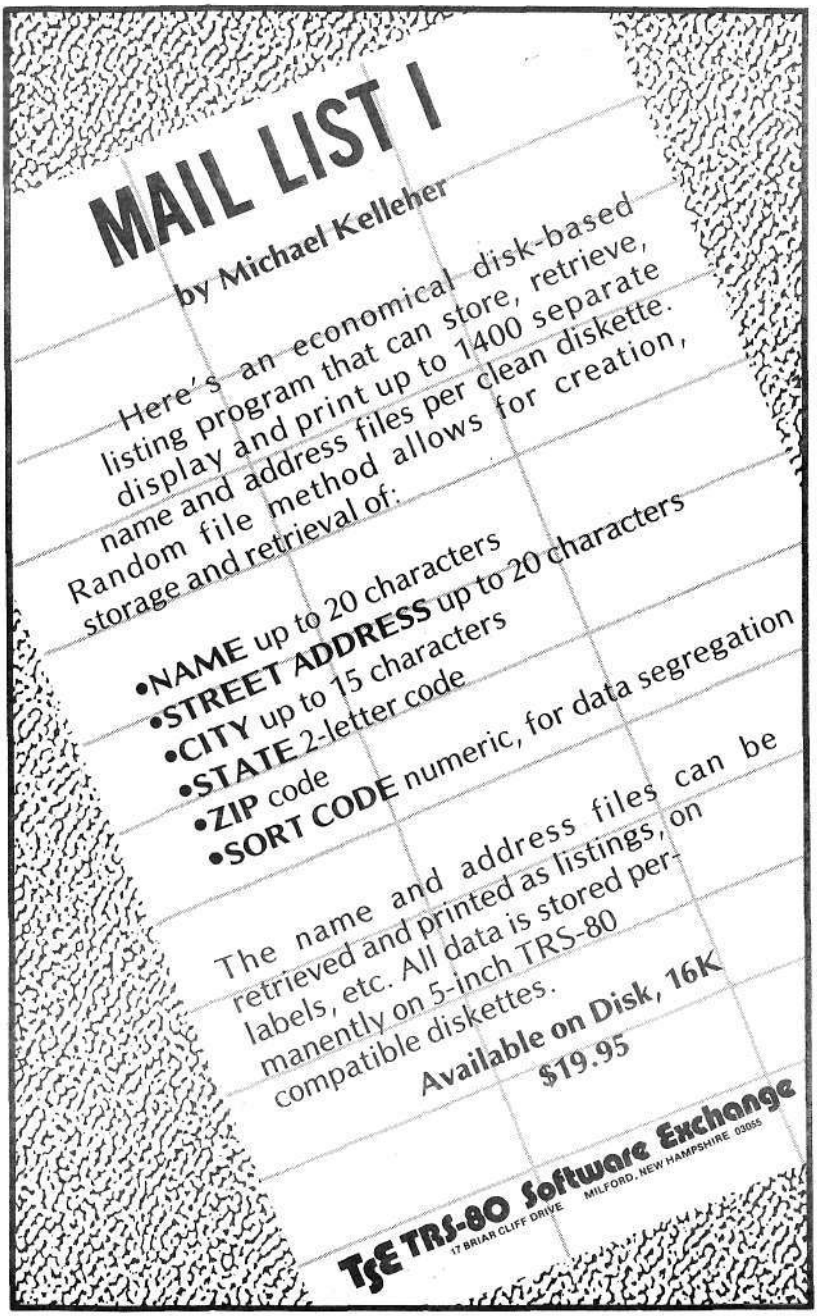
March 1979

SoftSide™

"your BASIC software magazine"

$1.50


MAIL LIST I
by Michael Kelleher
Here's an economical disk-based listing program that can store, retrieve, display and print up to 1400 separate name and address files per clean diskette. Random file method allows for creation, storage and retrieval of:
•NAME up to 20 characters
•STREET ADDRESS up to 20 characters
•CITY up to 15 characters
•STATE 2-letter code
•ZIP code
•SORT CODE numeric, for data segregation
The name and address files can be retrieved and printed as listings, on labels, etc. All data is stored permanently on 5-inch TRS-80 compatible diskettes.
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$19.95
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SoftSide magazine is continually seeking original articles and software for publication. Imagination and variety in concept and content are the rules at **SoftSide** — not the exceptions. Articles are purchased on a per-page basis, based on content and applicability. Our policies with respect to software purchase are highly individualized, and offer the programmer several options, including one-time publication rights, outright purchase, and royalties on sale of pre-recorded cassettes. For more information, please write: **SoftSide**, PO Box 68, Milford, NH 03055.

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

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Just to let you know...

Outgoing Mail

Perhaps the greatest reward for an editor is the association with readers and authors, whether it's a chance meeting, a telephone call, or through the mail. **SoftSide** is more than a few pages with ink printed on them. It's an association of readers, programmers and staff, exploring the frontiers of a revolution — the rise of personal computing and the power of information-handling; and all of us with computers are manning the barricades.

There's the joy of discovery as new ways are found to release the power of personal computers. There's the joy of sharing a newly-learned technique with friends, and there's the joy of an exciting new game or release from drudgery made possible by a program that retypes our letters or keeps our financial records in order.

SoftSide looks upon its readers as partners in this enterprise. We're even willing to share the profits with you! All you have to do to claim a share is send in your programs and articles. We need good programming and because we're associated with **PROG/80, BIZ-80** and the **TRS-80 Software Exchange**, we can use all kinds of programs — either to publish as magazine articles or offer as machine-readable software on tape or disk.

We want to share other good things with you. That's why we do our best to offer you supplies like diskettes and software like FORTRAN at excellent prices. We're committed to providing a wide variety of top quality debugged software through the TRS-80 Software Exchange.

We need your help to make these things happen. One thing we want to do is increase our circulation. We're committed to quality — in fact, we insure it by paying well

for articles and programs we publish. You've probably seen the same authors' names in issue after issue. That's largely because they know we pay faster (and better) than even the large computer publications. Do your part to increase our circulation. Tell your friends about **SoftSide**. Talk to your local computer store and encourage them to carry it. Write to us; tell us what we're doing right and (shudder) what we've done wrong. Tell us what you want to see in **SoftSide** and in our other publications. By all means, continue to send us good programs. There's a very heavy demand for major simulation games such as **End Zone, Santa Paravia, Clipper** and **Safari** (coming in next month's issue). We've received a lot of mail telling us that you prefer these simulation games to war games. We also receive mail from people who enjoy the war games, so we'll continue to offer the best ones, but there is a special need for major simulations. Also, we want good practical programs like **Checkbook** and **Form 1040.**

Only **you** can make **SoftSide** the leading software supplier for TRS-80. That's what we intend to be. We're determined to offer more and better free-for-transcription programs than anyone else. We'll continue to emphasize the Level II TRS-80. We're convinced that anyone buying a new Level II computer or upgrading a Level I will find no better publication to meet their needs. At the same time, we're committed to offering limited support to Level I owners as well as to owners of the other computers which use Microsoft BASIC. The main difficulty with transferring programs from one brand of computer to another is in converting graphics routines. For this reason, we encourage programmers to put graphics in clearly separated subroutines with adequate remark statements, and explain what the graphics do in their accompanying articles. We'll try to do our part by providing good pictures of graphics displays for you to work from. (If you've converted some of our programs to a different computer, write and tell us about it. We want to hear from you.)

Until next month, when we shall go on **Safari** together, keep pounding those keys!

GWB

TRS-80 Software Exchange

Electronic Assistant **by John Adamson** A group of 8 subprograms designed to solve problems such as tuned circuits and active and passive filters. Level II, 16K **$9.95**

BIZ-80 Business 1980's — **see pages 22—25!**

Prog-80 Our new programmers' magazine 4 issues only $10.00

Safari **by David Bolke** You have a contract from a Hollywood studio — photograph animals in their natural environments Level II, 16K **$7.95**

Amazing Mazes **by Robert Wallace** Off you go in the Amazing Maze — but stop a moment — the passages are changing! The sooner you get out, the more points you'll score. Level II, 16K **$7.95**

Adventure on tape **by Scott Adams** Our fantastic mind-journey, now available on tape! Level II, 16K **$14.95**

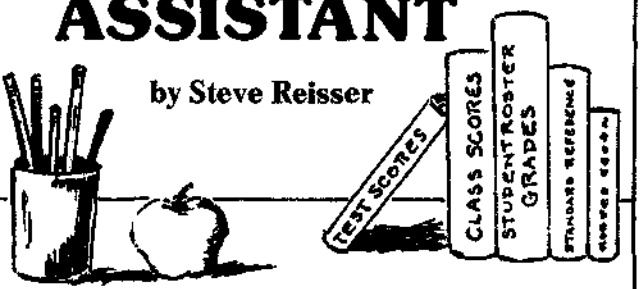
Advanced Personal Finance **by Lance Micklus** Includes all the features in our Personal Finance articles (March and April SoftSide) PLUS an advanced analysis routine Level II, 32K **$19.95**

KVP Extender **by Lance Micklus** Debounce is only one of the problems it addresses — also corrects upper case lock (A<>2), etc. Available either on tape or disk **Tape $14.95 Disk $19.95**

ST-80 **by Lance Micklus** Turns your TRS-80 into a computer terminal (see advertisement on page 16, this issue) Level II, 16K **Tape, $49.95**

EDUCATOR ASSISTANT

by Steve Reisser



Educational personnel from elementary to post-doctoral levels will find this set of 5 programs useful in solving problems frequently encountered in grading and averaging.

