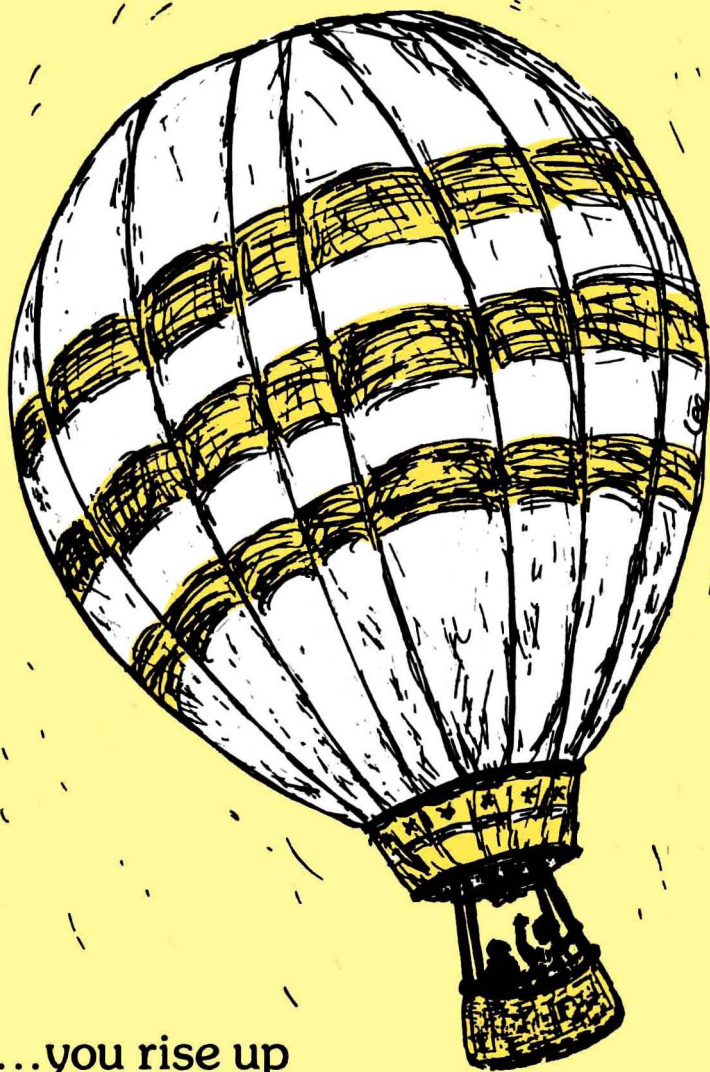
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# WOW Have We Got Our Hands FULL!

## TSE TRS-80 Software Exchange

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Milford, New Hampshire  
03055



“...you rise up  
beyond surface noise  
to silence, and  
become part of the wind...”



**From 1873 until 1978, thirteen attempts to cross the Atlantic by balloon ended in failure. Of these, one burst, two vanished and most of the remaining balloons were ditched at sea. Ballooning is not without its hazards.**

# **ATLANTIC BALLOON CROSSING**

**by Dean Powell**

## **HISTORY**

More than a century before successful manned flight, balloons were the method man used to fulfill his desire to be airborne...this occurred in the latter 1700's, using a lighter than air gas to fill a bag and rise up into the atmosphere.

There has always existed a challenge to cross important bodies of water. The first crossing of the English Channel to France was achieved in 1785. In 1963, Edward Yost and Donald Piccard flew a hot air balloon across the channel. (Yost is among several who attempted the Atlantic crossing, and is the designer and builder of the Double Eagle II, the first balloon

to make a successful Atlantic crossing.)

From 1873 to 1978 there were some 13 unsuccessful attempts to cross the Atlantic by balloon. Of these, one burst, two vanished and most of the others ditched at sea, with five aeronauts dying in their attempts. Ballooning is not without its hazards!!

Among the most successful of these attempts were the Silver Fox, the Double Eagle, and the Zanussi. From these failures came experience and a developing strategy which led to the success of the Double Eagle II in 1978.

## **FLIGHT OF DOUBLE EAGLE II**

The strategy developed that one

could ride a high pressure weather system from the United States to Europe. Such a system moves in a clockwise manner first northeast, then southeast, as it moves across the Atlantic. To go too far north gets you into winds ever more northerly (as happened to the first Double Eagle, which was forced to ditch near Iceland). To go too far south gets you into winds ever more southerly, (as happened to the Silver Fox which ditched near the Azores).

The plan was to climb rapidly to gain good winds, but not too high or the winds would be unfavorable and the balloon might be stressed by the pressures from superheated gas in the low-pressure high altitude. Such stress could cause a leak like the

one which forced the Zanussi down just 110 miles from France.

The balloon would then be maneuvered so that successive days would find increased altitude as the weight was gradually reduced during night ballasting. About one-third of the flight of the Double Eagle II was above fifteen thousand feet. At such altitude, oxygen masks had to be used and the outside temperatures were quite cold.

Vitally important to the effort was the ground crew and the weather information provided throughout the flight. The radio was at times fickle and a relay system using ham operators had to be employed during some of the flight. The information obtained was necessary for staying at the proper altitude range

#### ATLANTIC BALLOON CROSSING

THIS IS A SIMULATION OF THE FLIGHT OF THE DOUBLE EAGLE II ACROSS THE ATLANTIC. SOME 3100 MILES TO A SAFE LANDING NEAR PARIS, FRANCE IN A TIME OF 137 HOURS—ABOUT 6 DAYS.

THIS WAS AN OPEN BASKET, LOW ALTITUDE FLIGHT STARTING AT FRESNO, ISLE MINE, AUG 11, 1978. ALTITUDE MAY WAS 24,950 FT. & ABOUT 1/3 WAS ABOVE 15,000 FT. USING OXYGEN MASKS TO BREATHE. YOU WANT INSTRUCTIONS? ..



for the correct heading through out the flight.

The voyage was not without excitement. A low pressure system following the high carried storm clouds which at times closed in on the balloon but finally turned harmlessly away. The area around Iceland also provided some suspense as ice began forming and weighting down the balloon. Fortunately heat from the morning sun melted that threat away. A down draft and high clouds which screened the sun and cooled the balloon combined to force the balloon down several thousand feet. Careful slow ballasting proved important in keeping the balloon from later rising too high. Above 29,000 feet the balloon automatically valves off gas to prevent undue pressure from building up but this release means that ballast must be dropped to prevent coming down at night.

The balloon sailed correctly due to the careful handling by the crew and of course a bit of good luck. It landed near Paris after traveling some 3,105 miles in 137 hours. The gondola landed carrying the three men and only 250 pounds of usable ballast of the starting 6,000 + pounds. The trip was the culmination of months of planning and successful execution by the crew members, Ben Abruzzo, Maxie Anderson and Larry Newman, supported by an extensive ground crew responsible for communication and weather evaluation.

### **STRATEGY**

Now you can try your skill and

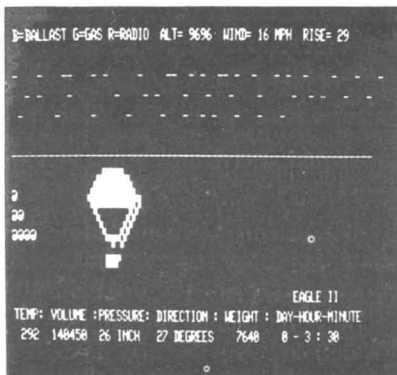
luck in an attempt to sail the Atlantic in a 160,000 cubic foot helium balloon as one of the three most successful balloons against one or two opponents or you may try alone for the record.

Control of a balloon isn't difficult but requires much good sense. You drop off weight to rise higher or more rapidly. Pressure builds within the balloon as the sun heats the gas within and unless some of the gas is released, the balloon may tear or burst. You rise up beyond surface noise to silence and become part of the wind, moving as the wind does.

Descent is equally simple. You release a valve to let off gas until you drop at the desired rate. If the descent rate is too swift, you must ballast carefully to slow your descent. Instruments on board show the altitude and rate of ascent.

Maneuvering may be achieved by changing altitude since the wind varies in speed and direction with altitude. You can thus control your flight by varying your height if you have knowledge of weather conditions, wind speeds and directions at the various altitudes.

You lift off in the early evening with a partially slack balloon holding from 140,000 to 150,000 cubic feet of helium. You may dump ballast by pressing the B to drop 100 pounds at a time. You may valve 1,000 cubic feet of gas by pressing the G. You may try for radio contact by pressing the R to receive a chart of your position on the Atlantic map. Your exact position will be shown



## TRS-80 Program Hint

The Level II Manual doesn't tell you this, but it's very important not to leave a space between the TAB and the ( in a TAB statement. If you do, TAB will be treated as a variable. This is also useful, as TAB makes a nice variable for use with TAB. Here is a program to demonstrate right and wrong use of TAB and the use of TAB as a variable.

```
10 CLS:PRINT
20 FOR TAB=5 TO 10 STEP 5
30 PRINT TAB (TAB)"THIS IS
WRONG"
40 PRINT TAB(TAB) "THIS IS
CORRECT"
50 NEXT
```

Line 20 uses TAB as a simple variable, line 30 uses TAB as an array variable and a simple variable, and line 40 uses TAB as a BASIC statement and a simple variable.

using the X, Y coordinate system of the TRS-80. You will also be given the wind conditions at the various altitudes, and the distance you have covered. Don't count on a radio report every time you try; radio has a funny way of acting up when in an airborne craft!!

You start with 8,640 pounds including a base weight of the gondola, balloon, and the crew of 2,400 pounds. The relative positions of all the balloons will be shown each morning at 6:00 am so your progress can be compared and strategy planned. Your progress and on-board instrument readings will be displayed graphically. You will see the storm front in the following low pressure system if it is closing in, as well as high altitude screening clouds, and the horizon in the distance. Your instruments will give your altitude, rise rate, temperature of the helium in degrees Kelvin (same as Centigrade scale with 0 Centigrade equal to 273 on the Kelvin scale), wind speed, and time since departure in day/hours/minutes. Each turn consists of 12 hours of simulated time and takes about 5 minutes. Each turn will cover alternating cooling (night from 0 to the 12th hour) then heating (day from 12 to the 24th hour) periods of time.

The winner is the player/balloonist who crosses successfully and lands nearest the Paris coordinates of X=104, and Y=22. Your starting point is X=22, Y=22 with Y decreasing as you go north. Your degree heading is positive above the due east 0 degree reading or negative if going southerly. Best of luck!

# BASIC STATISTICS

by Steve Reisser

This powerful set of procedures is of use to students, instructors, behavioral and research scientists — anyone applying statistical formulae.

**FISHER T-TEST    PEARSON PRODUCT-MOMENT  
CORRELATION COEFFICIENT**

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**CHI-SQUARE    SIMPLE ANALYSIS OF VARIANCE**

**RANDOM NUMBER GENERATOR    RANK-ORDER DATA**

The basic formulae for these major procedures were derived from the textbook, *Elementary Statistics*, by Janet T. Spencer, Benton J. Underwood, Carl P. Duncan, and John W. Cotton. Appleton-Century-Crofts Psychology Series, New York, 1968.

**Level II, 16K**  
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```

0 *****
  * *   SOFTSIDE PRESENTS   * *
  * *  BALLOON RACE      * *
  * *   BY DEAN POWELL    * *
  *****

1 'ATLANTIC BALLOON CROSSING 3.3
2 'DEAN'S GAMES, 2222 20TH, LUBBOCK, TX 79411
5 CLEAR: DIMWA(31): DIMD(31): X$="X": Y$="Y": DIMWT(24): DIMS(24): FO
RA=1T03: X(A)=22: Y(A)=22: B(A)=8640: NEXT
10 CLS: PRINT "ATLANTIC BALLOON CROSSING
THIS IS A SIMULATION OF THE
FLIGHT OF THE DOUBLE EAGLE II
ACROSS THE ATLANTIC, SOME
3105 MILES TO A SAFE LANDING
NEAR PARIS, FRANCE IN A TIME
OF 137 HOURS—ABOUT 6 DAYS."
20 PRINT: PRINT "THIS WAS AN OPEN BASKET, LOW
ALTITUDE FLIGHT STARTING AT
PRESQUE ISLE MAINE AUG11, 1978.
ALTITUDE MAX WAS 24,950 FT &
ABOUT 1/3 WAS ABOVE 15,000 FT
USING OXYGEN MASKS TO BREATHE"
80 Z=100: FORT=0T05: S(T)=Z: Z=Z-20: NEXT: Z=0: FORT=10T021: S(T)=Z: Z=Z
+10: : NEXT: FORT=22T024: Z=Z-10: S(T)=Z: NEXT: GOSUB8000: GOT0111
105 X(U)=X: Y(U)=Y: AL(U)=AL: B(U)=B: IFH1=1 THENH(U)=0
106 PRINT@832, "12 HR TURN IS OVER—YOU'VE GONE "; TD(U); "MILES": FO
RI=1T03000: NEXT: GOT0115
111 INPUT "YOU WANT INSTRUCTIONS"; A$: IF LEFT$(A$, 1) = "Y" GOT010000
112 CLS: INPUT "HOW MANY PLAYING (1-3)"; UP: IF UP > 3 GOT0112 ELSE FORA=1
TOUP: AL(A)=100: PRINT "VOLUME (140000-160000 CUBIC FEET) FOR BALLO
ON #"; A: INPUT Z: V(A)=Z: IF Z > 160000 PRINT "TOO MUCH: VOLUME=150000":
V(A)=150000
113 IF Z < 140000 PRINT "TOO LITTLE: VOLUME=140000": V(A)=140000
114 A$(1) = "EAGLE II": A$(2) = "ZANUSSI": A$(3) = "SILVER FOX": PRINT "YO
UR NAME—"; A$(A): NEXTA: FORI=1T02000: NEXT
115 U=U+1: IF U > THENU=1: D5=D5+1: DA=INT(D5/2): H1=H1+1: IFH1=2 THENH
1=0: HR=0 ELSE GOSUB9000: FORI=1TOUP: B2=INT(Y(I)/3)*64+INT(X(I)/2): P
RINT@82, I: PRINT@704, "THE NUMBER "; I: " MARKS THE CURRENT POSITIO
N FOR BALLOON # "; I: PRINT: PRINT: PRINT: FORI1=1T01000: NEXTI1: NEXT
I