The subprograms which may be used will compute percentage, individual student averages, individual and class averages, standardized test scores (simple Z and standard scores) and will compute the student's final grade bases upon any number of course components.

Available for Level II, 16K
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Shrouded in mysticism and legend, Tarot cards are ancient forerunners of modern-day playing cards. Although their beauty and significance have evolved over centuries of interpretation and meditation, their symbolic references to astrology, myths, magic and religion remain relevant and fascinating, even in this age of computer technology.

TAROT

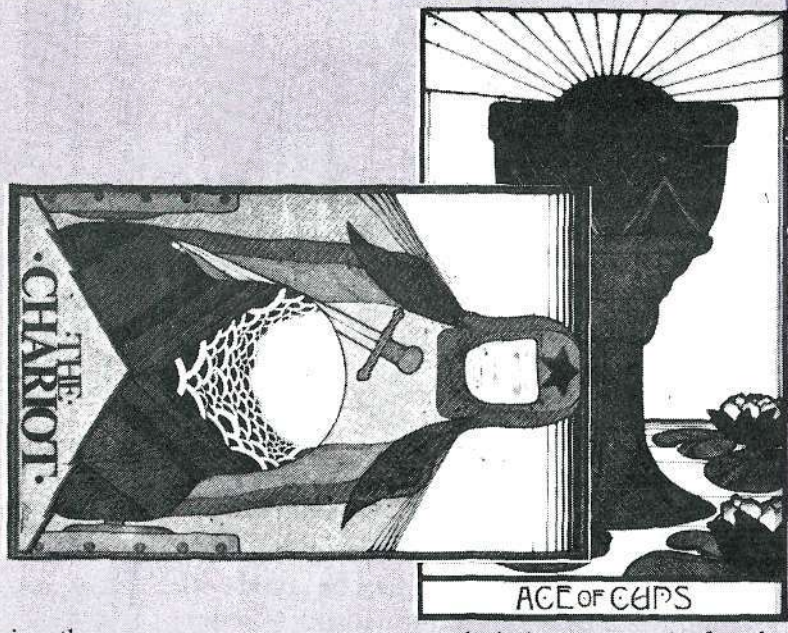
by Frank B. Rowlett, Jr.

The **Tarot** program uses the Egyptian Tarot Card deck and the five card "Yes or No" spread. The Tarot deck consists of 78 cards — 22 Major Arcana cards, 16 Court Arcana cards, and 40 Minor Arcana cards. The Court Arcana and Minor Arcana cards are divided into four suits: Scepters, Cups, Swords, and Coins. There are four ranks in the Court Arcans cards: King, Queen, Youth, and Horseman. The Minor Arcana cards are numbered from one to ten in each suit.

The computer first asks you to enter a question that can be answered by yes or no. Once you have done so, the computer deals out five cards from right to left.

The first two cards indicate the past as it relates to the question. The center, or key, card indicates the present, and the last two cards — the leftmost two cards — indicate the future.

The answer to your question is then determined by whether the cards are dealt right side up or upside down. A bar appears at the bottom of each card (unless the card is upside down; then the bar looks as if it is on the top of the card.) A card right side up indicates a "yes" response; upside down, it indicates a "no". The center or key card counts twice. When all five cards have been dealt, the yeses and noes are tallied. Whichever there is more of deter-



mines the answer.

It's possible to have an equal number of yeses and noes. If this happens, the answer is uncertain. This situation is caused by not concentrating properly on the cards or not asking the question sincerely — or possibly, the person who asked the question was concentrating on another question.

At times a man or woman of some astrological temperament is indicated. This does not mean that the person referred to was born under that sign; it means they are of the temperament of that astrological sign.

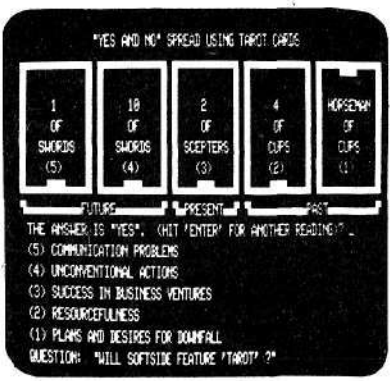
The gender of the person of astrological temperament referred to is determined by the position of the cards. When right side up, the Youth and King cards represent a male and when upside down, a female. The Queen right side up stands for a female and upside down for a male.

The Horseman card indicates either good or bad situations. When right side up it represents good and when upside down it indicates bad.

NOTE: If you'd like more details about Tarot cards and their history, we suggest you read one of the many books available on the subject. The reference used in the development of this program is **How to Read Tarot Cards** by Doris C. Doane and King Keyes.

```
10 RANDOM:CLEAR100:DIMA(84)
40 CLS:GOSUB4000
50 GOTO40
1000 REM * GET NEXT CARD *
1010 A(D)=RND(78):IFA(D+A(D))=0GOTO1010
1020 A(D+A(D))=0:IFA(D)>78A(D)=10*(A(D)-56)+5:GOTO1040
1030 V=INT((A(D)-1)/5):A(D)=V*10+10+A(D)-V*5
1040 V=RND(78):IFV>39A(D)=0-A(D)
1050 RETURN
1100 REM * DRAW LAYOUT *
1110 CLS:PRINT@12,CHR$(34);"YES AND NO";CHR$(34);" SPREAD USING TAROT CARDS";
1120 PRINT@522,"FUTURE";:PRINT@540,"PRESENT";:PRINT@562,"PAST";:PRINT@576,"";
1130 FORX=0TO1:SET(X,24):SET(X+48,24):SET(X+52,24):SET(X+74,24):SET(X+78,24)
1140 SET(X+126,24):NEXTX:FORX=1TO19:SET(X,25):NEXTX:FORX=32TO48:SET(X,25):NEXTX
1150 FORX=53TO55:SET(X,25):NEXTX:FORX=70TO74:SET(X,25):NEXTX
1160 FORX=79TO99:SET(X,25):NEXTX:FORX=108TO126:SET(X,25):NEXTX
1170 FORZ=0TO104STEP26:FORX=0TO23:SET(X+Z,4):SET(X+Z,22):NEXTX:NEXTZ
1180 FOR2=0TO104STEP26:FORY=5TO21:FORX=0TO1:SET(X+Z,Y):SET(X+Z+22,Y):NEXTX:NEXTY
1190 NEXTZ:PRINT@388,"(5)";:PRINT@401,"(4)";:PRINT@414,"(3)";:PRINT@427,"(2)";
1200 PRINT@440,"(1)";:PRINT@961,"QUESTION:  ";CHR$(34);A$;CHR$(34);:RETURN
1500 REM * PRINT CARDS *
1520 FORY=0TO1000:NEXTV:IFS=5GOTO1640
1530 PRINT@261+13*(X-1),"OF";:W=322+13*(X-1):IFS=1PRINT@W,"SCEPTERS";
1540 IFS=2PRINT@W," CUPS";
1550 IFS=3PRINT@W," COINS";
1560 IFS=4PRINT@W," SWORDS";
1570 W=194+(X-1)*13:IFR<11PRINT@W+2,R:GOTO1620
1580 IFR=11PRINT@W," YOUTH";
1590 IFR=12PRINT@W," QUEEN";
1600 IFR=13PRINT@W," KING";
1610 IFR=14PRINT@W,"HORSEMAN";
1620 W=9+(X-1)*26:Y=21:IFA(D)<80Y=5
1630 FORV=WTOW+5:SET(V,Y):NEXTV:RETURN
1640 PRINT@195+(X-1)*13,"MAJOR";:PRINT@258+(X-1)*13,"ARCANUM";
1650 W=323+(X-1)*13:IFR=1PRINT@W," I";
1660 IFR=2PRINT@W," II";
1670 IFR=3PRINT@W," III";
1680 IFR=4PRINT@W," IV";
1690 IFR=5PRINT@W," V";
1700 IFR=6PRINT@W," VI";
```

```
1710 IFR=7PRINT@W," VII";
1720 IFR=8PRINT@W," VIII";
1730 IFR=9PRINT@W,"  IX";
1740 IFR=10PRINT@W,"  X";
1750 IFR=11PRINT@W,"  XI";
1760 IFR=12PRINT@W," XII";
1770 IFR=13PRINT@W," XIII";
1780 IFR=14PRINT@W," XIV";
1790 IFR=15PRINT@W,"  XV";
1800 IFR=16PRINT@W," XVI";
1810 IFR=17PRINT@W," XVII";
1820 IFR=18PRINT@W,"XVIII";
1830 IFR=19PRINT@W," XIX";
1840 IFR=20PRINT@W,"  XX";
1850 IFR=21PRINT@W," XXI";
1860 IFR=22PRINT@W," XXII";
1870 GOTO1620
2000 REM * DATA FOR CARDS *
2010 DATA1,5,WILL P,OWER
2020 DATA1,1,NEWS OF A BUSINE,SS OPPORTUNITY
2030 DATA1,2,MO,ODS
2040 DATA1,3,REWARD,S
2050 DATA1,4,COMMUNICATION PR,OBLEMS
2060 DATA2,5,REVELATION THROU,GH SCIENCE
2070 DATA2,1,SUCCESS IN BUSIN,ESS VENTURES
2080 DATA2,2,A WORK OF LO,VE
2090 DATA2,3,FINANCIAL GRIN T,HROUGH WORK
2100 DATA2,4,MARTYRDOM AND ST,RENGTH
2110 DATA3,5,MARRIAGE OR ACTI,ON
2120 DATA3,1,TAKE ACTION FOR ,THE FUTURE
2130 DATA3,2,ROMANTIC ACTIVIT,Y
2140 DATA3,3,GRIN THROUGH SOC,IAL ACTIVITIES
2150 DATA3,4,ACTIVITY TO OVER,COME ADVERSITY
2160 DATA4,5,ABUNDANT CREATIV,E ENERGY
2170 DATA4,1,SUCCESSFUL ENTER,PRISE
2180 DATA4,2,RESOURCEFULNE,SS
2190 DATA4,3,UNEXPECTED FINAN,CIAL GAIN
2200 DATA4,4,FINANCIAL REVERS,ES
2210 DATA5,5,HELP THROUGH INS,PIRATION
2220 DATA5,1,GRIN THROUGH SPE,CULATION
```

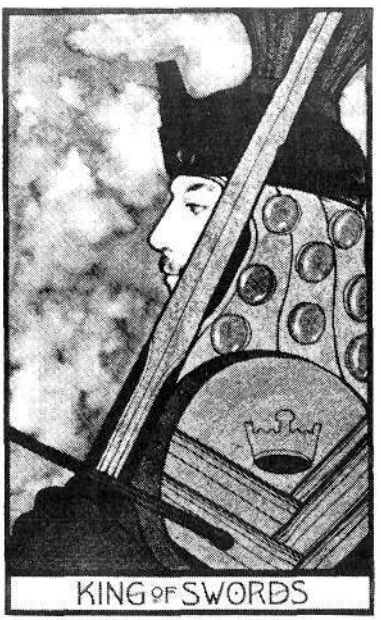


```
2230 DATA5,2,RESPONSIBILIT,Y
2240 DATA5,3,PROFITABLE EVEN,T
2250 DATA5,4,OBSTACLES OVERCO,ME BY FAITH
2260 DATA6,5,STABILIZE EMOTIO,NS
2270 DATA6,1,AMBITIO,N
2280 DATA6,2,USE CREATIVE IMA,GINATION
2290 DATA6,3,PROFIT FROM SOCI,AL AFFAIRS
2300 DATA6,4,TEMPTATION RELAT,ING TO BUSINESS
2310 DATA7,5,SUCCESS THROUGH ,INTELLIGENCE
2320 DATA7,1,SPREAD OF CONSTR,UCTIVE IDEAS
2330 DATA7,2,RESOLUTION OF DO,MESTIC DISCORD
2340 DATA7,3,PROFIABLE VENTUR,E
2350 DATA7,4,PROGRESS AFTER C,ONFLICT
2360 DATA8,5,MODERATION IN AL,L THINGS
2370 DATA8,1,BUSINESS INITIAT,IVE SUCCESS
2380 DATA8,2,BLEND OF PRACTIC,AL WITH IDEAL
2390 DATA8,3,FINANCIAL PROBLE,MS
2400 DATA8,4,STRUGGLE TO MAIN,TAIN BALANCE
2410 DATA9,5,WISDOM AND PRUDE,NCE
2420 DATA9,1,WISE AND PROFIAB,LE FRIENDSHIP
2430 DATA9,2,EMOTIONAL STABIL,ITY
2440 DATA9,3,INCREASE OF INCO,ME
2450 DATA9,4,LOSS OF FRIENDSH,IP
2460 DATA10,5,CHANGE OF FORTUN,E
2470 DATA10,1,A CHANGE IN STAT,US
2480 DATA10,2,INCONSISTANT EMO,TIONS
2490 DATA10,3,FINANCAL LOSS AN,D GAIN
2500 DATA10,4,UNCONVENTIONAL A,CTIONS
2510 DATA11,5,MORAL FORCE,
2520 DATA12,5,DISAPPOINTMENT,
2530 DATA13,5,DEATH OR TRANSFO,RMATION
2540 DATA14,5,DILIGENCE TO REA,CH GOAL
2550 DATA15,5,FATALITY OR BLAC,K MAGIC
2560 DATA16,5,ACCIDENT OR CATA,STROPHE
2570 DATA17,5,OVERCOMING PROBL,EMS
2580 DATA18,5,DECEPTION,
2590 DATA19,5,HAPPINESS OR JOY,
2600 DATA20,5,AWAKENING OR RES,URRECTION
2610 DATA21,5,SUCCESS OR ATTAI,NMENT
2620 DATA22,5,SUFFERING FOLLOW,S SIN
```

```
2630 DATA13,1,OF AN ARIES TEMP,ERAMENT
2640 DATA13,2,OF A TAURUS TEMP,ERAMENT
2650 DATA13,3,OF A GEMINI TEMP,ERAMENT
2660 DATA13,4,OF A CANCER TEMP,ERAMENT
2670 DATA12,1,OF A LEO TEMPERA,MENT
2680 DATA12,2,OF A VIRGO TEMPE,RAMENT
2690 DATA12,3,OF A LIBRA TEMPE,RAMENT
2700 DATA12,4,OF A SCORPIO TEN,PERAMENT
2710 DATA11,1,OF A SAGITARIAN ,TEMPERAMENT
2720 DATA11,2,OF A CAPRICORN T,EMPERAMENT
2730 DATA11,3,OF AN AQUARIAN T,EMPERAMENT
2740 DATA11,4,OF A PISCES TEMP,ERAMENT
2750 DATA14,1,ADVANTAGEOUS THO,UGHTS
2760 DATA-14,1,THOUGHTS OPPOSE,D TO BUSINESS
2770 DATA14,2,THOUGHTS FOR PRO,MOTION
2780 DATA-14,2,PLANS AND DESIRE,S FOR DOWNFALL
2790 DATA14,3,THOUGHTS TO INCR,EASE POSPERITY
2800 DATA-14,3,PLOTS FOR UNFAI,R ADVANTAGE
2810 DATA14,4,SINCERE THOUGHT,S
2820 DATA-14,4,DECEIT AND LIES,
3000 REM * PRINT MESSAGES *
3015 RESTORE:IFX=5PRINT@897,"(1) ";
3020 IFX=4PRINT@833,"(2) ";
3030 IFX=3PRINT@769,"(3) ";
3040 IFX=2PRINT@705,"(4) ";
3050 IFX=1PRINT@641,"(5) ";
3060 IFS=5GOTO3120
3070 IFR>10GOTO3350
3080 READU,V,A$,B$
3090 IF(R=U)*(S=V)GOTO3110
3100 GOTO3080
3110 PRINTA$;B$;:RETURN
3120 PRINT"(";:IFR=1PRINT"THE MAGUS";
3130 IFR=2PRINT"VEILED ISIS";
3140 IFR=3PRINT"ISIS UNVEILED";
3150 IFR=4PRINT"THE SOVEREIGN";
3160 IFR=5PRINT"THE HIEROPHANT";
3170 IFR=6PRINT"THE TWO PATHS";
3180 IFR=7PRINT"THE CONQUEROR";
```

```
3190 IFR=8PRINT"THE BALANCE";
3200 IFR=9PRINT"THE SAGE";
3210 IFR=10PRINT"THE WHEEL";
3220 IFR=11PRINT"THE ENCHANTRESS";
3230 IFR=12PRINT"THE MARTYR";
3240 IFR=13PRINT"THE REAPER";
3250 IFR=14PRINT"THE ALCHEMIST";
3260 IFR=15PRINT"THE BLACK MAGICIAN";
3270 IFR=16PRINT"LIGHTNING";
3280 IFR=17PRINT"STAR";
3290 IFR=18PRINT"MOON";
3300 IFR=19PRINT"SUN";
3310 IFR=20PRINT"SARCOPHAGUS";
3320 IFR=21PRINT"HOEPT";
3330 IFR=22PRINT"MATERIALIST";
3340 PRINT") ";:GOTO3000
3350 IFR=14GOTO3390
3360 IF((A(L+X)>0)*((R=11)+(R=13)))+((R=12)*(A(L+X)<0))GOTO3380
3370 PRINT"A WOMAN ";:GOTO3000
3380 PRINT"A MAN ";:GOTO3000
3390 V=R:IFA(L+X)<0V=0-V
3400 READU,V,A$,B$:IF(U=Y)*(S=V)GOTO3110
3410 GOTO3400
4000 REM * START A NEW LAYOUT *
4010 D=0:FORX=1TO78:A(D+X)=X:NEXTX:L=78:FORU=1TO5:GOSUB1000:A(L+U)=A(D):NEXTU
4020 CLS:PRINT@12,CHR$(34);"YES AND NO";CHR$(34);" SPREAD USING TAROT CARDS";
4030 PRINT@192,"PLEASE ASK A QUESTION THAT CAN
     BE ANSWERED BY ";CHR$(34);"YES";CHR$(34);" ";
4040 PRINT"OR ";CHR$(34);"NO";CHR$(34)
4050 PRINT@328,"";:INPUTA$:PRINT@576,CHR$(34);A$;
4053 IFRIGHT$(A$,1)<>"?"THENPRINT"?";:A$=A$+"?"
4056 PRINTCHR$(34)
4060 PRINT@704,"IS THIS YOUR QUESTION (YES OR NO)";:INPUTX$
4070 IFX$="NO"GOTO4020
4075 IFX$="N"GOTO4020
4080 GOSUB1100:FORX=5TO1STEP-1:IFX>0PRINT@577,"HIT 'ENTER' FOR CARD";:INPUTA$
4083 PRINT@577,"                    ";A(D)=A(L+X)
     :R=INT(ABS(A(D))/10):S=ABS(A(D))-10*R
4090 GOSUB1500:GOSUB3000:NEXTX:Y=0:FORX=1TO5:IFA(L+X)>0V=V+1
```

```
4100 IF(X=3)*(A(L+X)>0)Y=Y+1
4110 NEXTX:PRINT@577,"";:IFY=3PRINT"THE ANSWER IS UNCERTAIN.";
4120 IFY<3PRINT"THE ANSWER IS ";CHR$(34);"NO";CHR$(34);".";
4130 IFY>3PRINT"THE ANSWER IS ";CHR$(34);"YES";CHR$(34);".";
4140 INPUT"  (HIT 'ENTER' FOR ANOTHER READING)";A$:RETURN
```