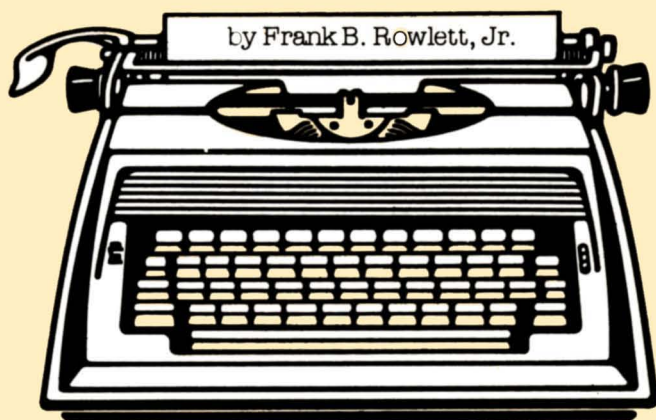
```

```

116 IF(AL(1)=0)AND(AL(2)=0)AND(AL(3)=0)GOTO50000
117 HR=H(U):IFAL(U)=0CLS:PRINTA$(U); " IS DOWN! NEXT!":FORI=1TO2
000:NEXTI:GOTO115
120 CLS:PRINT:PRINT:PRINTA$(U); "WEATHER REPORT COMING ... "
300 'WIND
310 W=RND(5)+2
320 FORT=0T05:WT(T)=RND(5)+3:NEXT:FORT=6T011:WT(T)=RND(5):NEXT:F
ORT=12T017:WT(T)=RND(5)+3:NEXT:FORT=18T023:WT(T)=RND(7)+4
330 D1=RND(9)-6:FORA=0T04:D(A)=D1:NEXT:D1=RND(5):FORA=5T09:D(A)=
D1:NEXT:D1=RND(5)+8:FORA=10T014:D(A)=D1:NEXT:D1=RND(5)+13:FORA=1
5T019:D(A)=D1:NEXT:D1=RND(9)+19:FORA=20T030:D(A)=D1:NEXT
340 W1=RND(15)-8:FORA=0T04:WA(A)=W1:NEXT:W1=RND(5)+5:FORA=5T09:W
A(A)=W1:NEXT:W1=RND(6)+8:FORA=10T014:WA(A)=W1:NEXT:W1=RND(7)+9:F
ORA=15T019:WA(A)=W1:NEXT:W1=RND(5)+13:FORA=20T030:WA(A)=W1:NEXT
500 X=X(U):Y=Y(U):V=Y(U):B=B(U):AL=AL(U)
510 'TURN
511 CL=1-RND(0)*.3:H=H+.5:IFH>12THENH=0:H(U)=12:GOTO105
516 Y(U)=Y(U)-RP(U)
519 'TEMP
520 CT=280+RND(9)+CL*5(HR)-(3*AL/1000)
524 'PRESSURE
525 P=30*(1-.000015*AL)
529 'VOL, LIFT, &RISE@TEMP&PRES
530 CV=Y(U)/12*CT/P:IFCV>160000THENCV=160000:IFRND(0)>.9PRINT@83
2;"* A LEAK *";RP(U)=RP(U)+RND(300):FORI=1TO2000:NEXT
535 L=.07*CV*(1-.015*AL/1000)
536 AR=(L-B-IC)/(B+IC)*250
539 'WIND:DIR,SPD(ALT,TIME,POS1)
540 CW=W+20-Y+WT(HR)+WA(INT(AL/1000)):IFF=9THENF=0:RETURN
541 D=D(INT(AL/1000))+53-X+18-Y:IFF=9THENF=0:RETURN
545 IFINT(H)=0GOSUB9000:GOSUB9995
560 J=COS(D*.0174533)*CW:X=X+J/70:MF=CW/20:TD(U)=TD(U)+CW/2
569 'ICE
570 IF(V<15)AND(CT<273)THENIC=IC+273-CT
571 IF(IC<0)AND(CT<273)THENIC=IC-CT+273:IFIC<0THENIC=0
656 K=5IN(D*.014533)*CW:Y=Y-K/120
1960 IFAL<=0GOTO20000
7000 'SMALL BALLOON
7001 CLS:IFRND(0)>.7GOSUB30000

```

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```

7002 IFCL< 9PRINT@128, "- - - - -"
- - - - -
- - - - -
7003 IFCL< 8PRINT@128, "=== ==- - = - = - - - -"
- - - - -
= = = == == == == - == - -== == == == -== -
- - - - -
7004 PRINT@880, A$(U)
7006 S1=15363+(10-INT(AL/2500))*64:IF51<15360THEN S1=15363ELSEIF5
1>16028GOTO20000
7008 FORZ=1TO10:XC=XC+MF:M=M+3:S=S1+INT(XC*.3):AL=AL+AR*3:IFAL<
=0THENZ=10
7010 PRINT@0, "B=BALLAST G=GAS R=RADIO ALT=";INT(AL);" WIND=";IN
T(CW);"MPH RISE=";INT(AR);
7020 PRINT@896, "TEMP: VOLUME :PRESSURE: DIRECTION : WEIGHT : DAY
-HOUR-MINUTE";
7025 PRINT@960, INT(CT); :PRINTTAB(5)INT(CV); :PRINTTAB(13)INT(P)"I
NCH"; :PRINTTAB(23)INT(D); "DEGREES ";INT(B+IC); :PRINTTAB(45)DA;
"-";HR; " ";M;
7050 PRINT@384, "-----"
-----";
7090 S0=S-15362:PRINT@50, " ";
7100 POKES+1,160:POKES+2,188:POKES+3,191:POKES+4,191:POKES+5,191
:POKES+6,189:POKES+7,180:S=S+64:PRINT@5-15363, " ";:POKE
S,136:FORI=S+1TO5+7:POKEI,191:NEXT:POKES+8,157:POKES+9,148:S=S+6
4:PRINT@5-15362, " ";
7150 POKES+1,130:POKES+2,164:POKES+6,160:POKES+7,166:POKES+8,134
:S=S+64:PRINT@5-15360, " ";:POKES+3,137:POKES+4,172:POKES+
5,140:POKES+6,153:POKES+7,129:S=S+64:PRINT@5-15360, " ";:P
OKES+3,168:POKES+4,188:POKES+5,156
7940 A$=INKEY$:IFA$="B"THENB=B-100ELSEIFA$="G"THENV(U)=V(U)-1000
ELSEIFA$="R"THENIFRND(0)>.8GOSUB9000:GOSUB9995:CLSEELSEPRINT@750,
"NO RADIO CONTACT";
7947 IFB<2400PRINT@800, "BALLAST GONE!!";:B=2400
7950 NEXTZ
7960 IFAL<0THENAL=0:GOTO20000
7990 G9=G9+1:IFG9>1THEN G9=0:XC=0:M=0:HR=HR+1
7991 IFAL>28500THENV(U)=V(U)-10000:PRINT@800, "TOO HIGH-VENT OPEN
";:IF(AL>30000)AND(CV=16000)PRINT@800, "/R/I/P/ IN BALLOON";:RP<
U)=1000

```

7999 GOTO511  
 8000 'BALLOON  
 8050 B=15391  
 8100 FORJ=1TO16:FORI=BTOB+29:POKEI,191:NEXTI:B=B+64:NEXTJ:B=1539  
 2  
 8200 FORI=B+10TOB+16:POKEI,188:NEXT:POKEB+9,179:POKEB+17,179:POK  
 EB+18,155:POKEB+8,167:POKEB+7,143:POKEB+19,143:POKEB+6,159:POKEB  
 +20,175:B=B+64  
 8250 POKEB+3,143:POKEB+4,179:POKEB+5,188:POKEB+6,190:POKEB+20,18  
 9:POKEB+21,188:POKEB+22,179:POKEB+23,143:B=B+64  
 8300 POKEB+1,159:POKEB+2,185:POKEB+24,182:POKEB+25,175:B=B+64  
 8350 POKEB,167:POKEB+1,190:POKEB+25,189:POKEB+26,155:POKEB+27,14  
 3:B=B+64  
 8400 POKEB,170:POKEB+26,149:POKEB+27,128:B=B+64  
 8450 POKEB,189:POKEB+1,155:POKEB+25,167:POKEB+26,150:POKEB+27,16  
 8:B=B+64  
 8500 POKEB+2,182:POKEB+3,175:POKEB+23,159:POKEB+24,185:POKEB+25,  
 159:POKEB+26,160:B=B+64  
 8550 POKEB+3,189:POKEB+4,144:FORI=B+5TOB+21:POKEI,128:NEXT:POKEB  
 +22,160:POKEB+23,190:POKEB+24,135:POKEB+25,184:B=B+64  
 8600 POKEB+5,180:FORI=B+6TOB+20:POKEI,128:NEXT:POKEB+21,184:POKE  
 B+22,159:POKEB+23,161:POKEB+24,190:B=B+64  
 8650 POKEB+6,189:POKEB+7,144:FORI=B+8TOB+18:POKEI,128:NEXT:POKEB  
 +19,160:POKEB+20,190:POKEB+21,135:POKEB+22,184:B=B+64  
 8700 POKEB+8,180:FORI=B+9TOB+17:POKEI,128:NEXT:POKEB+18,184:POKE  
 B+19,159:POKEB+20,161:POKEB+21,190:B=B+64  
 8750 POKEB+9,189:POKEB+10,144:FORI=B+11TOB+15:POKEI,128:NEXT:POK  
 EB+16,160:POKEB+17,190:POKEB+18,135:POKEB+19,184:B=B+64  
 8800 POKEB+11,180:POKEB+12,128:POKEB+13,128:POKEB+14,128:POKEB+1  
 5,184:POKEB+16,159:POKEB+17,161:POKEB+18,190:B=B+64  
 8850 POKEB+12,157:POKEB+13,128:POKEB+14,174:POKEB+15,135:POKEB+1  
 6,184:B=B+64  
 8900 POKEB+10,135:POKEB+11,167:POKEB+12,158:POKEB+13,139:POKEB+1  
 4,189:POKEB+15,155:POKEB+16,139:B=B+64  
 8950 FORI=B+10TOB+13:POKEI,48:NEXT:POKEB+17,184:POKEB+14,128:POK  
 EB+15,168:POKEB+16,136:RETURN  
 9000 'MAP  
 9050 A=15360:CLS:FORI=ATOR+9:POKEI,191:NEXT:POKEA+10,145:POKEA+1  
 2,176:POKEA+14,129:POKEA+15,188:POKEA+16,191:POKEA+17,151:POKEA+  
 18,129:POKEA+24,140:POKEA+25,178:FORI=A+26TOR+37:POKEI,191:NEXT:  
 POKEA+38,176:POKEA+39,179:POKEA+50,160:POKEA+59,184

9055 POKER+60, 188:FORI=A+61TOR+63:POKEI, 191:NEXT:A=A+64  
9100 FORI=ATOR+4:POKEI, 191:NEXT:FORI=A+24TOR+32:POKEI, 191:NEXT:F  
ORI=A+58TOR+63:POKEI, 191:NEXT  
9105 POKER+5, 159:POKER+6, 163:POKER+7, 176:POKER+8, 144:POKER+10, 16  
0:POKER+11, 176:POKER+12, 176:POKER+13, 184:POKER+14, 180:POKER+15, 1  
90:POKER+16, 143:POKER+17, 171:POKER+18, 157:POKER+19, 132:POKER+23,  
168:POKER+33, 159  
9110 POKER+34, 139:POKER+35, 129:POKER+36, 130:POKER+37, 129:POKER+5  
6, 160:POKER+57, 190:A=A+64  
9200 POKER, 191:FORI=A+25TOR+28:POKEI, 191:NEXT:FORI=A+56TOR+60:PO  
KEI, 191:NEXT:POKER+63, 191:POKER+1, 143:POKER+2, 131:POKER+6, 131:PO  
KER+13, 130:POKER+14, 175:POKER+15, 155:POKER+16, 135:POKER+24, 175:P  
OKER+29, 159  
9205 POKER+30, 131:POKER+31, 129:POKER+38, 138:POKER+41, 189:POKER+4  
2, 191:POKER+43, 132:POKER+55, 176:POKER+61, 143:POKER+62, 179:POKER+  
39, 191:POKER+40, 191:A=A+64  
9300 FORI=A+10TOR+12:POKEI, 191:NEXT:POKER+27, 191:FORI=A+55TOR+58  
:POKEI, 191:NEXT:POKER+62, 191:POKER+63, 191:POKER, 149:POKER+9, 190:  
POKER+13, 156:POKER+15, 160:POKER+16, 144:POKER+24, 138:POKER+25, 175  
:POKER+26, 159  
9305 POKER+28, 135:POKER+46, 136:POKER+53, 184:POKER+54, 190:POKER+5  
9, 151:A=A+64  
9350 FORI=A+9TOR+12:POKEI, 191:NEXT:POKER+58, 191:POKER, 189:POKER  
+1, 188:POKER+2, 176:POKER+13, 188:POKER+14, 188:POKER+15, 190:POKER+  
16, 189:POKER+47, 168:POKER+48, 148:POKER+49, 144:POKER+53, 138:POKER  
+54, 143:POKER+55, 135:POKER+56, 139:POKER+57, 187:POKER+59, 135  
9355 POKER+62, 144:POKER+63, 140:A=A+64  
9400 FORI=ATOR+4:POKEI, 191:NEXT:FORI=A+8TOR+15:POKEI, 191:NEXT:PO  
KER+55, 191:POKER+62, 191:POKER+63, 191:POKER+5, 181:POKER+7, 190:POK  
ER+16, 189:POKER+17, 188:POKER+18, 188:POKER+45, 184:POKER+46, 180:PO  
KER+48, 143:POKER+49, 181:POKER+54, 178:POKER+59, 176  
9405 POKER+60, 176:POKER+61, 186:A=A+64  
9450 FORI=ATOR+16:POKEI, 191:NEXT:FORI=A+48TOR+63:POKEI, 191:NEXT:  
POKER+5, 188:POKER+6, 190:POKER+13, 143:POKER+14, 143:POKER+17, 143:P  
OKER+18, 175:POKER+19, 129:POKER+44, 136:POKER+45, 143:POKER+46, 131:  
POKER+47, 136:POKER+50, 141:POKER+52, 184  
9455 POKER+53, 190:POKER+51, 128:A=A+64  
9500 FORI=A+5TOR+12:POKEI, 191:NEXT:FORI=A+51TOR+63:POKEI, 191:NEX  
T:POKER, 188:POKER+1, 176:POKER+2, 155:POKER+3, 143:POKER+4, 175:POKE  
R+13, 179:POKER+17, 140:POKER+18, 141:POKER+19, 140:POKER+20, 144:POK  
ER+47, 136:POKER+48, 172:POKER+49, 188

9505 POKEA+50, 190:A=A+64

9550 FORI=ATOR+9:POKEI, 191:NEXT:FORI=A+50TOR+63:POKEI, 191:NEXT:P  
OKEA+3, 152:POKEA+4, 143:POKEA+5, 179:POKEA+6, 179:POKEA+10, 135:POKE  
A+11, 131:POKEA+12, 131:POKEA+14, 131:POKEA+13, 140:POKEA+15, 129:FOR  
I=A+45TOR+48:POKEI, 176:NEXT:POKEA+49, 186

9555 POKEA+52, 159:POKEA+53, 175:POKEA+55, 143:POKEA+56, 175:POKEA+5  
7, 182:POKEA+58, 147:POKEA+59, 143:A=A+64

9600 FORI=ATOR+5:POKEI, 191:NEXT:FORI=A+45TOR+49:POKEI, 191:NEXT:P  
OKEA+63, 191:POKEA+6, 159:POKEA+7, 131:POKEA+8, 131:POKEA+33, 160:POK  
EA+44, 136:POKEA+50, 159:POKEA+51, 131:POKEA+52, 129:POKEA+55, 188:PO  
KEA+57, 130:POKEA+58, 139:POKEA+59, 173

9605 POKEA+60, 172:POKEA+61, 130:POKEA+62, 175:A=A+64

9650 FORI=ATOR+5:POKEI, 191:NEXT:POKEA+5, 143:POKEA+35, 129:POKEA+4  
6, 130:POKEA+47, 179:POKEA+48, 131:POKEA+49, 177:FORI=A+51TOR+56:POK  
EI, 188:NEXT:POKEA+59, 130:POKEA+63, 131

9965 PRINT@704, A\$(U); " BALLOON #"; U; "CURRENT POSITION "; X\$; X; Y\$;  
Y

9975 PRINT"ALTITUDE=            GROUND    5000    10000    15000  
20000+"

9981 I1=CW:I2=D:I=AL:PRINT"AVG WIND= ";:FORAL=0T020000STEP5000:F  
=9:GOSUB540:PRINT"            ";INT(CW):NEXT

9985 PRINT@896, "DIRECTION=";:FORAL=0T020000STEP5000:F=9:GOSUB541  
:PRINT"            ";INT(D):NEXT:AL=I:CW=I1:D=I2

9990 PRINT@964, "HEADING SHOULD BE ";INT((64-X)/1.4-22+Y); " TOT  
AL MILES=";TD(U);:RETURN

9995 POKE15860, 80:POKE15819, 80:B1=INT(Y/3)\*64+INT(X/2):PRINT@81,  
"?::FORI=1T04000:NEXT:RETURN

10000 CLS:PRINT@0, "BETWEEN 1873 AND 1978, SOME 14 BALLOONS HAVE  
MANAGED TO GET

AIRBORNE IN AN ATTEMPT TO CROSS THE ATLANTIC. MOST HAD TO DITCH  
AT SEA, 1 BURST IN MIDAIR, 2 VANISHED, OTHERS WERE FORCED DOWN  
BY UNFAVORABLE CONDITIONS--";

10010 PRINT"WINDS SHIFTING NORTH, SOUTH OR EVEN

REVERSING ALTOGETHER; OR LOSS OF GAS BY TEARS OR VALVING. IN ALL  
SOME 5 AERONAUTS DIED. THE HAZARDS ARE MANY.