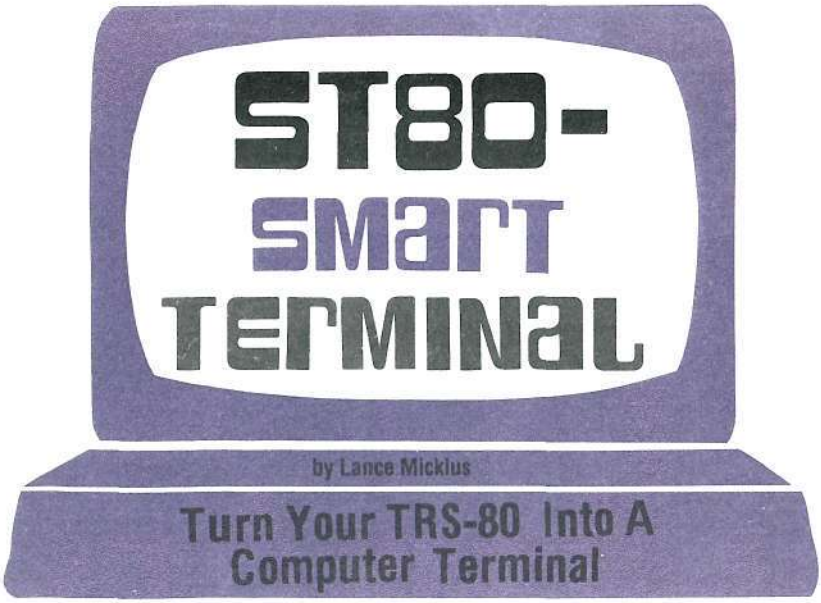
KING OF SWORDS

TWO OF CUPS

TRS-80 PROGRAMMING HINT

If you find you're writing subroutines for line printer reports, you may find this information useful: memory location 14312 (decimal) holds the line printer status. A value of 255 indicates the line printer is OFF. A value of 233 indicates it's ON, but unavailable for use. Finally, a value of 63 is status READY TO print. To prevent getting hung up because the line printer isn't connected (or whatever), use this before commanding the program to 'LPRINT':

```
1000C=PEEK(14312)
1010 IF C<>63 RETURN
     (DON'T LPRINT)
```



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

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

Level II, 16K Price, $49.95 on tape

TSE TRS-80 Software Exchange

17 Briar Cliff Drive Milford, New Hampshire 03055

by Dr. Stephen W. Hebbler

A few years back, Congress authorized the gradual conversion of the American unit of measure from the archaic (though time-honored) ENGLISH system-pounds, feet, gallons-to the more uniform and interrelated universal METRIC system.