FROM THESE ATTEMPTS, A SUCCESSFUL STRATEGY DEVELOPED. ";

10020 PRINT" BY GOING

ACROSS WITH A HIGH PRESSURE WEATHER SYSTEM, YOU CAN FOLLOW ITS  
WINDS IN A CLOCKWISE ROTATION FIRST NORTHEAST THEN SOUTHEAST TO  
LAND IN EUROPE. THE WINDS VARY WITH ALTITUDE AND POSITION SO  
THAT YOU MUST STAY IN THE";

10030 PRINT "GROOVE OF CORRECT ALTITUDE. TO GO TOO HIGH OR TOO LOW FOR VERY LONG WILL CARRY YOU OFF COURSE--NORTH IF YOU ARE TOO HIGH AND SOUTHWARD IF YOU ARE TOO LOW. THE MORE OFF COURSE YOU GET, THE MORE DIFFICULT IT IS TO RECOVER. "

10035 A\$=INKEY\$:IFA\$="GOTO10035

10036 CLS:PRINT "YOUR TRIP STARTS IN THE EVENING AT 6PM WHEN THE COOLING PERIOD

BEGINS. BY DOING THIS THE BALLOON DOES NOT RISE TOO FAR NOR DO YOU HAVE TO DROP MUCH BALLAST TILL THE COOLING PERIOD THE NEXT DAY. COVERING 500 MILES";

10037 PRINT "/DAY IS A GOOD RATE AND WILL GET YOU OVER IN GOOD TIME. IT'S POSSIBLE TO GO ACROSS FASTER--SET A RECORD!!":INPUT A\$

10040 CLS:PRINT "ASCEND OR DESCEND TO MAINTAIN A FAVORABLE COURSE BY RELEASING BALLAST TO ASCEND OR VALVING GAS TO DESCEND. YOU MAY RELEASE

BALLAST BY PRESSING THE B KEY. THIS ";

10050 PRINT "DROPS 100 LBS AND IS

RECORDED ON THE INSTRUMENTS YOU HAVE ON BOARD. TO RELEASE GAS YOU PRESS G AND 1000 CUBIC FEET IS RELEASED. YOU START WITH A 140000-150000 CUBIC FT VOLUME IN A 160000 CUBIC FT BALLOON AS IS DETERMINED BY YOUR STRATEGY--";

10052 PRINT "MORE VOLUME MEANS FASTER RISE & TO HIGHER LEVEL. BEWARE OF MAX VOLUME AS YOU MAY CAUSE LEAKS. "

10060 PRINT "IF YOU CLIMB ABOVE 28,000 FT YOUR BALLOON AUTOMATICALLY VALVES OFF 10000 CUBIC FEET TO PREVENT UNDUE PRESSURE AND BURSTING OF THE BALLOON. YOUR BASE WEIGHT IS 2400 LBS AND YOU CANNOT GO BELOW THIS WITHOUT CUTTING OFF YOUR";

10070 PRINT "GONDOLA AND RIDING ON THE WEIGHT RING--VERY PRECARIOUS!! ";

10080 PRINT "YOU MAY ALSO RADIO FOR YOUR EXACT POSITION AND THE WEATHER--WIND AND WIND DIRECTION FOR THE VARIOUS ALTITUDES BY PRESSING THE R BUT YOU WILL NOT ALWAYS RECEIVE A

REPORT AS THE RADIO MAY NOT WORK WHEN NEEDED":INPUT A\$:CLS

10090 PRINT "THE SUCCESSFUL STRATEGY WAS TO RISE ABOVE 5000 FT QUICKLY TO GET GOOD WIND, BUT NOT TOO HIGH OR THE DIRECTION WOULD BE TOO FAR

NORTH. TRY TO MAINTAIN A FAIRLY LEVEL COURSE. IF YOU GET TOO FAR NORTH YOU WILL GET ICE FORMING WHEN";

10091 PRINT "THE TEMPERATURE IS LOW,

BELOW 273 ON THE KELVIN SCALE--THIS IS THE TEMPERATURE GIVEN ON YOUR GURGE. YOU WILL ALSO FIND MORE WIND WITH INCREASED HEIGHT":INPUT A\$:CLS

10092 PRINT"THE LIFT OF THE BALLOON IS DUE TO THE DISPLACEMENT OF AIR. THIS AIR IS THINNER AT HIGHER ALTITUDE SO THE LIFT DECREASES, BUT THE PRESSURE BEING LESS CAUSES THE GAS WITHIN THE BALLOON TO EXPAND TO A GREATER VOLUME. THE BALLOON EXPANDS WITH INCREASE";

10093 PRINT" IN THE TEMPERATURE AND SHRINKS WITH A DECREASE. TEMPERATURE DECREASES WITH ALTITUDE AT 7 DEGREES/1000. THE COMPUTER DOES THE COMPLEX CALCULATIONS FOR YOU. YOU WILL GAIN UNDERSTANDING AS YOU PLAY SO THAT THE PROPER COMBINATION OF EXPERIENCE,";

10094 PRINT" WEATHER, AND A BIT OF LUCK WILL LEAD TO A SUCCESSFUL CROSSING. FOR THE GAME A WINNER

IS THE ONE LANDING NEAREST PARIS AT X=104, Y=22 SAFELY. STARTING COORDINATES ARE X=22, Y=22 AND THE STANDARD TRS-80 SYSTEM IS Y=80 AT THE TOP";

10095 PRINT" INCREASING TO 47 AT THE BOTTOM OF THE DISPLAY WITH X INCREASING AS YOU MOVE EAST (RIGHT). TO BE SAFE YOUR IMPACT MUST BE LESS THAN 100 FEET/MIN LOSS OF ALTITUDE OR YOU MAY BE HURT ON IMPACT. "; INPUT A\$:CLS

10096 PRINT"YOUR INSTRUMENTS INCLUDE YOUR CURRENT VOLUME INCLUDING EFFECT OF PRESSURE AND TEMPERATURE, THE BAROMETRIC PRESSURE AT PRESENT

ALTITUDE IN INCHES OF MERCURY, THE WIND SPEED IN MPH, THE DIRECTION OF THE WIND IN DEGREES WITH POSITIVE ANGLE IF MOVING"

10097 PRINT"NORTHEAST AND MINUS IF SOUTHEAST, YOUR CURRENT WEIGHT IN LBS

INCLUDING BALLAST AND BASE WEIGHT (FABRIC, PEOPLE & CATAMARAN STYLE GONDOLA), ELAPSED TIME IN DAYS HOURS MINUTES. THERE WERE THREE PEOPLE ON BOARD THE DOUBLE EAGLE II. GOOD LUCK!!

10099 INPUT A\$:GOTO 112

20000 'TOUCHDOWN

20001 AR=-AR:CLS:IF AR<30PRINT"PERFECT LANDING AT ";X,Y:GOTO 20090

20010 IF AR<60PRINT"LANDING A BIT ROUGH":GOTO 20090

20020 IF AR<100PRINT"OOOOOFFFFF!!! YOU'RE DOWN BUT A BIT SHAKEN!!":GOTO 20090

20030 IF AR>100PRINT"\* \* \* C R A S H !! \* \* \* YOU C L U T Z \$#%&

20040 IFRND(0)>.8PRINT"YOU BROKE YOUR LEG!!":GOTO 20090

20050 IFRND(0)>.7PRINT"YOU SPRAINED YOUR ANKLE!!":GOTO 20090

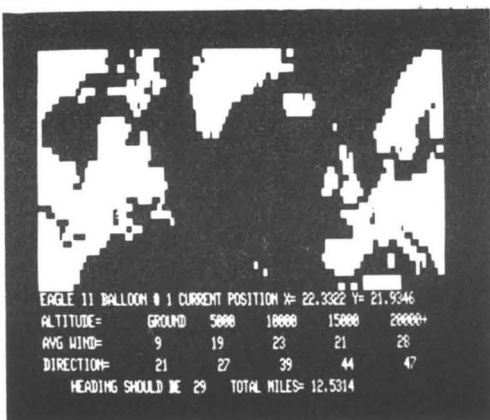
20060 PRINT"YOU HAVE THE WIND KNOCKED OUT OF YOU AND ARE BEING DRAGGED BY THE BALLOON AS YOU HANG OVER THE SIDE!

20090 PRINT"AND THIS IS WHERE YOU ENDED UP " :FOR I=1

```

T0200:NEXT:GOSUB9000
21000 'WHERE, SAVE FINAL STATS
22000 IFPOINT(X,Y)=-1PRINT@768,"YOU'RE ON LAND!":GOTO22300
22100 PRINT@768," S P L A S H, YOU'RE IN THE DRINK!!":FORI=1T020
00:NEXT
22250 IFRND(0)>.8PRINT$(U);" LOST AT SEA":GOTO22300
22260 IFPOINT(X,Y)=0PRINT"A PASSING BOAT PICKED YOU UP
22300 FORI=1T01500:NEXT:GOSUB9995:FORI=1T02000:NEXT:TT(U)=DA*24+
HR+M/60:X(U)=X:Y(U)=Y:AL(U)=0:G9=0:XC=0:M=0:H=0:GOTO115
30000 PRINT@512,"eeeeeeeeeeeeee
eeeeeeeeeeeeeeeeee
0000";
                                     The [ symbols in this listing should be read
                                     as ↑ or "raise to the power"
31000 RETURN
50000 'END
50100 CLS:PRINT"FINAL POSITIONS
";:FORI=1TOUP:PRINT"BALLOON #";I;"TIME=";TT(I):PRINT"TOTAL DISTA
NCE=";TD(I):PRINT"END POSITION":PRINTX$;X(I);Y$;Y(I):D=50R(ABS(X
(I)-104)(2+ABS(Y(I)-22)(2)*30:PRINT"DISTANCE TO PARIS=";D:NEXTI:
GOSUB8000:INPUT$:END

```



# TAKE A PART:

## Atlantic Balloon Crossing

The POKE graphics handling routine in the map routine for Atlantic Balloon Cross is convenient to program, read, and debug. The method is to use a variable to indicate the start of the video display memory (memory location 15360), and then POKE the appropriate graphic characters into the display memory one line at a time. At the end of each line (64 spaces), you add 64 to your variable to get to the beginning of the next line.

This is illustrated by line 9050 of Atlantic Balloon Cross. A is used as the POKE variable and is initially set to 15360. Then the top line of the map is POKED directly into the screen memory, using FOR NEXT loops for repeated characters. This is continued in line 9055. Then the last statement of line 9055,  $A = A + 64$ , sets the graphic variable to the start of the next line. This process is continued through the program.

This is one of the best methods of presenting graphics in the magazine. POKE graphics are much faster than SET graphics, and easier to read and debug than PRINT graphics. There is a compromise in speed over PRINT graphics, which are excellent for short displays, but the ease of modification and excellence of presentation are worthwhile.

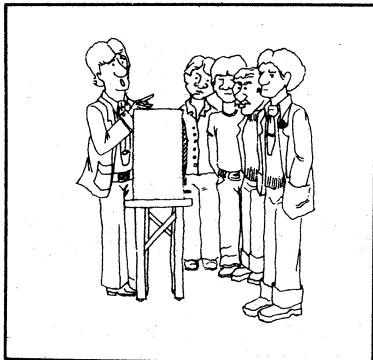
```
9000 'MAP
```

```
9050 A=15360:CLS:FORI=ATO+9:POKEI,191:NEXT:POKEA+10,145:POKEA+1  
2,176:POKEA+14,129:POKEA+15,188:POKEA+16,191:POKEA+17,151:POKEA+  
18,129:POKEA+24,140:POKEA+25,178:FORI=A+26TOA+37:POKEI,191:NEXT:  
POKEA+38,176:POKEA+39,179:POKEA+58,160:POKEA+59,184
```

```
9055 POKEA+60,188:FORI=A+61TOA+63:POKEI,191:NEXT:A=A+64
```

```
9100 FORI=ATO+4:POKEI,191:NEXT:FORI=A+24TOA+32:POKEI,191:NEXT:F  
ORI=A+58TOA+63:POKEI,191:NEXT
```





# THE HARD SIDE OF SOFTSIDE ?

Recently, some people have expressed doubts about the practical value of the 'home' computer; others claim that the microcomputer has little worth as a business machine. Most of the controversy stems from a claimed lack of software — the hardware, it is said, has the potential to do wondrous things if only the programs were available. Although we are the nation's largest independent source of software for the TRS-80, we can see both sides. Even though many of those "wondrous" programs are now available, we agree that, at this time, not everyone can fully utilize a computer. Undoubtedly, a few people who bought TRS-80s were unhappy with them; others may have upgraded to a bigger computer. On the other hand, there are many who desire a TRS-80 but cannot afford one. **HARDSIDE** has been conceived as a means of satisfying both sides by providing a market place for the purchase and sale of used TRS-80s. Accordingly, we present a list of prices for used TRS-80 equipment in good condition:

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Level II 16K* keypad		\$525	\$675
Expansion Interface	0K	\$175	\$225
	16K	\$225	\$300
	32K	\$275	\$375
Disk Drives	0	\$250	\$399
	1	\$225	\$375
Printers	Friction feed	\$650	\$800
	Tractor feed	\$750	\$900
	Quick Printer	\$250	\$325
RS-232C		\$ 50	\$ 75
Telephone Int. I		\$ 50	\$ 75
Telephone Int. II		\$100	\$150

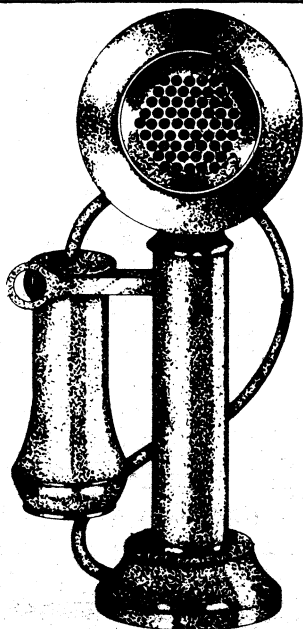
†Subject to availability  
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 \*Keyboard, cassette, video and power supply

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**B**  
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**O**  
**R**  
**H**  
**Y**  
**T**  
**H**  
**M**  
**S**

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# German Word Quiz

by Computer Graphics

He was a computer. She was a tape recorder. He only spoke an obscure English dialect called BASIC. She only spoke German. But when this program bridged the language gap, their love made the circuits hum.

```
5 CLEAR4000:RANDOM:DIMA2$(4,2),P(10),T(10,2),T$(10,2)
6 REM REWRITTEN BY COMPUTER GRAPHICS
7 REM P. O. BOX 223, HOLTSTVILLE NY 11742
10 CLS:PRINT:PRINT CHR$(23)
11 PRINT"GERMAN WORD QUIZ"
40 PRINT:INPUT"TO BEGIN HIT ENTER":G
41 CLS:PRINT@450,CHR$(23);"HERE WE GO"
45 ON G GOTO 60
60 S2=126:GOTO70
70 DIMA$(S2,2),C(S2)
75 ON G GOTO 2000
2015 GOSUB 13000
2030 C1$="ENGLISH":C2$="GERMAN"
2040 S1$="ENGLISH IS":S2$="GERMAN WORD IS"
2055 GOTO2500
2077 DATAABANDONMENT, ABRETUNG, ACCOUNT, RECHNUNG, ACID, SAURE, ACORN,
ECKER, ADDITION, VERGROSSERUNG, ADMIT, EINLASSEN, ADVANCE, VORSCHUSS, A
DYVICE, RAT, ADVISE, RATEN, AGREEMENT, UBEREINSTIMMUNG, ALCOHOL, ALKOHOL
, ALLOY, LEGIERUNG, AMBASSADOR, GESANDTE
2079 DATAANSWER, ANTWORT, APPAREL, KLEIDUNG, ART, KUNST, ASSIGN, ANMEIS
EN, ASSORTMENT, ASSORTIMENT, ATTEST, BEZENGEN, BACON, SPECK, BALANCE, BI
LANZ, BEE, BIENE, BEEF, RINDFLEISCH, BEER, BIER, BILL, WECHSEL, BOOTS, STI
EFEL, BRANDY, BRANNTWEIN, BUY, KAUFEN, CANAL, KANAL
```

2081 DATACANCEL, ANNULLIEREN, CANDY, ZUCKERKERK, CAR, KARREN, CARGO, FR  
ACHT, CARPET, TEPPICHE, CARRIAGE, WAGEN, CASH, KASSE, CENT, HUNDERT, CHAI  
N, KETTE, CHAIR, STUHL, CHEESE, KASE, CIGAR, CIGARRE, CLAIM, ANSPRUCH, COF  
FEE, KAFFEE, COIN, MUNZE, CORN, GETREIDE

2083 DATACREDIT, KREDIT, DAMAGE, SCHADEN, DATE, DATUM, DEAL, HANDEL, DEB  
T, SCHULD, DELIVERY, LEIFERUNG, DOLL, PUPPE, DOZEN, DUTZEN, DRUG, DROGUE,  
DYE, FARBE, EARN, ERWERBEN, EGG, EI, FABRIC, FABRIKAT, FAN, FACHER, FLOUR,  
MEHL, FRUIT, FRACHT, GAME, WILD

2085 DATAHAT, HUT, HIDE, HAUT, IRON, EISEN, IVORY, ELFENBEIN, JADE, JACON  
ET, JET, GAGAT, KELP, TANGASCHE, KNIFE, MESSER, LUMBER, BAUHOLZ, MAIL, POS  
T, MARKET, MARKT, MILK, MILCH, MONEY, GELD, NAIL, NAGEL, NEEDLE, NADEL, NUM

## TRS-80 PROGRAMMING HINT

It's possible to keep several different programs in memory at the same time, so long as the line numbers don't conflict. Use RUN (line number) to execute the one you want, or to go from one to another. Since Level II and Disk BASIC zero all variables when RUN is executed, you don't have to worry about overlapping in memory, except that you don't have to use the cassette recorder or the disk to go from one program to another. Here's a sample program for you:

```
10 REM*PROGRAM 0*
20 INPUT "WHICH PROGRAM DO YOU WANT (1 OR 2)";A
30 IF A=1 RUN 100
40 IF A=2 RUN 200
50 GOTO 10

100 REM * PROGRAM 1 *
110 PRINT "THIS IS PROGRAM 1"
120 INPUT "(PRESS ENTER)";A$
130 RUN 10

200 REM * PROGRAM 2 *
210; PRINT "THIS IS PROGRAM 2"
220 INPUT "(PRESS ENTER)";A$
230 RUN 10
```

You might want to use a renumber routine to change your programs so that they have different line numbers, then put them on the same tape. Disk users can use the MERGE command to combine programs. Level II users willhaveto use a combining program.

```

BER, ZAL, OATS, HAFER, OBTAIN, ERLANGEN
2087 DATA OIL, OL, OYSTERS, AUSTER, PAINT, OLFARBE, PAPER, PAPIER, PENS, F
EDER, PEPPER, PFEFFER, PINS, STECKNADDEL, POSTAGE, PORT DE LETTRE, RAGS,
LUMPEN, RECORD, VERZEICHNIS, RICE, REIS, RYE, ROGGEN, SALE, VERKAUF, SALT
, SALZ, SAMPLE, MUSTER, SATIN, ATLAS
2089 DATASAW, SAGE, SELL, VERKAUFEN, SHIP, SCHIFF, SHIRTS, HEMDE, SHOT, K
UGEL, SHOES, SCHUHE, SILK, SEIDE, SOAP, SEIFE, TABLE, TISCH, TAX, TAXE, TEA
, THEE, TIN, ZINN, TIRE, RADSCHIENNE, TOOL, WERKZEUG, TOY, SPIELZENG, USAG
E, GEBRAUCH, WAFFER, WAFFEL, WAR, KRIEG
2091 DATA WAX, WACHS, WEAPON, WAFFE, WEIGH, WAGEN, WHEAT, WEIZEN, WINE, WE
IN, WIRE, DRAHT, WOOD, HOLZ, WORTH, WERTH, YARN, GARN, YELLOW, GELB, ZINC, Z
INK, ZONE, GURTEL
2500 CLS
2510 PRINT, "SUBJECT: "C1$;" AND "C2$
2520 PRINT"HOW WOULD YOU LIKE TO TAKE YOUR TEST ????:PRINT
2521 PRINT"1. DRILL (VERY SIMPLE)"
2522 PRINT"2. MULTIPLE CHOICE (A BIT HARDER)"
2523 PRINT"3. TRUE AND FALSE (YOU MIGHT OUTGUESS THIS ONE)
2525 PRINT"4. MATCHING (LUCK STILL MIGHT PULL YOU THROUGH)
2527 PRINT"5. FILL IN THE BLANK (YOU MUST KNOW YOUR SUBJECT)
2528 PRINT
2529 PRINT
2530 PRINT " ":INPUT"PLEASE ENTER YOUR CHOICE";PE$
2540 CLS:PRINT@455, CHR$(23)"I JUST LOVE DOING THIS":IFPE$=<00ORP
E$>STHEN 2500
2550 FORX=1TO3000:NEXTX
2600 ONPE$GOTO3000,4000,5000,6000,7000,5
2610 GOTO2500
3000 CLS:FOR XX=1TO52
3010 PRINT@384, A$(XX,1); " ";S1$; " "; A$(XX,2)
3015 PRINT:PRINT"TYPE ( HELP ) TO STOP DRILL
3020 PRINTA$(XX,2); " ";S2$;:INPUTB$
3025 IFB$="HELP"THENGOTO3090
3030 IFB$<>A$(XX,1)THEN PRINT@960,"WRONG PLEASE REDO THE PROBLEM
":NW=NW+1:FORX=1TO1000:NEXTX:CLS:GOTO3010
3050 CLS
3060 PRINT@384, A$(XX,1); " ";S1$; " ";:INPUTB$:CLS
3070 IFB$<>A$(XX,2)THENPRINT@960,"WRONG PLEASE REDO THE PROBLEM
":NW=NW+1:FORX=1TO1000:NEXTX:CLS:GOTO3010

```

```

3088 CLS:PRINT@525,CHR$(23)"BRAVO: YOU GOT IT !":NR=NR+1:FORX=1T
01000:NEXTX:CLS:NEXTX:
3085 CLS
3090 PRINT"SO FAR YOU HAVE THIS MANY RIGHT =";NR
3100 PRINT"SO FAR YOU HAVE THIS MANY WRONG =";NW
3105 FORX=1T04000:NEXTX
3110 CLS:NR=0:NW=0
3120 YY=1:GOTO9000
4000 CLS
4001 FORX=1T05Z:C(X)=0:NEXTX
4002 CLS:PRINT@384,"MULTIPLE CHOICE"
4010 INPUT"HOW MANY QUESTIONS DO YOU WANT":Q2
4011 IFQ2<1THENCLS:GOTO4002
4020 IFQ2>5ZTHENGOTO4010ELSECLS:PRINT"MULT. CHOICE ON THE SUBJEC
T ";C1$; " & ";C2$
4030 PRINT"WHICH CATEGORY DO YOU WANT TO CHOOSE FROM"
4040 PRINT"1. ";C1$
4050 PRINT"2. ";C2$
4055 PRINT"3. RANDOM "
4060 INPUT"ENTER THE NUMBER OF YOUR CHOICE";CH
4070 IFCH<1ORCH>3CLS:GOTO4030
4090 NE=NE+1:RANDOM
4095 IFNE>Q2GOTO4080
4100 FORX=1T04:
4105 P(X)=RND(5Z)
4110 IFC(P(X))>2GOTO4105
4115 C(P(X))=C(P(X))+3
4120 NEXTX
4130 A=RND(5Z):IFC(A)>0GOTO4130
4135 R=RND(4)
4140 FORX=1T04:C(P(X))=C(P(X))-3:NEXTX
4180 FORX=1T04
4190 A2$(X,1)=A$(P(X),1):A2$(X,2)=A$(P(X),2)
4200 NEXTX
4210 A2$(R,1)=A$(R,1):A2$(R,2)=A$(R,2)
4230 B2$=A2$(R,2)+" "+5Z$:B3$=B2$+" "+A2$(R,1)
4240 C4$=A2$(R,1)+" "+51$:C3$=C4$+" "+A2$(R,2)
4241 GOSUB4950:IFC1=2GOTO4500
4300 CLS:PRINT@256," "
4310 FORX=1T04:PRINTX;" ";A2$(X,1):NEXTX

```

```

4315 PRINT"(ENTER THE NUMBER YOU CHOOSE OR 11 TO QUIT)
4320 PRINTB2$; :INPUTQ7
4321 IFQ7=11GOTO4800
4322 IFQ7<10RQ7>4GOTO4300
4330 IFQ7=RTHENCLS:PRINT@512,"RIGHT":PRINTB3$:C(A)=1:GOTO4900
4340 CLS:PRINT@512,"WRONG":PRINTB3$:C(A)=2:GOTO4900
4500 CLS:PRINT@256," "
4510 FORX=1T04:PRINTX;" "A2$(X,2):NEXTX
4515 PRINT"(ENTER THE NUMBER YOU CHOOSE OR 11 TO QUIT)"
4520 PRINTC4$; :INPUTQ7
4521 IFQ7=11GOTO4800
4522 IFQ7<10RQ7>4GOTO4500
4530 IFQ7=RTHENCLS:PRINT@512,"RIGHT":PRINTC3$:C(A)=1:GOTO4900
4540 CLS:PRINT@512,"WRONG":PRINTC3$:C(A)=2:GOTO4900
4800 NE=0:GOSUB8500
4810 YY=2
4820 GOTO9000
4900 :FORX=1T04000:NEXTX:CLS:Q7=0:GOTO4090
4950 IFCH=3THENCI=RND(2)ELSECI=CH
4960 RETURN
5000 CLS:PRINT@400,"TRUE FALSE TEST":PRINT
5010 PRINT"THIS IS A TRUE FALSE TEST ON ";C1$;" & ";C2$
5020 INPUT"ENTER THE NUMBER OF QUESTIONS YOU WANT";T
5030 IFT>52THENCLS:GOTO5010
5045 FORX1=1TOT
5050 G1=RND(2):G2=RND(2)
5060 G3=RND(52):G4=RND(52)
5070 IFC(G3)>0GOTO5060
5080 IFG4=G3GOTO5060
5090 IFG2=2GOTO5300
5100 IFG1=2GOTO5200
5110 CLS:PRINT@512,A$(G3,1);" ";S1$;" ";A$(G3,2):PRINT
5120 GOSUB5730
5130 IFAN<>1THENGOTO5700
5140 GOTO5720
5200 CLS:PRINT@512,A$(G3,2);" ";S2$;" ";A$(G3,1):PRINT
5210 GOSUB5730
5220 IFAN<>1GOTO5700
5230 GOTO5720
5300 IFG1=2GOTO5360