Here's a program designed to take some of the ache out of the changeover:

```
50 POKE16553,255:GOTO100
74 ************************************************
75            METRIC/ENGLISH CONVERTER
76       LEVEL II  VERSION  (REVISED  9-25-78)
78           BY  DR.  STEPHEN  W.  HEBBLER
79 ************************************************
100 CLS:PRINTTAB(8);"M E T R I C / E N G L I S H   C O N V E R T E R"
110 PRINT:PRINT"WHAT KIND OF CONVERSIONS DO YOU WANT TO PERFORM":Z=0
120  PRINT"(1=LENGTH, 2=WEIGHT, 3=VOLUME, 4=TEMPERATURE, 5=AREA) ";
125 INPUTU
```

```
130 PRINT:ONUGOTO140,140,140,135,7000,9999
135 A$="DEGREES CELSIUS":B$="DEG. FAHRENHEIT":GOTO245
140 FORI=1TOU:READB$:NEXTI:RESTORE
145 PRINT"WHAT WILL BE YOUR METRIC UNIT OF ";B$
150 ONUGOTO160,170,180
160 INPUT"(1=MILLIMETERS, 2=CENTIMETERS, 3=METERS, 4=KILOMETERS) ";M:GOTO190
170 INPUT"(1=MILLIGRAMS, 2=CENTIGRAMS, 3=GRAMS, 4=KILOGRAMS) ";M:GOTO190
180 INPUT"(1=MILLILITERS, 2=CENTILITERS, 3=LITERS, 4=KILOLITERS) ";M:GOTO190
190 PRINT:PRINT"WHAT WILL BE YOUR ENGLISH UNIT OF ";B$:ONUGOTO210,220,230
210 INPUT"(1=INCHES, 2=FEET, 3=YARDS, 4=MILES) ";E:GOTO240
220 INPUT"(1=OUNCES, 2=POUNDS) ";E:GOTO240
230 PRINT"(1=TEASPOONS, 2=TABLESPOONS, 3=FLUID OUNCES, 4=CUPS,
235 INPUT" 5=PINTS, 6=QUARTS, 7=GALLONS) ";E
240 PRINT
245 PRINT"WHICH WAY DO YOU WANT TO CONVERT"
250 INPUT"(1=ENGLISH TO METRIC, 2=METRIC TO ENGLISH) ";D:IFU>3THEN900
300 CLS:PRINT:FORI=1TO4+4*(U-1)+M:READA$:NEXTI:RESTORE
310 FORI=1TO16+7*(U-1)+E:READB$:NEXTI:RESTORE:ONMGOTO320,330,340,350
320 M=1000:GOTO900
330 M=100:GOTO900
340 M=1:GOTO900
350 M=.001
400 DATA"LENGTH","WEIGHT","VOLUME","TEMPERATURE"
410 DATA"MILLIMETERS","CENTIMETERS","METERS","KILOMETERS"
420 DATA"MILLIGRAMS","CENTIGRAMS","GRAMS","KILOGRAMS"
430 DATA"MILLILITERS","CENTILITERS","LITERS","KILOLITERS"
440 DATA"INCHES","FEET","YARDS","MILES","*","*","*"
450 DATA"OUNCES","POUNDS","*","*","*","*","*"
460 DATA"TEASPOONS","TABLESPOONS","FLUID OUNCES","CUPS"
470 DATA"PINTS","QUARTS","GALLONS"
900 ONDGOTO4500,5500
1000 ONUGOTO1050,1450,1650,2350,2500
1050 ONEGOTO1100,1200,1300,1400
1100 Y=.0254*X*M:GOSUB5000:GOTO1100
1200 Y=.3048*X*M:GOSUB5000:GOTO1200
1300 Y=.9144*X*M:GOSUB5000:GOTO1300
1400 Y=1609.34*M*X:GOSUB5000:GOTO1400
1450 ONEGOTO1500,1600
1500 Y=28.3495*M*X:GOSUB5000:GOTO1500
1600 Y=453.592*M*X:GOSUB5000:GOTO1600
```

```
1650 ONEGOTO1700,1800,1900,2000,2100,2200,2300
1700 Y=.00493*X*M:GOSUB5000:GOTO1700
1800 Y=.0148*X*M:GOSUB5000:GOTO1800
1900 Y=.029573*X*M:GOSUB5000:GOTO1900
2000 Y=.2366*X*M:GOSUB5000:GOTO2000
2100 Y=.473163*X*M:GOSUB5000:GOTO2100
2200 Y=.946326*X*M:GOSUB5000:GOTO2200
2300 Y=3.78531*X*M:GOSUB5000:GOTO2300
2350 Y=(X-32)*5/9:GOSUB5000:GOTO2350
2500 ONEGOTO2600,2700
2600 Y=.092903*X:GOSUB5000:GOTO2600
2700 Y=.836127*X:GOSUB5000:GOTO2700
3000 ONUGOTO3050,3350,3550,4300,4400
3050 ONEGOTO3100,3200,3300,3325
3100 Y=39.3701*X/M:GOSUB6000:GOTO3100
3200 Y=3.28084*X/M:GOSUB6000:GOTO3200
3300 Y=1.09361*X/M:GOSUB6000:GOTO3300
3325 Y=.0006214*X/M:GOSUB6000:GOTO3325
3350 ONEGOTO3400,3500
3400 Y=X/M*.035274:GOSUB6000:GOTO3400
3500 Y=X/M*.002205:GOSUB6000:GOTO3500
3550 ONEGOTO3600,3700,3800,3900,4000,4100,4200
3600 Y=X/M*202.94:GOSUB6000:GOTO3600
3700 Y=X/M*67.648:GOSUB6000:GOTO3700
3800 Y=X/M*33.815:GOSUB6000:GOTO3800
3900 Y=X/M*4.226:GOSUB6000:GOTO3900
4000 Y=X/M*2.11344:GOSUB6000:GOTO4000
4100 Y=X/M*1.05672:GOSUB6000:GOTO4100
4200 Y=X/M*.264179:GOSUB6000:GOTO4200
4300 Y=X*1.8+32:GOSUB6000:GOTO4300
4400 ONEGOTO4450,4460
4450 Y=10.7639*X:GOSUB6000:GOTO4450
4460 Y=1.19599*X:GOSUB6000:GOTO4460
4500 CLS:PRINT@64,"ENGLISH TO METRIC . . .  INPUT @ TO STOP
4600 PRINT"-------------------------------------------------
4700 PRINTB$;TAB(30);R$
4800 PRINT"-------------------------------------------------
4850 IFZ=0THENZ=1:K=1:INPUTX$:X=VAL(X$):IFX$="0"THEN100ELSE1000
4900 K=1:PRINT" ";X:GOTO1000
```

```
ENGLISH TO METRIC . . .  INPUT 0 TO STOP

SQUARE FEET                SQUARE METERS

? 12                       1.11484
? 1                        .092903
? 56                       5.20257
? 10                       .92903
? 40                       3.71612
? 50                       4.64515
? 100                      9.2903
? 12003                    1115.11
? 36                       3.34451
? 13                       1.20774
? _
```

```
5000 PRINT@286+64*K,Y:INPUTX$:X=VAL(X$):K=K+1:IFX$="@"THEN100
5200 IFK=11THEN4500
5300 RETURN
5500 CLS:PRINT@64,"METRIC TO ENGLISH . . . INPUT @ TO STOP
5600 PRINT"-------------------------------------------------
5700 PRINTA$;TAB(30);B$
5800 PRINT"-------------------------------------------------
5850 IFZ=0THENZ=1:K=1:INPUTX$:X=VAL(X$):IFX$="@"THEN100ELSE3000
5900 K=1:PRINT" ";X:GOTO3000
6000 PRINT@286+64*K,Y:INPUTX$:X=VAL(X$):K=K+1:IFX$="@"THEN100
6200 IFK=11THEN5500
6300 RETURN
7000 A$="SQUARE METERS":B$="SQUARE FEET"
7050 PRINT"METRIC UNIT OF AREA WILL BE ";A$;".":PRINT
7100 PRINT"WHAT WILL BE YOUR ENGLISH UNIT OF AREA
7200 INPUT"(1=SQUARE FEET, 2=SQUARE YARDS) ";E:IFE=2THENB$="SQUARE YARDS"
7300 GOTO240
9999 END
```

INFORMATION WANTED

Anyone with information or suggestions regarding a successful interface of IBM keypunch 026 or 029 with TRS-80, please contact:

GEORGE AHMUTY
WENDY LANE
WESTPORT, CONNECTICUT
Telephone: 203-227-8534

REVISION

Simple SiMON, originally slated to run in SoftSide this month, will appear in the premier issue of our new publication **PROG/80**. All SoftSide subscribers will receive a complimentary copy of the first issue — watch your mail this month for **PROG/80**. •

Z80 HANDBOOK

by Nat Wadsworth

YOUR COMPLETE REFERENCE TO THE Z80 INSTRUCTION SET!

Explains the capabilities of the set of the Z80 CPU in easily understood terms. Serves as a practical handbook reference to the industry standard mnemonics, machine code and usage for each type of instruction provided in the Z80 CPU. A practical guide for novice, intermediate, or professional programmer working at machine or assembler language level.

•Alphabetically organized index
•Appendixed •Softcover •118 pp.
$4.95 + $1.00 shipping

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BIZ-80 IS HERE

It costs $100 for the documentation, an additional $50 for the software on magnetic tape, and an additional $100 for the software on diskette. **We highly recommend that you subscribe on one form of media.**

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

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

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

Well, just about everything you need! Within the year, (and probably within six months) you'll receive a disk-based Inventory system — Accounts Receivable system — Accounts Payable system — General Ledger system — Sales — and Payroll. At the same time, all six subjects will be covered for a tape-based system. Yes! Provisions have been made so that as your system upgrades, your data base will follow with minimum difficulty.

We're not talking about stripped-down systems.

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

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

BIZ-80 is not only competitive, but will, in fact set the standard by which value will be compared. And that standard will be hard to meet.

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

RADIO SHACK TRS-80 SUPPORTED

Using the Radio Shack TRS-80 as our base, we provide a full line of business-oriented software on subscription, plus products with the follow-on support necessary to insure successful installation and ongoing operation

The object of BIZ-80 is to develop systems which

1. Are easy to use, well-documented and include simple error-correction routines
2. Will be extremely inexpensive and cost no more than other specialized subscribed-to services
3. Can be used by the customer without the need to have sophisticated computer-oriented personnel
4. Existing personnel and management can easily learn to operate

The Systems

1. Are professional quality products developed for the businessman utilizing a TRS-80 microcomputer system
2. Work all the time
3. Are well-documented from the customer's point of view
4. All tie together — Order Processing feeds Accounts Receivable, etc.