```

```

5320 CLS:PRINT@512,A$(G3,1); " "; S1$; " "; A$(G4,2):PRINT
5330 GOSUB5730
5340 IFAN<2GOT05700
5350 GOT05720
5360 CLS:PRINT@512,A$(G3,2); " "; S2$; " "; A$(G4,1):PRINT
5370 GOSUB5730
5380 IFAN<2GOT05700
5390 GOT05720
5500 NEXTX1
5600 GOSUB8500
5620 YY=3:GOT09000
5700 CLS:PRINT@512,CHR$(23); "WRONG":FORX=1T01000:NEXTX:CLS:C(G3)
=2:AN=0:GOT05500
5720 CLS:PRINT@512,CHR$(23); "RIGHT":FORX=1T01000:NEXTX:CLS:C(G3)
=1:AN=0:GOT05500
5730 PRINT"IS THE ABOVE STATEMENT 1. TRUE OR 2. FALSE":PRINT"EN
TER THE NUMBER OF YOUR CHOICE";:INPUTAN:RETURN
6000 N=0
6010 FORX=1T010
6040 Y=RND(SZ):IFC(Y)>0THENGOT06040
6045 C(Y)=3
6050 T(X,1)=Y:NEXTX
6060 FORX=1T010
6070 Y=RND(10)
6080 T(X,2)=Y
6090 IFX=1THENGOT06110
6100 FORXX=1T0X-1:IFT(X,2)=T(XX,2)THENGOT06070
6105 NEXTXX
6110 NEXTX:CLS
6220 FORX=1T010
6230 T$(X,1)=A$((T(X,1)),1):T$(X,2)=A$(T(X,1),2):NEXT
6300 J1=0:J2=0:PRINT,"MATCHING"
6310 PRINT@65,C1$:PRINT@95,C2$
6320 Y=129
6330 FORX=1T010
6340 PRINT@Y,X; ". "; T$(X,1):PRINT@Y+30,X; ". "; T$(X,2)
6350 IFX=9 THEN Y=Y+63ELSEY=Y+64
6360 NEXTX
6364 PRINT"(ENTER 11 TO QUIT)"
6365 TV$="ENTER THE NUMBER OF YOUR CHOICE FROM THE CATEGORY "

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```

6370 PRINT@896, TV$: C1$: : INPUT J1
6375 IF J1=11GOTO6415
6376 IF J1<10RJ1>11THENCLS:GOTO6300
6377 IFT$(J1, 1)=""THENCLS:GOTO6300
6380 PRINT@960, "FROM THE CATEGORY "; C2$: : INPUT J2
6381 IFT$(T(J1, 2), 2)=""THENCLS:GOTO6300
6385 IF J2=11GOTO6415
6386 IF J2<10RJ2>11THENCLS:GOTO6300
6390 N=N+1
6400 IFT(J1, 2)=J2THENCLS:PRINT:PRINT@512, "RIGHT "; :PRINT$(J1, 1)
; " MATCHES WITH "; T$(J2, 2):C(T(J1, 1))=1:T$(J1, 1)="" :T$(J2, 2)="" :
FORX=1TO1000:NEXTX:CLS:IFN=>10GOTO6415ELSEGOTO6300
6410 CLS:PRINT:PRINT@512, " WRONG "; :PRINT$(J1, 1); " MATCHES WITH
"; T$(T(J1, 2), 2):FORX=1TO1000:NEXTX:T$(J1, 1)="" :T$(T(J1, 2), 2)=""
:C(T(J1, 1))=2:CLS:IF N=>10THENGOTO6415
6411 GOTO6300
6415 GOSUB8500
6420 YY=4:GOTO9000
7000 CLS:PRINT@346, "FILL IN THE BLANK"
7010 INPUT"HOW MANY QUESTIONS DO YOU WANT"; NO
7020 IFNO>5ZGOTO7000
7050 FORXX=1TONO
7060 A=RND(52):IFC(A)>0GOTO7060
7080 R=RND(2)
7090 IFR=1THENZA$=A$(A, 1)+" "+51$:ZB$=A$(A, 2)
7100 IFR=2THENZA$=A$(A, 2)+" "+52$:ZB$=A$(A, 1)
7110 CLS:PRINT:PRINT"FILL IN THE BLANK (ENTER HELP TO QUIT)":P
RINT:PRINTZA$: :INPUTAN$:CLS:IFAN$="HELP"GOTO7400
7120 IFAN$<>ZB$THEN CLS:PRINT:PRINT:PRINT, "WRONG":PRINT:PRINT"THE
CORRECT ANSWER IS:":PRINT:PRINTZA$; " "; ZB$:PRINT"PLEASE FILL
IN THE CORRECT ANSWER":PRINTZA$: :INPUTAN$:IFAN$<>ZB$GOTO7120ELSE
C(A)=2:CLS:GOTO7300
7130 C(A)=1:PRINT@537, CHR$(23); "RIGHT":FORX=1TO1000:NEXTX
7300 NEXTXX
7400 GOSUB8500
7500 YY=5:GOTO9000
8500 FORX=1TO52
8501 IFC(X)=1THENNR=NR+1
8502 IFC(X)=2THENN#=#N#+1
8503 C(X)=0

```

8504 NEXTX

8510 :CLS:PRINTA\$;" YOU GOT ";NR;" ANSWERS RIGHT & ";NW;" WRONG  
, " :NR=0:NW=0:RETURN

9000 T=0:PRINT@340,"1. REDO THE PREVIOUS QUIZ":PRINT@404,"2. RET  
URN TO QUIZ MENU":PRINT@468,"3. RETURN TO SUBJECT MENU":PRINT@53  
1," " :INPUT"ENTER YOUR CHOICE";T:IFT<10RT>3THENGOTO9000ELSECLS:  
ONTGOTO9001,2500,5

9001 ONYVGOTO3000,4000,5000,6000,7000

11000 FORX=1TOSZ:READA\$(X,1),A\$:NEXTX:RETURN

12000 FOR X=1TOSZ:READA\$(X,2):NEXTX:RETURN

13000 FOR X=1TOSZ:READA\$(X,1),A\$(X,2):NEXT:RETURN

13500 WE=RND(52):A2\$(X,1)=A\$(WE,1):A2\$(X,2)=A\$(WE,2):WE=0:SU=2:R  
ETURN

15000 FORX=1T010:PRINTX;" ";T(X,1),T(X,2):NEXTX

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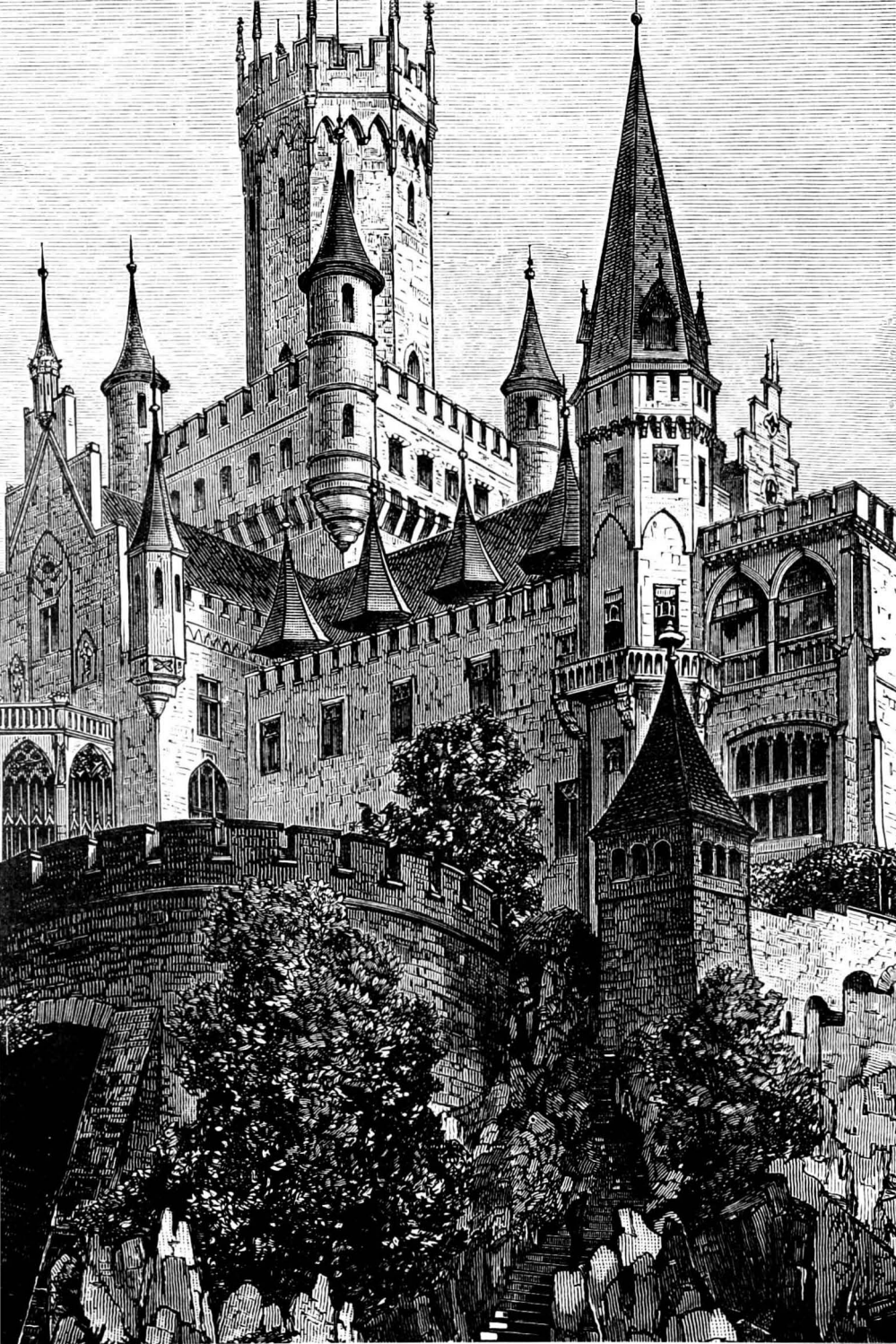
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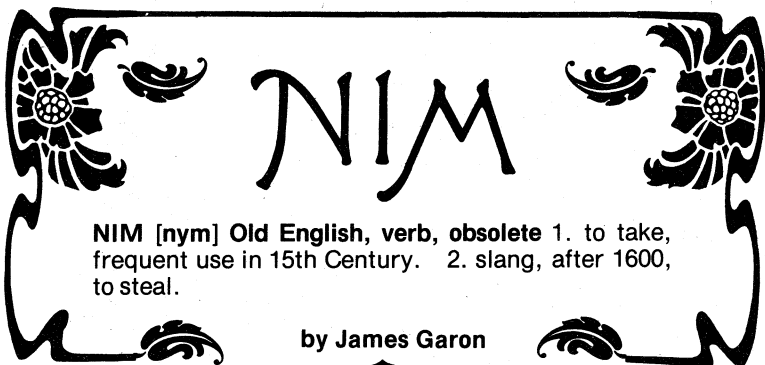
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**NIM** [nym] Old English, verb, obsolete 1. to take, frequent use in 15th Century. 2. slang, after 1600, to steal.

by James Garon

On her honeymoon on the Italian Riviera in 1407, the Duchess of Santa Paravia invented a game taking gold coins out of three plates. When her husband died the following year after a cold winter in a drafty castle, she returned to her native Britain, where she introduced the game, NIM to the royal court and it became the fad of the social season in 1409. The game didn't spread outside the royal court as the common people never even saw a gold coin, much less owned any. Therefore, when the court began to play Hunt the Wumpus in 1410, NIM was forgotten.

The game survived only in a brief description in the diary of one of the queen's ladies in waiting (who invented her job title after waiting for hours while the queen played NIM with the duchess.) One hundred eighty-nine years later a descendent of the maiden, Pilfer Babbage, came upon the diary in an old trunk. The game fascinated the penniless boy of twelve, and he invented a version using pebbles instead of gold coins. However, since he desperately longed to play

the original, and since the game had taught him to take things, he embarked on a successful career as a pickpocket, stealing gold coins from the pockets of the nobility.

Pilfer was a friendly fellow ... a natural leader among his cohorts. He introduced them to NIM and they took to it with delight. Soon they merged the language of their hobby with that of their profession, and the long-forgotten verb "nim" came back into fashion with a subtle change in meaning. However, when Pilfer Babbage was finally caught and hanged in 1671 at the ripe old age of eighty-five, his fraternity honored him by changing the name of their vocation to "pilfering".

Pilfer's great-great-grand nephew, Charles, adapted the game to the analytical engine in 1833 as the second computer game (after Star Trek). Charles then went on to distinguish himself in the family tradition by inventing cost overruns in government contracts, and the game of NIM continued down to the present day in a myriad of forms.

```

2 CLEAR200:RANDOM:DEFSTRT-Z:W=CHR$(191):V=W+W:U=W+CHR$(
188)+CHR$(188)+W:T=W+CHR$(143)+CHR$(143)+W:T1=CHR$(15
9)+CHR$(159)+CHR$(143)+CHR$(175):W1=CHR$(149):X=V+W1+W
:U1=CHR$(189)+CHR$(189)+CHR$(188)+CHR$(190):Y=CHR$(170
):DIM A(3,4),Y(1):CLS:DEFINT A-S:GOTO20
4 JAMES GARON (714) 533-4726 920 W ROMNEYA #6 ANAHEI
M CA 92801
5 FORI=0TO2:A=A(I,4):FORJ=0TO3:B=INT(A/2):A(I,J)=A-B-B
:A=B:NEXT:NEXT:FORJ=0TO3:A(3,J)=0:FORI=0TO2:A(3,J)=A(3
,J)+A(I,J):NEXT:NEXT:S=-1:FORJ=3TO0STEP-1:A=A(3,J):IFA
<>INT(A/2)*25=J:RETURNELSENEXT:RETURN
6 Z=INKEY$:IFZ=""THEN6ELSEH=ASC(Z):RETURN
10 PRINT028,"- N I M -":PRINT"INSTRUCTIONS ?
11 GOSUB6:IFH=89THEN1000ELSEIFH=78THEN12ELSE11
12 PRINT:PRINT"HUMAN AGAINST MACHINE (1) OR HUMAN AGAI
NST HUMAN (2) ?
14 GOSUB6:IFH<>49ANDH<>50THEN14ELSEN=H-48:FORI=0TO1:PR
INT"ENTER NAME OF PLAYER":IFN=2THENPRINTI+1:INPUTY(I
):NEXT:ELSEINPUTY(0)

```

For an example of the slang use of "nimming", see Part of *Lucian Made English*, by Jasper Mayne, (London, 1664), page 35.

- N I M -

5 1 6

<TAP THE SPACE-BAR TO PLAY>

YOUR TURN ROGER

9 15 13

```

15 E=0:IFN=2THENE=RND(2)-1
16 CLS:GOTO50
20 PRINT@84,CHR$(23)"- N I M -":PRINT@900,"(TAP THE SP
ACE-BAR TO PLAY)
30 FORI=0TO2:A(I,4)=RND(15):NEXT:FORI=1TO400:NEXT:Z=ST
RING$(160,127+RND(64)):PRINT@192,Z;Z;:GOSUB970:Z=INKEY
$:IFZ<>" THEN30ELSECLS:GOTO10
50 CLS:PRINTCHR$(23):FORI=0TO2:A(I,4)=2+RND(13):NEXT:I
FA(0,4)=A(1,4)ORA(0,4)=A(2,4)ORA(1,4)=A(2,4)THEN50ELSE
GOSUB5:IF5<1THEN50ELSEGOSUB970:R=410:K=1
55 F=0:P=R:O=A(K,4):GOSUB960
56 PRINT@0,:PRINT@76,"YOUR TURN ";:IFN=1THENPRINTY(0);
ELSEE=1-E:PRINTY(E);
57 GOSUB6:IFH<>8THEN65ELSEIFK=0THEN57
61 IFF=1F=0:A(K,4)=0
62 GOSUB970:K=K-1:O=A(K,4):R=R-20:P=R:GOSUB960:GOTO57
65 IFH>9THEN70ELSEIFK=2THEN57
66 IFF=1F=0:A(K,4)=0
67 GOSUB970:K=K+1:O=A(K,4):R=R+20:P=R:GOSUB960:GOTO57
70 IFH>10THEN75ELSEIFA(K,4)=0THEN57
71 IFF=0F=1:O=A(K,4)
72 A(K,4)=A(K,4)-1:GOSUB970:GOTO57
75 IFH<>32ANDH<>13THEN80ELSEIFF=0THEN57ELSEGOSUB970:F0
RI=0TO2:IFA(I,4)=0NEXT:GOTO100
76 IFN=1THENPRINT@0,:PRINT@76,"MY TURN:":GOSUB700:GOTO
55ELSE55
80 IFH<>91THEN57ELSEIFF=0THEN57
81 IFA(K,4)=0THENF=0:GOTO57
82 A(K,4)=A(K,4)+1:IFA(K,4)=0THENF=0
84 GOSUB970:GOTO57
100 PRINT@0,:IFN=2THENPRINT@84,Y(E)" WINS!"ELSEPRINT@6
4,Y(0)" BEAT THE COMPUTER:
105 FORI=1TO2E3:NEXT:PRINT@898,"(PRESS SPACE-BAR TO TR
Y AGAIN)":GOTO30
200 PRINT@0,:PRINT@88,"I WIN":GOTO105
700 GOSUB5:IF5<0THEN750ELSEFORD=0TO2:IFA(D,5)=0THENNEX
TELSEA(D,5)=0:FORC=0TO5-1:A=A(3,C):IFA=INT(A/2)*2THENN
EXTLSEA(D,C)=1-A(D,C):NEXT
710 G=A(D,4):A(D,4)=0:FORJ=0TO3:A(D,4)=A(D,4)+A(D,J)*2
[J:NEXT:M=A(D,4)