Our goal is to ultimately provide the complete computer system with:

*Basic business programs on subscription basis

*Special application business programs on contractual basis

Our software products are oriented to four levels of TRS-80's:

SYSTEM — S

A stand-alone 16K Level II with one cassette tape

SYSTEM — I

A 32K Level II with DOS, optional printer (CRT oriented) and one disk drive

SYSTEM — II

A 32K with DOS, line printer and two disk drives

SYSTEM — III

A 48K with DOS, line printer, RS232 interface and 3 + disk drives

Programs and systems are only as good as the documentation and people behind them.

Rerun, operation and backup procedures, as well as start-up and first time run instructions are covered in detail from the perspective of the first time computer user. Easily followed step-by-step instructions guide the user through a sample run using dummy data provided with every system. User can start running the system right away, without the need to stumble through it trying to create a file in order to figure out how to use it. Documentation continues to be improved as we hear from customer/users. From time to time we upgrade the documentation to reflect improvements and changes in the system caused by TRS-80 enhancements. To insure you will be informed, every purchaser is urged to register in our mailing system; we will notify those purchasers of any changes.

Participants in the one-year (maximum) **contract will receive:**

•12 Systems — 6 tape and 6 disk •Support
•Updates •A Monthly newsletter

Two systems are provided immediately, with an additional system supplied once per quarter for a year. This approach allows you to become competent with your systems in an organized and orderly way. The conversion from a manual system to a computer-based system is no easier on a microcomputer than on a macro or a big computer. Principal participants in BIZ-80 have been involved in many business conversions. By subscribing to BIZ-80, you subscribe to our software, our support, our updates, our knowhow!

OUR SOFTWARE...

By the end of the year, you will have 6 systems up and running. You can choose your first two systems from: Accounts/Receivable, Name and Address, or Inventory. These are good systems to start your business microcomputer experience with. The other four systems will be sent out quarterly. You can choose from our other software products — the list of these applications is expanding monthly. All 6 systems will cost less as a package than if purchased as stand alone systems. (Also, you can purchase other business software — add-on modules — at reduced prices. Remember: all these business systems tie together. They are add-on modules developed to complement one another; the building blocks of your complete business microcomputer system.

OUR SUPPORT...

You can call us during normal working hours (9 to 5, till 9pm on Wednesdays, EST) with any problems you may have. If we don't have an immediate answer, we'll research the problem and get back to you within a few days. This hot line service insures that you'll have technical assistance — on line — as you work with your

TRS-80. We'll address your concerns, talk about hardware and software problems, discuss fixes. BIZ-80 principals have had many years experience in the business computer environment as programmers, hardware technical support personnel, software support personnel and data processing managers. We have a professional team, a professional product and a professional attitude. The TRS-80 is a powerful tool for business management. **We want to help you use this tool to your best advantage.**

OUR UPDATES...

Updates to the system occur through enhancments we find are useful to the user. They can also occur through user-requests and (not unheard of) by the discovery of bugs in the systems. These enhancements will be available at a nominal charge to cover distribution expenses. **Updates are FREE to BIZ-80 subscribers.**

OUR NEWSLETTER...

A newsletter will be distributed monthly. We'll be sending you copy concerning:

•Concerns raised by Hot Line callers •Hints and helpful tidbits about using the systems and using the TRS-80 •Editorials on sophisticated use of these systems •News announcements of new software and hardware from us and Radio Shack •Ads for products applicable to the TRS-80 business user •Your evaluations of our products (hopeully, with your participation)

SIDELIGHTS

We would like it understood from the outset that while BIZ-80 will deliver a core system for an extremely reasonable price, we'll also be selling other pieces of software for general sale. Usually, BIZ-80 participants will be given a discount. In any event, by today's standard, tremendous value will be given to the participants.

It may seem early to crown ourselves the leaders in business software for the TRS-80, however, we see no true competitors with both the warewithall and the confidence to do what we're doing. The whole approach is revolutionary.

We can say without shame that we expect to profit by our relationship with you just as you will from us. We'll do custom applications at reasonable prices, modifying the core programs to suit specific needs, and use the result as another profit center either as an increment to BIZ-80 or for general sale. When the day comes that we see the first ads offering BIZ-80 software compatibles appear in the industry magazines, we'll know that we've reached our goal — to become the standard!

Can You See Through This?

by Rev. George Blank

If you're interested in writing, this article and program are for you. Whether it's a computer program, an article, the great American novel, or a letter to your son in college, the important thing is that you be understood.

Many of us have come to understand that when government employees have nothing to do, they take out their rage upon the public by writing regulations that are impossible to understand. This little program will tell just how hard they are to understand.

If you want your article to be accepted for this magazine, a careful use of this program will increase your chances. The program is a **Fog Index**. If you are a sailor, you know that fog is a nasty concotion that obscures rocks, icebergs, other ships, and various other nasties that you would prefer to see before you feel them. In writing, fog is just as nasty, for it makes it impossible to understand what is written.

The **Fog Index** gives the approximate reading level by school grade. As written, the program averages the reading level of five sentences to give a score to the material. This can be used in two ways:

The General Test

Choose a typical section of a book, article, or letter, and count the number of words and number of words over two syllables in five consecutive sentences. This gives an overall score for the article.

The Acid Test

Choose the five most difficult sentences of the material. Enter the number of words and number of three syllable and larger words in the computer. This test tells how hard it

is to completely understand the material. The acid test is more important for government regulations, for a small misunderstanding can get you into big trouble.

What do you do with it? If you are writing, you should try to keep your fog index well below the level of the average reader, but high enough so that the material is not boring. Perhaps the most difficult of the popular magazines, the Atlantic Monthly, is written at a twelfth grade level. For this magazine, with young readers learning to program, a fog index of 8 is appropriate. (Lest you think that writing on the eighth grade level is demeaning, the Revised Standard Version of the Bible presents the Sermon on the Mount at the eighth grade level.)

One interesting fact that I discovered using the program is that the instructions for the low income credit on the Federal Income Tax are written for people with Master's Degrees. It's consoling to know that Uncle Sam shows compassion to Doctors, Lawyers, and graduate Engineers who earn less than $8,000.00 a year and support a family!

TRS-80 HOTLINE

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

HOTLINE **603-673-5144**

Please help us keep our mailing list up-to-date so we can be sure you get your **SoftSide** on time every month. If you're moving or your address is incorrect on the mailing label, send us the label and a note with the changes you want made. **Be sure to send both your old and new address and include your ZIP codes.**

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```
10 CLS
20 PRINT@ 64,"FOG INDEX"
30 PRINT:PRINT"THIS PROGRAM WILL RATE PRINTED MATERIAL ON HOW"
40 PRINT"EASY IT IS TO READ. TO USE IT, PICK FIVE TYPICAL"
50 PRINT"SENTENCES AND ANSWER THE QUESTIONS GIVEN."
60 DIM A(10):REM * OMIT THIS LINE FOR LEVEL I BASIC *
70 PRINT:PRINT:INPUT"(PRESS ENTER TO BEGIN)";A$
100 CLS
110 FOR A=1TO5
120 PRINT"NUMBER OF WORDS IN SENTENCE NUMBER";A;
130 INPUT A(A)
140 PRINT"NUMBER OF 3 OR MORE SYLLABLE WORDS IN SENTENCE NUMBER";A;
```