```

```

720 R=390+20*D:P=R:K=D:GOSUB960:FORL=G-1TOMSTEP-1:A(D,
4)=L:GOSUB970:NEXT:FORI=0T02:IFA(I,4)=0THENNEXT:GOTO20
0ELSEReturn
750 D=RND(3)-1:G=A(D,4):IFG=0THEN750ELSEM=G-RND(G):GOT
0720
800 PRINT@P,T;:Z=W+Y+W1+W:PRINT@P+64,Z;:PRINT@P+128,Z;
:PRINT@P+192,U;:RETURN
810 PRINT@P,V;CHR$(175);W;:Z=Y+Y+W:PRINT@P+64,Z;:PRINT
@P+128,Z;:PRINT@P+192,V;CHR$(190);W;:RETURN
820 PRINT@P,T;:PRINT@P+64,W;CHR$(143);CHR$(133);W;:PRI
NTEP+128,W;Y;V;:PRINT@P+192,U;:RETURN
830 PRINT@P,T;:PRINT@P+64,W;CHR$(159);CHR$(133);W;:PRI
NTEP+128,X;:PRINT@P+192,U;:RETURN
840 PRINT@P,W;CHR$(175);CHR$(159);W;:PRINT@P+64,W;CHR$(
138);CHR$(133);W;:PRINT@P+128,X;:PRINT@P+192,V;CHR$(1
89);W;:RETURN
850 PRINT@P,T;:PRINT@P+64,W;CHR$(138);CHR$(143);W;:PRI
NTEP+128,X;:PRINT@P+192,U;:RETURN
860 PRINT@P,T;:PRINT@P+64,W;CHR$(138);CHR$(143);W;:PRI
NTEP+128,W;Y;W1;W;:PRINT@P+192,U;:RETURN
870 PRINT@P,T;:PRINT@P+64,X;:PRINT@P+128,X;:PRINT@P+19
2,V;CHR$(189);W;:RETURN
880 PRINT@P,T;:PRINT@P+64,W;CHR$(138);CHR$(133);W;:PRI
NTEP+128,W;Y;W1;W;:PRINT@P+192,U;:RETURN
890 PRINT@P,T;:PRINT@P+64,W;CHR$(138);CHR$(133);W;:PRI
NTEP+128,X;:PRINT@P+192,U;:RETURN
900 PRINT@P,T1;:Z=W1+W1+W+Y:PRINT@P+64,Z;:PRINT@P+128,
Z;:PRINT@P+192,U1;:RETURN
910 PRINT@P,W;CHR$(175);CHR$(159);W;:Z=W+Y+W1+W:PRINT@
P+64,Z;:PRINT@P+128,Z;:PRINT@P+192,W;CHR$(190);CHR$(18
9);W;:RETURN
920 PRINT@P,T1;:PRINT@P+64,W1;CHR$(159);CHR$(143);Y;:P
RINT@P+128,W1;W1;Y;:PRINT@P+192,U1;:RETURN
930 PRINT@P,T1;:PRINT@P+64,W1;CHR$(159);CHR$(143);Y;:P
RINT@P+128,W1;Y;Y;:PRINT@P+192,U1;:RETURN
940 PRINT@P,CHR$(159);CHR$(159);W;CHR$(175);:PRINT@P+6
4,W1;W1;CHR$(143);Y;:PRINT@P+128,W1;Y;Y;:PRINT@P+192,C
HR$(189);V;CHR$(190);:RETURN
950 PRINT@P,T1;:PRINT@P+64,W1;W1;CHR$(143);CHR$(175);:
PRINT@P+128,W1;Y;Y;:PRINT@P+192,U1;:RETURN

```



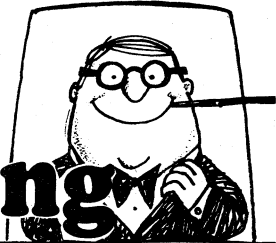
```

960 Q=15360+P:FORI=0T0192STEP64:FORJ=0T06STEP2:POKEQ+I
+J,319-PEEK(Q+I+J):NEXT:NEXT:RETURN
970 FORI=0T02:P=390+20*I:ONA(I,4)+1GOSUB800,810,820,83
0,840,850,860,870,880,890,900,910,920,930,940,950:NEXT
:RETURN
1000 PRINT064,CHR$(202)"NIM IS PLAYED WITH THREE PILES
OF OBJECTS. EACH PLAYERIN TURN SELECTS ONE PILE AND R
EMOVES AS MANY OBJECTS AS DESIRED (ALL OBJECTS MAY BE
REMOVED FROM THE CHOSEN PILE, OR ONLY SOME--BUT YOU MU
ST TAKE AT LEAST ONE OBJECT, AND ONLY FROM";
1002 PRINT" ONE PILE). ":PRINT"THE PLAYER (OR MACHINE)
WHO TAKES THE LAST OBJECT IS THE WINNER. ":PRINT"USE TH
E "CHR$(93)" AND "CHR$(94)" KEYS TO SELECT YOUR PILE, A
ND THE "CHR$(92)" KEY TO REMOVEOBJECTS. (THE "CHR$(91)
" KEY IS FOR CHANGING YOUR MIND. ) ";
1003 PRINT"YOU WILL KNOW
WHICH PILE YOU ARE DIMINISHING SINCE IT WILL BE SHOWN
AS A WHITENUMBER ON A BLACK BACKGROUND. ";
1004 PRINT"WHEN THE PILE IS DECREASED TO YOURSATISFACT
ION, PRESS THE SPACE-BAR. GOOD LUCK!":GOTO12

```

# Small Business Bookkeeping

Recommended for  
small businesses



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and Roger W. Robitaille, Sr.

The Dome Bookkeeping System, fully compatible with your TRS-80 disk system! Optional reporting to line printer; supports cash system of accounting, applying expenses to any of the forty-two accounts.

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\* Instant Insanity<sup>®</sup> is a Parker Brothers registered trademark

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# HOME APPLIANCE RECORD SYSTEM

by Ray Herald

**There you are ... your toaster is smoking up the kitchen and you're trying to remember where you bought the damned thing. Now, where is that sales slip? The TV is acting up again; maybe it would be cheaper to buy a new set rather than pour more money into that bomb. Just how much have you spent on it, anyway? Worst of all, while you were on vacation, your stereo system was ripped off ... the police need the serial numbers. Do you know what those numbers are?**

We live in a technological age with a seemingly endless supply of gadgets. Your electric razor, radio/alarm, washer & dryer, T.V., stereo, electric drills and saws, blender ... to name a few. The list goes on, and along with the list go the inevitable questions we've all had occasion to ask ourselves: Where did I buy it? What did I pay for it? Where did I have it fixed last time? .... In spite of all our technological wonders, the questions usually remain unanswered. Enter The Appliance/Equipment History File.

The Appliance/Equipment History File records and maintains pertinent information on household appliances and machinery. Included are the name of the item, date of purchase, place of purchase, price, and serial

number. In addition, there are provisions to add up to five service-related entries for each appliance. These entries provide data on: reason for service, place of service, date of service, and cost. If more than five service entries should ever be required for a particular item, a second (or more) complete record can be built allowing for five more service entries. Of course, any item requiring more than five service entries should be a serious contender for Sanford and Son. Once compiled, all data pertaining to household appliances is stored on cassette tape, and can easily be displayed or updated as needed. Data is displayed in easy to read screen formats, and the program provides for self-explanatory prompting.



for the item, plus up to five service related entries. If updating, three options are available. Service entries can be added; the entire record can be deleted, or control returned to the Name List/Options screen. If a record is deleted, subsequent Name List/Options screens will show its slot tagged \*DELETED. Physical deletion will not occur until an updated tape is created.

One final note: the program is initially set-up to accept up to 28 entries for each Data File. This limit is the result of working within the memory confines of a 16K machine, and should be more than adequate for most households, especially if the separated file method mentioned earlier is used. However, for anyone with a 32K or 48K machine, a few simple modifications will allow you to increase this parameter.

Change the DIM limits in statement 80 to the desired file size using increments of 14. Change the subscript delimiter in statements 117 and 1240 to the number specified in the DIM statement. For a 48K machine, you could have 150 to 250 entries.

Of course, anyone who has that many appliances probably has their own 370 and won't need this program.

Also, it should be noted that the field sizes specified in the data entry prompts are used as guides and are not absolute. Their purpose is to keep the maximum record size for each entry below 255. For example, if the Item Name does not take all 16 positions allotted, the "extra" positions can be used elsewhere.

## The Little Book of BASIC Style

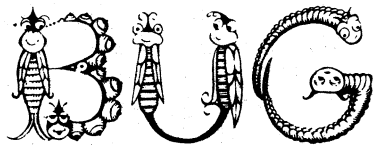
by John M. Nevison

Here is the ideal reference for anyone who wants to write better programs in BASIC. **The Little Book of BASIC Style** is suitable for all levels ... from junior high school student to research scientist. A work meant to be read and reread. Achieve fluency in computing.

Indexed, illustrated. 151 pages.

\$5.95 + \$1.00 handling

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03055



# GOTCHA DOWN?

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Hotline

603-673-5144

```

20 ' HOME APPLIANCE RECORD SYSTEM
30 ' COPYRIGHT FEB. 1979
40 ' RAY HEROLD SOFTWARE
50 ' 8368 SHADY GROVE CIRCLE
60 ' MANASSAS VA. 22110
70 CLEAR 5000
80 DIM NM$(28), PD$(28), PP$(28), PR$(28), SN$(28), D$(28, 5), R$(28, 5)
, S$(28, 5), C$(28, 5)
96 '
97 ' PRINT APPLIANCE LIST SCREEN
98 '
100 GOSUB 1000
110 CLS
113 I = 7:L = 1
115 PRINT@10, "APPLIANCE/EQUIPMENT HISTORY FILE":PRINT
117 IF(Y+7)>=28THENI=7:L=1
120 P = 100
125 FOR Y = L TO I
127 IFNM$(Y)="99END99"THENL40
130 PRINT Y; "- ";NM$(Y):P = P + 64
135 PRINT@P, (Y+7); "- ";NM$(Y+7)
140 NEXT Y
150 PRINT STRING$(64, "+")
160 PRINT@662, "--OPTIONS--"
170 PRINT"A = ADD MORE ENTRIES           U = UPDATE AN ENTRY
"
175 PRINT"L = LIST DATA FOR ENTRY       S = SAVE DATA ON TA
PE"
180 PRINT"E = END PROGRAM RUN"
185 IFY<XTHENPRINT@867, "M = LIST MORE ENTRIES"
190 O$=" ":INPUT"ENTER OPTION DESIRED":O$
200 IFO$="E"THENCLS:STOP
210 IFO$="M"THEN L=L+14:I=I+14:CLS:GOTO115
215 IFO$="A"THENCLS:PRINT:GOSUB1600:GOTO110
220 IF((O$="U")OR(O$="L"))THEN250
230 IFO$="S"THEN900
240 GOTO190

```

```

248 /
249 / LIST APPLIANCE ITEM SCREEN
250 /
252 N=0:PRINT@896,"ENTER NUMBER OF ENTRY DESIRED";:INPUTN
255 IF((NDX)OR(N<1))THENPRINT@896,"** ITEM NUMBER INCORRECT - RE
TRY";:FORJ=1TO800:NEXTJ:GOTO252
260 CLS:PRINT@64,"ITEM NAME.....";NM$(N):PRINT@101,"ITEM COST
.....";VAL(PR$(N))
265 PRINT@128,"PURCHASED FROM...";PP$(N):PRINT@165,"PURCHASE DAT
E....";PD$(N)
270 PRINT"SERIAL NUMBER...";SN$(N)
275 PRINT:PRINTSTRING$(64,"+"):PRINT@404,"SERVICE HISTORY"
277 PRINT@450,"DATE";:PRINT@462,"REASON";:PRINT@482,"SERVICED BY
";:PRINT@506,"COST"
280 F=576:FORZ=1TO5
282 IF((D$(N,Z)="*")AND(R$(N,Z)="*"))THEN290
284 IFLEN(D$(N,Z)+R$(N,Z)+S$(N,Z)+C$(N,Z))=8THEN290
286 PRINT@F,D$(N,Z);:PRINT@(F+12),R$(N,Z);:PRINT@(F+34),S$(N,Z
);:PRINT@(F+56),VAL(C$(N,Z))
288 F=F+64
290 NEXTZ
295 IFO$="U"THEN300
296 PRINT@960,"PRESS ENTER TO CONTINUE";:INPUTE$:GOTO110
297 /
298 / UPDATE AN ENTRY
299 /
300 O=0:PRINT@896,"1 = ADD SERVICE ENTRY  2 = DELETE RECORD  3
= EXIT";:INPUTO
310 IFO=3THEN110
320 IF((O<1)OR(O>3))THENPRINT@896,"** INVALID OPTION - RETRY";ST
RING$(36,"");:FORJ=1TO800:NEXTJ:GOTO300
340 IFO=2THENNM$(N)="*DELETED":GOTO110
350 IFO=1THENGOSUB400:CLS:PRINT:X=N:GOSUB1905:SW=1:GOSUB1750:X=X
T:SW=0:GOTO110
390 CLS:PRINT"PROGRAM ERROR AT 390":STOP
396 /
397 / DETERMINE NUMBER OF SERVICE RECORDS

```

```

398 '
400 Y=0:FORZ=1TO5
410 IF(((LEN(R$(N,Z))+S$(N,Z)+D$(N,Z)+C$(N,Z))=0)OR((D$(N,Z)="*
")AND(R$(N,Z)="*")AND(S$(N,Z)="*"))))THEN430
420 Y=Y+1
430 NEXTZ
440 RETURN
499 CLS:PRINT"PROGRAM ERROR AT 499":STOP
896 '
897 ' LOOP TO WRITE NEW O/P TAPE
898 '
900 CLS:PRINT:INPUT"WHAT DO YOU WISH TO CALL THE O/P FILE";N$
903 PRINT:INPUT"READY CASSETTE - PRESS ENTER";E$
905 PRINT#-1,N$
910 Y=X:FORX=1TOY:GOSUB1760:NEXTX
922 X=Y+1:NM$(X)="99END99":GOSUB1760:NM$(X)=" ":X=Y
990 GOTO110
996 '
997 ' READ OLD FILE OR CREATE NEW ONE
998 '
1000 CLS:PRINT
1010 PRINT "DO YOU WISH TO CREATE A NEW FILE OR EXAMINE AN"
1020 PRINT "EXISTING ONE?":PRINT
1030 INPUT "REPLY: NEW OR OLD";T$
1040 IF LEFT$(T$,1) = "N" THEN 1500
1050 IF LEFT$(T$,1) <> "O" THEN 1030
1100 PRINT:INPUT "READY CASSETTE FILE - PRESS ENTER";E$
1110 INPUT#-1,T$
1120 PRINT:PRINT "FILE TO BE READ IS ";T$
1130 PRINT:INPUT "REPLY: CONTINUE, RETRY OR STOP";R$
1140 IF LEFT$(R$,1) = "S" THEN STOP
1150 IF LEFT$(R$,1) = "R" THEN 1010
1160 IF LEFT$(R$,1) <> "C" THEN 1130
1200 X = 0
1210 X = X + 1
1220 INPUT#-1, NM$(X), PD$(X), PP$(X), PR$(X), SN$(X), D$(X,1), R$(X,1),
S$(X,1), C$(X,1), D$(X,2), R$(X,2), S$(X,2), C$(X,2), D$(X,3), R$(X,3),
S$(X,3), C$(X,3), D$(X,4), R$(X,4), S$(X,4), C$(X,4), D$(X,5), R$(X,5),
S$(X,5), C$(X,5)

```



```

1230 IFNM$(X)="99END99"THENNM$(X)=" ":X=X-1:XT=X:GOTO 1999
1240 IF X = 28 THEN 1999
1250 GOTO 1210
1500 /
1510 / ADD DATA FOR NEW APPLIANCE ITEM
1520 /
1530 X=0:CLS:PRINT
1600 X=X+1:Y=0
1610 INPUT "ENTER APPL/EQUIP NAME (16 POS).... ";NM$(X)
1620 INPUT "ENTER PURCHASE DATE (MM/DD/YY).... ";PD$(X)
1630 INPUT "ENTER PLACE PURCHASED (14 POS).... ";PP$(X)
1640 INPUT "ENTER PURCHASE PRICE..... ";P
1645 PR$(X) = STR$(P)
1650 INPUT "ENTER SERIAL NUMBER..... ";SN$(X)
1660 PRINT:PRINT "IS ABOVE DATA CORRECTLY ENTERED?"
1665 R$=" ":INPUT "REPLY: YES OR NO";R$
1670 IF LEFT$(R$,1) = "N" THEN CLS:PRINT:GOTO 1610
1680 IF LEFT$(R$,1) <> "Y" THEN 1660
1700 PRINT:PRINT "DO YOU WISH TO ADD A SERVICE/REPAIR RECORD TO
THE ABOVE?"
1705 E$=" ":INPUT "REPLY: YES OR NO";E$
1710 IF LEFT$(E$,1) = "Y" THEN GOSUB 1900
1715 IF((LEFT$(E$,1) <> "Y") AND (LEFT$(E$,1) <> "N"))THEN 1705
1720 GOSUB 1750
1725 CLS:PRINT
1730 PRINT "DO YOU WISH TO ADD ANOTHER ITEM TO THE FILE?"
1735 E$=" ":INPUT "REPLY: YES OR NO";E$
1740 IF LEFT$(E$,1) = "Y" THEN CLS: PRINT: GOTO 1600
1745 IF LEFT$(E$,1) <> "N" THEN 1735
1746 XT=X:GOTO1999
1747 /
1656 / CHECK TOTAL BLOCK LENGTH
1749 /
1750 T1=0:T2=0:T1=LEN(NM$(X))+LEN(PD$(X))+LEN(PR$(X))+LEN(PP$(X)
)+LEN(SN$(X))
1752 FORZ=1T05
1754 T2=T2+LEN(D$(X,Z))+LEN(R$(X,Z))+LEN(S$(X,Z))+LEN(C$(X,Z))
1756 NEXTZ:TL=T1+T2

```

```

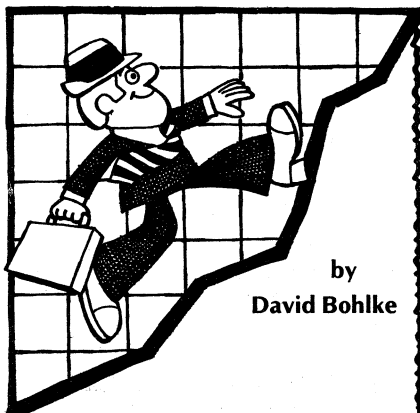
1757 IF((SM=1)AND(TL>255))THENGOSUB2100:GOTO1759
1758 IFTL>255THEN1800
1759 RETURN
1760 '
1761 ' CHECK FOR NULL STRINGS.  WRITE OUTPUT BLOCK
1762 '
1763 IFNM$(X)="*DELETED"THEN1789
1765 IF LEN(NM$(X)) = 0 THEN NM$(X) = "*"
1766 IF LEN(PD$(X)) = 0 THEN PD$(X) = "*"
1767 IF LEN(PP$(X)) = 0 THEN PP$(X) = "*"
1768 IF LEN(PR$(X)) = 0 THEN PR$(X) = "*"
1769 IF LEN(SN$(X)) = 0 THEN SN$(X) = "*"
1770 FOR Z = 1 TO 5
1772 IF LEN(D$(X,Z)) = 0 THEN D$(X,Z) = "*"
1773 IF LEN(R$(X,Z)) = 0 THEN R$(X,Z) = "*"
1775 IF LEN(S$(X,Z)) = 0 THEN S$(X,Z) = "*"
1776 IF LEN(C$(X,Z)) = 0 THEN C$(X,Z) = "*"
1778 NEXT Z
1780 PRINT#-1, NM$(X), PD$(X), PP$(X), PR$(X), SN$(X), D$(X,1), R$(X,1),
S$(X,1), C$(X,1), D$(X,2), R$(X,2), S$(X,2), C$(X,2), D$(X,3), R$(X,3),
S$(X,3), C$(X,3), D$(X,4), R$(X,4), S$(X,4), C$(X,4), D$(X,5), R$(X,5),
S$(X,5), C$(X,5)
1789 RETURN
1797 '
1798 ' BLOCKSIZE ERROR
1799 '
1800 CLS:PRINT
1810 X = X - 1
1820 PRINT "THE MAXIMUM TAPE BLOCKSIZE OF 255 BYTES HAS BEEN"
1830 PRINT "EXCEEDED.  THIS IS PROBABLY A RESULT OF ENTERING"
1840 PRINT "NAMES AND DESCRIPTIONS LARGER THAN SPECIFIED BY"
1850 PRINT "THE DATA ENTRY PROMPT. "
1860 PRINT "ALL DATA FOR THE LAST ITEM MUST BE RE-ENTERED. "
1870 PRINT:INPUT"PRESS ENTER TO CONTINUE";E$
1890 CLS:PRINT:GOTO 1600
1896 '
1897 ' ADD APPLIANCE SERVICE RECORDS
1898 '
1900 CLS:PRINT:V=0

```

```

1905 Y = Y + 1: IF Y > 5 THEN Y = Y - 1: GOTO 1980
1910 INPUT "ENTER DATE SERVICED (MM/DD/YY).... "; D$(X,Y)
1912 INPUT "ENTER SERVICE REASON (14 POS).... "; R$(X,Y)
1914 INPUT "ENTER PLACE OF SERVICE (12 POS)... "; S$(X,Y)
1916 INPUT "ENTER SERVICE COST..... "; C
1918 C$(X,Y) = STR$(C)
1920 PRINT:PRINT "IS DATA ENTERED CORRECTLY?"
1922 E$= " ":INPUT "REPLY: YES OR NO";E$
1924 IF LEFT$(E$,1) = "N" THEN CLS: PRINT: GOTO 1910
1926 IF LEFT$(E$,1) <> "Y" THEN 1922
1930 PRINT:PRINT "DO YOU WISH TO ADD ANOTHER SERVICE RECORD?"
1935 E$= " ":INPUT "REPLY: YES OR NO";E$
1940 IF LEFT$(E$,1) = "Y" THEN CLS: PRINT: GOTO 1905
1945 IF LEFT$(E$,1) <> "N" THEN 1935
1950 GOTO 1998
1975 '
1976 ' CHECK FOR MAXIMUM SERVICE ENTRIES
1977 '
1980 CLS:PRINT
1981 PRINT "THE MAXIMUM OF FIVE SERVICE ENTRIES PER RECORD"
1982 PRINT "HAS BEEN EXCEEDED. IF YOU WISH TO ADD MORE SERVICE"
1983 PRINT "ENTRIES, YOU MUST CREATE A NEW RECORD FOR THE"
1984 PRINT "APPLIANCE/EQUIPMENT DESIRED. ":PRINT
1985 INPUT "PRESS ENTER TO CONTINUE";E$
1990 RETURN
1999 RETURN
2100 CLS:PRINT
2110 PRINT"THE MAXIMUM BLOCKSIZE OF 255 BYTES HAS BEEN EXCEEDED
"
2120 PRINT"DURING AN UPDATE. UPDATE FUNCTION IS TERMINATED. "
2130 PRINT"THIS ERROR USUALLY OCCURS DUE TO MAKING NAMES AND"
2140 PRINT"DESCRIPTIONS LONGER THAN INDICATED BY THE PROMPTS. "
2150 PRINT"THE CONTENTS OF ENTRY";X;" USED";TL;" BYTES OF MEMORY
"
2160 PRINT"TO INSURE FILE INTEGRITY, THE ABOVE APPLIANCE ENTRY"
2170 PRINT"SHOULD BE DELETED AND THEN RE-ENTERED IN ITS ENTIREIT
Y. "
2180 PRINT:INPUT"PRESS ENTER TO CONTINUE";E$
2190 RETURN

```



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

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# Histogram/ Scattergram

by Gary S. Breschini

**Histogram** constructs a five- to fourteen-element bar graph. User specifies the range of data and number of bars in graph; program sets upper and lower response limites for each bar element. Graph composed in "real time" as data is entered.

**Scattergram** plots XY information for visual analysis of trends. Extensive documentation.

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

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# TRS-80 Users Group Information

The Pacifica TRS-80 users group meets in the Radio Shack Store at the Eureka Square Shopping Center located about 10 miles from San Francisco on the 2nd and 4th Thursday of each month to exchange programs and ideas regarding the TRS-80. All are cordially invited. Call (415) 359-4687 for further details. Meeting time: 7:30 pm.

# Entrapment Entrapment Entrapment

by Robert C. Hall, III

This game looks deceptively simple. Actually, it's one of the best two-player games developed for the TRS-80. It requires fast reflexes, quick thinking, and grand strategy. Skill determines the outcome, yet the range is so broad that a four year old can play and enjoy it, so long as he's matched with an opponent of similar skill.

The object is to use the appropriate keys to move your line so that it boxes in your opponent. If you run into your opponent, the boundaries, or even your own line, you lose. This can be as simple as inadvertently pushing the down button when you're going up.

For younger children, the keys can be marked with arrows using tape or stick-on labels. You may find it necessary to require a person to move before his opponent gets halfway across the screen, otherwise a player could just sit still until the other player made a mistake.

MOVEMENT INSTRUCTIONS	LEFT PLAYER	RIGHT PLAYER
UP	W	P
RIGHT	S	;
DOWN	Z	.
LEFT	A	L

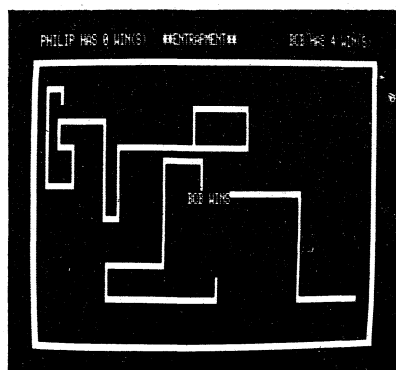
```

1 CLS
2 REM **ROBERT C. HALL, III (12/31/78)**
4 REM **PRINT THE INSTRUCTIONS**
5 GOSUB1000

10 CLS:PRINTCHR$(23)
11 PRINT"INPUT PLAYER ONE'S NAME:"
12 INPUTB$
13 PRINT:PRINT"INPUT PLAYER TWO'S NAME:"
14 INPUTC$
15 CLS
16 REM **SET UP THE BOARD**
20 FORX=0T0127:SET(X,4):SET(X,47):NEXT
30 FORY=5T046:SET(0,Y):SET(1,Y):SET(126,Y):SET(127,Y):NEXT
38 REM **PLAYER 1'S POSITION (X,Y): INCREMENTS A,B**
40 X=10:Y=10:A=0:B=0
44 REM **PLAYER 2'S POSITION (C,V): INCREMENTS D,E**
45 C=120:V=40:D=0:E=0
47 PRINT@1,B$;" HAS";RT;"WIN(S)";:PRINTTAB(23)**ENTRAPMENT**";
48 PRINT@(50-LEN(C$)),C$;" HAS";RE;"WIN(S)";
49 A$=INKEY$:IF A$="" THEN 50 ELSE 49
50 A$=INKEY$
55 IFA$=""THEN 500
60 IFA$="A"THENA=-1:B=0:GOTO500
65 IFA$="L"THEND=-1:E=0:GOTO600
70 IFA$="Z"THENA=0:B=1:GOTO500
75 IFA$=" "THEND=0:E=1:GOTO600
80 IFA$="S"THENA=1:B=0:GOTO500
85 IFA$=";"THEND=1:E=0:GOTO600
90 IFA$="W"THENA=0:B=-1:GOTO500
95 IFA$="P"THEND=0:E=-1:GOTO600

500 REM **MOVE THOSE PIECES**
513 IF(A=0)AND(B=0)THEN515
514 IFPOINT(X+A,Y+B)THEN 540
515 SET(X+A,Y+B)
520 X=X+A:Y=Y+B
530 GOTO600
540 PRINT@540,C$;" WINS";
541 RE=RE+1
545 FORX=1T01000:NEXT:GOTO15

```



```

600 IF(D=0)AND(E=0)THEN620
610 IFPOINT(C+D,V+E)THEN 700
620 SET(C+D,V+E)
630 C=C+D:V=V+E
640 GOTO50
700 PRINT@540,B$;" WINS";
701 RT=RT+1
710 GOTO545
1000 REM **SUBROUTINE TO PRINT INSTRUCTIONS**
1005 CLS
1010 PRINTCHR$(23);
1020 PRINT" I N S T R U C T I O N S"
1030 PRINTSTRING$(30,"*")
1040 PRINT"THIS IS THE GAME OF ENTRAPMENT"
1045 PRINT
1050 PRINT"THE OBJECT IS TO ENCLOSE YOUR"
1060 PRINT"OPONENT AND FORCE HIM TO HIT"
1070 PRINT"A WALL. COLLIDING WITH ANY"
1080 PRINT"LIT SPACE WILL RESULT IN THE"
1090 PRINT"LOSS OF THE GAME. "
1100 PRINT
1110 PRINT"THE GAME CONSISTS OF TWO MOV-"
1120 PRINT"ING WALLS, EACH CONTROLLED BY"
1130 PRINT"A DIFFERENT PLAYER. A CHANGE"
1140 PRINT"IN DIRECTION IS ACCOMPLISHED"
1150 PRINT"BY PRESSING CONTROL KEYS"
1151 INPUT"PRESS 'ENTER' TO CONTINUE";G$
1152 CLS:PRINTCHR$(23)
1160 PRINT"THE CONTROL KEYS ARE AS"
1170 PRINT"FOLLOWS:"
1174 PRINT:PRINT
1180 PRINT"DIRECTION    PLYR. #1    PLYR. #2"
1185 PRINTSTRING$(30,"*")
1190 PRINT"  UP            W            P"
1200 PRINT"DOWN         Z            ."
1210 PRINT"RIGHT        S            ;"
1220 PRINT"LEFT         A            L"
1230 PRINT:PRINT:INPUT"PRESS 'ENTER' TO CONTINUE";H$
1240 RETURN

```

# 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:

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# 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**

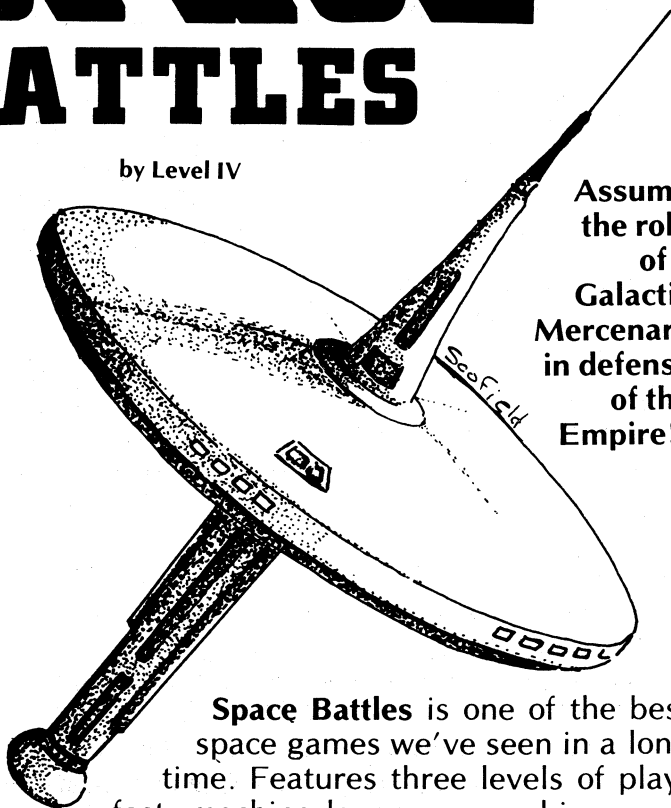
**NOTE:** Use of this software may require documentation available only with the purchase of Radio Shack TRSDOS 2.1 and/or the Radio Shack Editor / Assembler

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# SPACE BATTLES

by Level IV



Assume  
the role  
of a  
Galactic  
Mercenary  
in defense  
of the  
Empire!!