```
150 INPUT A(A+5)
160 NEXT A
170 B=0:FOR A=1TO10:B=B+A(A):A(A)=0:NEXT A
180 CLS:F=B*.4
190 PRINT INT(F/5);"IS THE FOG INDEX":PRINT
200 PRINT"THE FOG INDEX IS ABOUT THE SAME AS GRADE LEVEL"
210 PRINT:PRINT"TYPICAL VALUES"
220 PRINT"17 COLLEGE GRADUATE (NO POPULAR MAGAZINE IS THIS HARD)"
230 PRINT"12 HIGH SCHOOL SENIOR -  ATLANTIC MONTHLY"
240 PRINT"10 HIGH SCHOOL SOPHMORE -  TIME MAGAZINE"
250 PRINT"8  EIGHTH GRADE - LADIES HOME JOURNAL - SERMON ON THE MOUNT"
260 PRINT
270 INPUT"(PRESS ENTER TO RESTART PROGRAM)";A$
280 GOTO 100
```


APPOINTMENT LOG

by M. Kelleher

Perfect for the Professional!

This efficient appointment log accepts names and addresses, meeting times, endings and records notes concerning subject matter.

Also capable of preparing tape history file and can search the file to furnish report information, derives elapsed time and never chews gum.

Level II, 16K — Price, $9.95

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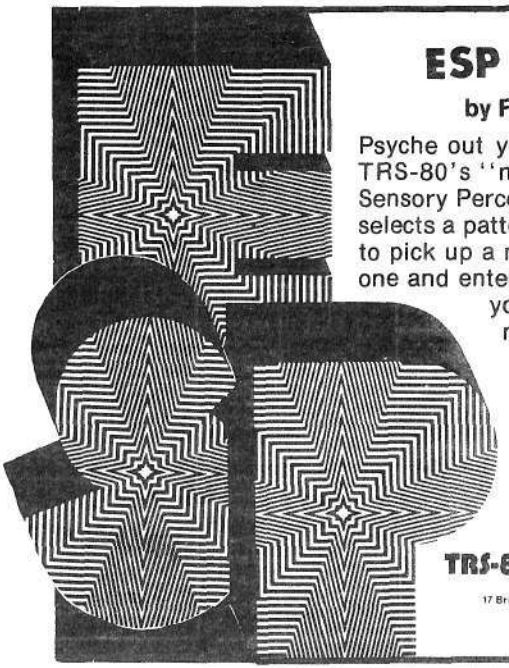

ESP TESTER

by Frank Rowlett

Psyche out your computer — read TRS-80's "mind" through Extra Sensory Perception. Your computer selects a pattern at random, you try to pick up a mental image of which one and enter your guess. Develop your subconcious awareness or just have fun.

Very appealing graphics.

Available for Level I or II, 4K — $4.95

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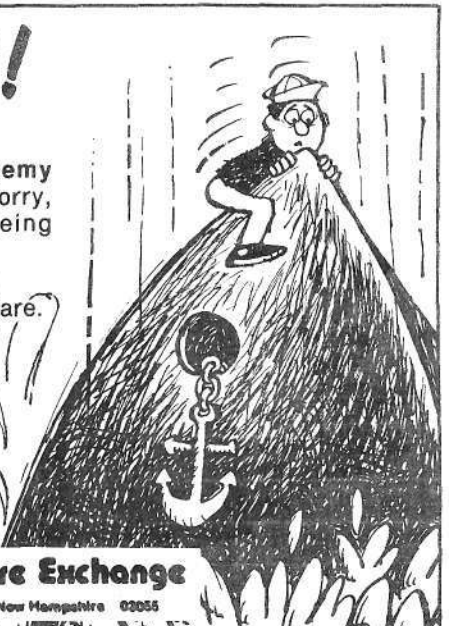
SINK 'UM!

by Rev. George Blank

"Man the torpedoes...enemy ships approaching...fire!" Sorry, captain, the tubes are being reloaded.

And so it goes, in this action simulation of battleship warfare. Shrewd maneuvers and keen timing are required by the ship's captain, otherwise, who always goes down with the ship? Level II, 4K-$4.95



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DIVE BOMB!

by Rev. George Blank

Dear Gabby;

You've got to help me! My girlfriend wants to play games on a computer, but I can only afford 1076 bytes of memory for my TRS-80. Please write quickly, the new guy on the block just bought CODE NAME SECTOR!

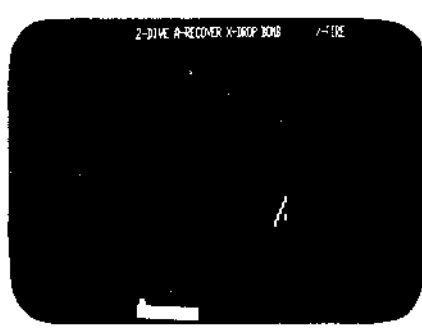
Lovelorn

Dear Lovelorn;

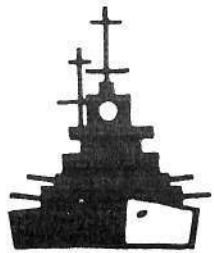
Have no fear. Just eliminate the remarks and instructions from lines 5 and 10 of **DIVEBOMB** and you can sink your rival. If you girlfriend is the intellectual type, let her sit on the left so that she has three controls to operate. Pressing the letter **Z** will make the plane dive, **A** will cause it to level off, and when she's low enough, **X** will drop the bomb. You can press the **/** key to fire your anti-aircraft gun, but it's a surplus model from the last war and jams after the third shot. Don't let your lovelife go down in flames!

Gabby Van Dusen

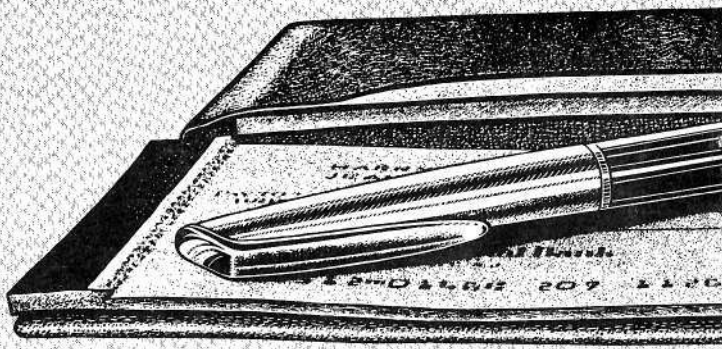
```
5 REM * DIVEBOMB * COPYRIGHT (C) 1979 GEORGE BLANK LEECHBURG PA
10 CLS:PRINT"Z-DIVE A-RECOVER X-DROP BOMB","  /-FIRE AA GUN"
20 A=0
30 C=127
40 D=7
50 T=1
60 F=3


100 GOSUB 2000
110 GOSUB 2000
120 GOSUB 1000
130 GOSUB 2000
190 GOTO 100
1000 IF A>0 AND A<127 THEN SET(A,46):SET(A,47)
1010 IF (A-20)>1 AND (A-20)<127THEN SET(A-20,45)
1020 IF (A-24)>0 AND (A-23)<127
     THEN RESET(A-24,46):RESET(A-24,47):RESET(A-23,45)
```