**Space Battles** is one of the best space games we've seen in a long time. Features three levels of play, fast, machine language graphics, real-time input, and "smart" enemy ships that move and shoot! You'll find that playing the part of a mercenary isn't simple. It's not enough to eliminate the aliens; you must turn a profit, missiles are expensive, the rewards are small, and watch out for the radiation belts!!! Available on Level II, 16K Tape or 32K Disk.

Tape — \$14.95

Disk — \$19.95

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SoftSide Presents:

## A Page from The BASIC Handbook by David A. Lien

The ON ERROR GOTO statement is used to branch to an error subroutine, when a program error is encountered, without stopping program execution. The ON ERROR GOTO statement must appear in the program before an execution error is anticipated. Any error encountered after the ON ERROR GOTO statement causes the computer to execute the line number listed in the ON ERROR GOTO statement.



Statement

### TEST PROGRAM

```
10 REM 'ON-ERROR-GOTO' TEST PROGRAM
20 ON ERROR GOTO 100
30 PRINT "ENTER A NUMBER AND ITS INVERSE WILL BE COMPUTED":
40 INPUT N
50 A=1/N
60 PRINT "THE INVERSE OF":N;"IS":A
70 GOTO 30
100 PRINT "THE INVERSE OF 0 CANNOT BE COMPUTED - TRY AGAIN"
110 RESUME 30
999 END
```

### SAMPLE RUN (using 4 and 0)

```
ENTER A NUMBER AND ITS INVERSE WILL BE COMPUTED? 4
THE INVERSE OF 4 IS .25
ENTER A NUMBER AND ITS INVERSE WILL BE COMPUTED? 0
THE INVERSE OF 0 CANNOT BE COMPUTED - TRY AGAIN
ENTER A NUMBER AND ITS INVERSE WILL BE COMPUTED?
```

(The error here was *DIVISION BY ZERO.*)

If ON ERROR GOTO 0 is executed during an ON ERROR GOTO subroutine, the error message is printed and program execution stops. Test this feature by adding the following line to the test program:

```
105 ON ERROR GOTO 0
```

A syntax error encountered by some computers causes the line containing the error to be printed by the edit feature after the ON ERROR GOTO statement has been executed and program execution has stopped. The computer is then in the Edit mode. To test this feature change line 50 in the TEST PROGRAM to:

```
50 ILLEGAL LINE
```

The RESUME statement is normally used to return to the main program from an ON ERROR GOTO subroutine.

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# Accounts Receivable II

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## HEBBLER SOFTWARE SERVICES

A comprehensive accounts receivable program with billing package offering menu oriented operation, audit trail with running balance for each account, date, description and exact amount for every filed transaction, special input procedures, automatic error checks — uses random data files.

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### The package which allows you to:

- Maintain receivables files on 200 accounts
- Add new accounts any time
- Change information
- Perform selective information search
- Assign terms
- Print listing of overdue accounts
- Print statements automatically for unpaid accounts
- Print a custom message on statements
- Print mailing labels
- Print an accounts receivable summary for all accounts or unpaid accounts only
- Post charges and credits at the keyboard

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Package includes one master diskette, one data diskette, and in depth instruction manual. Requires TRS-80 with 16K memory, two disk drives, and line printer. **\$79.95**

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# SOFTSIDE READER POLL

This month, we'd like you to help us determine the future shape of SoftSide. Choose answers to best describe your feelings about each of the possibilities listed below. THANKS!

- .....Six or seven short programs, no long features
- .....One or two long programs, two or three short ones
- .....Two good 16K programs
- .....A major feature, with a strong background article, a related program, and a shorter program that is unrelated
- .....A strong practical program, accompanied by a complete and useful application manual
- .....An educational application, with extra data sets for different age groups and settings
- .....One major simulation game, with a complete rulebook, charts, pictures, and background
- .....Your suggestions?.....

On a scale of 1 (lousy) to 9 (magnificent), using 0 for "no experience", how do you rate software from the suppliers listed below? (Your personal comments are especially appreciated in the margin or on a separate sheet of paper)

- |                                   |  |
|-----------------------------------|--|
| ..... Radio Shack                 | ..... Tape Talk magazine                   |
| ..... Instant Software (Kilobaud) | ..... Mad Hatter Software                  |
| ..... CLOAD magazine              | ..... Small System Software                |
| ..... Hobby World                 | ..... Programma International              |
| ..... FMG Corporation             | ..... G2                                   |
| ..... Lifeboat Associates         | ..... Level IV                             |
| ..... Computronics                | ..... Micro Architect                      |
| ..... Michael Shroyer Software    | ..... Personal Software                    |
| ..... ACS Services                | ..... Software-80                          |
| ..... Northeast Microware         | ..... People's Software (TRS-80 Computing) |
| ..... TRS-80 Software Exchange    | ..... Practical Applications               |
| ..... Simplexity Software         |  |

continued on next page.....

..... Sensational Software  
(Creative Computing)

..... Gaudeus Magazine

..... The Bottom Shelf

..... Trend IV

..... Computrex

..... Mumford Micro Systems

..... .....

How long have you had a Radio Shack Computer? .....months

How much have you spent on your system? \$.....

HAVE	WILL PURCHASE	HAVE	WILL PURCHASE	COST
.....	.....Level II TRS-80	.....	.....Radio Shack Printer	\$.....
.....	.....Expansion Interface	.....	.....Other Printer	\$.....
.....	.....Disk Drive (s) .....	.....K	.....K Memory	\$.....
.....	.....Speech Unit	.....	.....?.....	\$.....

How much do you spend per month on hardware? \$..... software \$.....

Would you be willing to pay premium prices for exceptionally high quality games,  
i.e., would you spend \$50.00 for a really super Star Trek? .....YES .....NO

What percentage of your computer use is:

Playing games ..... Learning to program ..... Other education.....

Business ..... Word Processing ..... Practical home applications .....

Connected with other interests ..... Programming for sale .....

COMMENTS:

Please mail responses to: READER POLL PO Box 68, Milford, NH 03055



## ENGAGEMENT ANNOUNCEMENT

Mr. and Mrs. Hypower Simulation  
proudly announce the  
engagement and forthcoming marriage  
of their daughter

FANTASY

to

TRS-80 COMPUTER

son of

Mr. and Mrs. Micro Computer  
Wedding will take place in  
SoftSide magazine in 1979

The staff of SoftSide is eagerly anticipating the birth of a new art form as a result of this match. We feel that one of the most creative art forms of the future will be the participation novel, in which you assume the role of a character and alter the direction of the story by your own actions, instead of simply reading what the original author conceived and wrote.

Right now, creative people who've been writing elaborate simulation games are working on computer adaptations. The progress they're making is exciting, with greater things to come! In our December issue, we presented **Santa Paravia en Fiumaccio**, breaking new ground in simulations on computer. In May we presented you with **Dog Star**, bringing us one step closer to the electronic novel. We foresee the time when elaborate simulations of high literary and artistic quality will captivate the leisure hours the way television does today, in much the same manner that television replaced radio drama, and radio drama led to a decline in reading for pleasure.

In March, SoftSide was contacted by the publisher of **The Dungeoneer** and **Judges Guild Journal**, two magazines specializing in the simulation game **Dungeons and Dragons**. In a copy of **The Dungeoneer** we were surprised to find a list of sixty-one other magazines also specializing in fantasy, war and simulation games. We also discovered that many of these people are starting to use the TRS-80. Once the creative work they're doing is suitably married to the computer, the electronic novel will be born! We're certain the day is not far off, and we intend to be part of it!

# KVP

**A UTILITY PROGRAM  
THAT GREATLY EXTENDS  
THE KEYBOARD, VIDEO,  
AND PRINTER  
SUBROUTINES IN YOUR  
LEVEL II ROM!**

by Lance Micklus

**KVP runs under DOS or Level II BASIC. It is relocatable under your control, and so may be used simultaneously with other machine language programs. At least 16K of memory is required.**

**Here are some of the things you'll be able to do:**

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Or, use any other serial input device in place of the TRS-80 keyboard

**ELIMINATE A COMMON SOURCE OF PROGRAM ERRORS** by running your keyboard in upper case only, or run in upper/lower case mode just like a typewriter

**PRACTICALLY ELIMINATE KEYBOARD BOUNCE** The amount of debouncing is user-adjustable

**DISPLAY UPPER AND LOWER CASE LETTERS** on your video monitor screen

**SIMULATE A RADIO SHACK SCREEN PRINTER** using an ordinary printer

**USE MOST ANY ASCII SERIAL PRINTER** such as Teletype 33 or Spinterm

**TELL THE TRS-80 YOU HAVE NO PRINTER AT ALL**

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GET RID OF YOUR G / &#x21;?)  
D# / ? ! :) TYPEWRITER ...

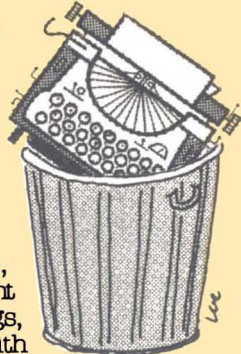
Effortless typing is here!

The Electric Pencil by Michael Shroyer is a true word-processing program for the TRS-80. Enter your manuscript, and let your computer do the work. Editing? Just position the cursor with the arrow keys ... one-key commands let you change, delete, or insert. Fully adjustable margins, left/right justification, variable spacing, page headings, and much more! Save and recall your text with tape or disk files. Typing everything from letters to reports is fast and incredibly easy using

The Electric Pencil.

Level II, 16K tape - \$100.00

Disk version - \$150.00

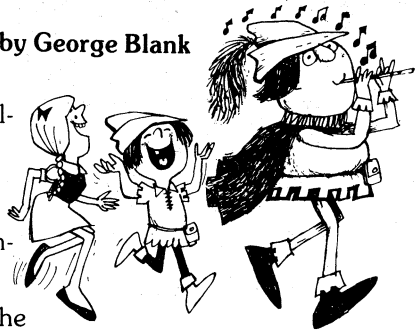


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# 9 Games for Pre-School Children

by George Blank

Until they go to school, children think that learning is fun, not work. Is this the reason that they learn so much faster in the early years? Play is natural learning. And learning is great play. With these games



children teach each other the alphabet, addition and subtraction, recognition of letters and words, even art as they play with patterns on the screen. The games are written for ages four to six. The author has a degree in education, with graduate study in child development and counseling, plus a wide variety of teaching experience in industry, the military, public and private schools, and churches. If you have children, and you also have a TRS-80, then you should have **Nine Games for Pre-School Children**. All nine games and the menu are in the computer at one time, and the children will quickly learn to select the one they want.

Level II, 16K — \$9.95

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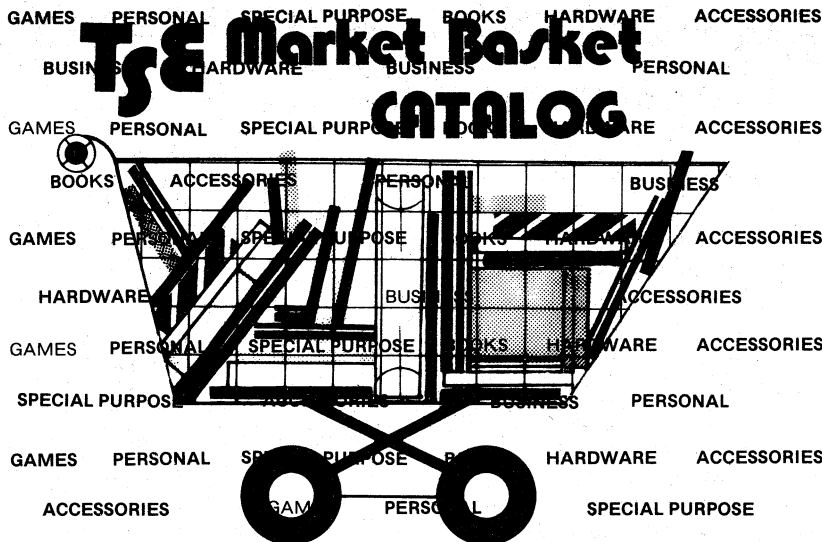
## TRS-80

### PROGRAMMING HINT



One way to add interest to a game is with real time action. This routine will pause a few seconds for an input, then continue if none is given, setting an input flag (I\$ = "F") to indicate that no input was provided. Then you can test for I\$ equal to F to assess a penalty if you wish. The timing can be adjusted with the FOR loop.

```
10 FOR A = 1 TO 500: I$ = INKEY$: IF I$ = " " THEN NEXT: I$ = "F"  
20 IF I$ = "F" PRINT "YOU WERE NOT FAST ENOUGH!"
```



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# Reference

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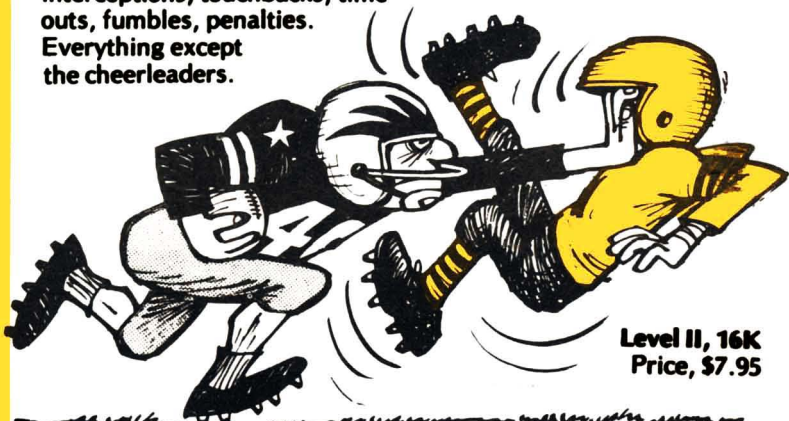
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# END ZONE

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