```
1030 A=A+1
1040 IF A=157 THEN FOR A=125TO127:FOR B=45TO47:RESET(A,B):NEXT B:NEXT A:A=0
1090 RETURN
2000 IF C>0 AND C<127 THEN SET(C,D)
2010 IF C>-4 AND C<122 THEN SET(C+4,D-1):FOR X=D-6TOD+1:RESET(C+5,X):NEXT
2020 IF Z=1 AND C>10 AND D<40 AND C>10 THEN D=D+1
2022 IF I$="/" AND F>0 AND A<90 AND A>10 THEN GOSUB 3000
2025 I$=INKEY$:IF I$="Z" THEN Z=1
2030 C=C-1:IF I$="X" AND T=1 AND D>38 THEN GOSUB 5000
2035 IF I$="A" THEN Z=0
2040 IF C>-1 THEN 2090
2050 FOR X=0TO5:RESET(X,D):RESET(X,D-1):NEXT
2060 C=127:D=7:T=1:F=3
2090 RETURN
3000 Y=45:FOR X=A-5TOA+35
3010 IF POINT(X,Y)=-1 THEN 4000
3020 SET(X,Y):RESET(X,Y)
3030 Y=Y-1
3040 NEXT
3050 F=F-1
3090 RETURN
4000 CLS
4010 PRINT CHR$(23)
4020 PRINT@480,"BOOM"
4030 FOR X=1TO200:NEXT
4040 PRINT"TORPEDO BOMBER"
4050 PRINT"GOES DOWN IN FLAMES"
4060 FOR X=1TO1000:NEXT
4070 Z=0
4090 GOTO 10
5000 T=0:IF POINT(C,46)=0 THEN 5090
5010 FOR X=DTO47:SET(C,D):NEXT
5020 CLS
5030 PRINTCHR$(23)
5040 PRINT@ 790,"BOOM"
5050 FOR X=1TO200:NEXT
5060 PRINT"SHIP SUNK"
5070 GOTO 4060
5090 RETURN
```



Part One - CHECKBOOK



PERSONAL

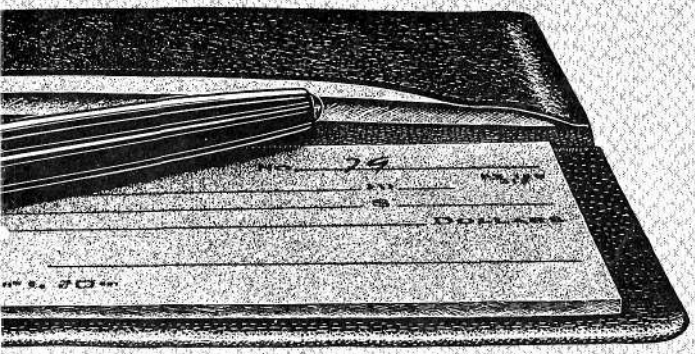
by Lan

Personal Finance consists of two programs: the first is **Checkbook** which will maintain your checking account. The second program, **Checkfinder**, maintains a file of all your cancelled checks and will be featured in part two of this series.

Before you can use either of the programs, you must set up your budget names. It's important to carefully consider which categories you want to use for classification. This will vary from one person to the next according to individual needs. Include accounts for any specific expenses you want records of, especially those needed for income tax purposes, i.e., alimony, child care, etc. You should also leave a few accounts unclassified for future use. Once you have identified the budget names, you must alter the DATA statements at the end of the program to reflect your own requirements. You must also change over the name and address DATA statement to your own from mine. Don't exceed 10 characters, or displays may not work.

Checkbook is set up to handle 33 account names. It's very important that the last one remain CHECK TO CASH. This account name is set up for checks made out to cash and allows for future upward expansion of the personal finance package.

The program maintains a file of all checks written but not cancelled and returned from the bank. The file is read from tape at the beginning of the program and saved on tape at the end. When checks are returned from the bank you should run the program and cancel those checks out of the file.



L FINANCE

e Micklus

The cancelled checks are written out to a scratch tape called CANCELLED CHECKS, prior to deletion from memory. Don't remove the tape until the computer prompts you to do so. In addition to maintaining an outstanding check file and check balance, **Checkbook** will also justify your account against the bank statement, and when it's time to pay the bills, you can use a bill estimating feature to see how much (if anything!) you'll have left after all the bills have been paid.

Checkbook makes use of dual cassette machines. It also contains a small program which generates test data in place of real checks. I recommend that you toy with the program using the test data until you feel comfortable, then begin using real data.

Good procedures dictate that you test this program very carefully. Human engineering will help you to catch human error: where possible, keyboard entry is kept to a minimum. Also, the program is set up so you can jump back and forth from one function to another. If you discover an error while cancelling a check out of memory after it's returned from the bank, you can correct the error and then cancel the check.

We cannot assume any responsibility for consequences resulting from the use of this program. However, I will say this: I have used this program to maintain my personal checking account for several months and have found it valuable in managing my family finances. I'm certain you will find it of assistance in your own home.

CRIBBAGE for TRS-80

by Roger W. Robitaille, Sr.

Invented in the 17th century, Cribbage would probably have become the most popular of all 2-handed card games except for the common misconception that the scoring board is indispensable.

Our version uses your TRS-80 computer to keep score! You'll find your computer an excellent card partner — no cursing if you're winning, honest scorekeeping, no spilled beer or potato chips — and best of all, ready to play whenever you are!

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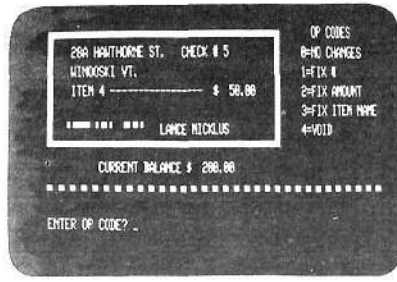
TRS-80 PROGRAMMING HINT

Some problem tapes can load quite easily by applying pressure to either front corner of the cassette. The apparent problem is a mismatch between the originating recording device and the receiving device. Applying pressure alters the physical position of the tape so the PLAYING recorder gets a cleaner, crisper signal. In order to decide which corner to press, simply listen to the recording. The crisper, the better — try one corner, then the other.

```
10 REM * CHECK BALANCE PROGRAM BY
20 REM * LANCE S. MICKLUS, WINOOSKI, VT.
30 REM * COPYRIGHT 1978
40 REM * VERSION 2.1  TRS-80 16K/LEVEL II
50 REM ************************************
100 '
120 CLEAR 100:
DIM A(600)
140 CRLF$=CHR$(29)+CHR$(26):
BIG$=CHR$(23):
DLR$="#####.##":
FX$="######.##"
160 CLS:PRINT CRLF$,CRLF$
180 PRINT TAB(12);"THE PERSONAL CHECK BALANCE PROGRAM OF:"
200 FOR Y = 33 TO 35
220 GOSUB 9240
240 PRINT TAB(23);A$
260 NEXT Y
280 PRINT STRING$(63,"-")
300 PRINT"TO INITIALIZE A NEW OUTSTANDING CHECKS TAPE, TYPE 0."
320 PRINT"LOAD THE CURRENT OUTSTANDING CHECKS TAPE, TYPE IN THE":PRINT
    TAB(5)"CASETTE # (1 OR 2) TO BE :READ:"
340 PRINT"TO TEST OR DEMONSTRATE THE PROGRAM WITH TEST DATA, TYPE 3."
360 PRINT
380 INPUT"ENTER 0, 1, 2, OR 3";M
400 IF (M<0)OR(M>3) THEN 380
420 Q = 0 : R = 0 : S = 0 : T = 0
440 ON M+1 GOTO 660, 460, 460, 20020
460 CLS:PRINT BIG$
480 PRINT@ 528,"";:PRINTUSING ":READING##:";M
500 INPUT #-M, I, B
520 IF I < 3 THEN 660
540 FOR N = 0 TO I-1 STEP 24
560 IF PEEK(15360)=32 THEN POKE 15360,42 ELSE POKE 15360,32
580 INPUT#-M,A(N),A(N+1),A(N+2),A(N+3),A(N+4),A(N+5),A(N+6),A(N+7),A(N+8),
    A(N+9),A(N+10),A(N+11),A(N+12),A(N+13),A(N+14),A(N+15),A(N
    +16),A(N+17),A(N+18),A(N+19),A(N+20),A(N+21),A(N+22),A(N+23)
600 NEXT N
620 T = 1
640 GOTO 2020
```

```
660 I = 0 : B = 0
2000 '
PRINT MENU AND SELECT
---------------------
2020 CLS
2040 PRINT"CURRENT CHECK BALANCE IS $";B:PRINT
2060 PRINT"TYPE 0 TO END SESSION."
2080 IF I < 3 THEN 2120
2100 PRINT"TYPE 1 TO LIST OUTSTANDING CHECK FILE."
2120 PRINT"TYPE 2 TO ADD NEW CHECK TO FILE."
2140 IF I < 3 THEN I = 0 : GOTO 2200
2160 PRINT"TYPE 3 TO FIX CHECKS WITH DATA ERRORS."
2180 PRINT"TYPE 4 TO ENTER CHECKS RECEIVED FROM THE BANK."
2200 PRINT"TYPE 5 TO JUSTIFY THE ACCOUNT WITH BANK STATEMENT."
2220 PRINT"TYPE 6 TO ESTIMATE TOTAL BILLS DUE."
2240 PRINT"TYPE 8 FOR PROGRAM STATUS."
2260 PRINT"TYPE 9 TO RESET SCREEN."
2280 PRINT
2300 INPUT"ENTER OP CODE";M
2320 IF (I<3) AND (M>0) AND (M<5) AND (M<>2) THEN 2300
2340 IF M = 1 GOSUB 7660 : GOTO 2020
2360 ON M+1 GOTO 6180, 2380, 2440, 2440, 4080, 5160, 4880, 2380, 5760, 2020
2380 PRINT"WHAT?"
2400 GOTO 2300
2420 '
LOOK FOR CHECK: FIX OR ADD
--------------------------
2440 INPUT"ENTER TRANSACTION NUMBER";C
2460 IF C = 9999 THEN 2020
2480 IF (M=2) AND (I<3) LET N=0 : I=0 : GOTO 3700
2500 FOR N = 0 TO I - 1 STEP 3
2520 IF (A(N)=C) AND (M=3) THEN 2940
2540 IF (A(N)=C) AND (M=2) THEN 2700
2560 NEXT N
2580 IF M = 2 THEN 3700
2600 CLS
2620 PRINT"SORRY !!!"
2640 PRINT"TRANSACTION #";C;"IS NOT IN THE OUTSTANDING CHECK FILE."
2660 PRINT
2680 GOTO 2060
```

```
2700 GOSUB 6800
2720 PRINT@ 303,"ALREADY EXISTS";
2740 FOR K = 0 TO 3
2760 PRINT@ 177,"          ";
2780 FOR J=0 TO 100 : NEXT J
2800 PRINT@ 177,"SORRY !!!";
2820 FOR J=0 TO 100 : NEXT J
2840 NEXT K
2860 PRINT@ 449,")>> ENTER 9999 IF NO MORE TRANSACTIONS <<(";
2880 PRINT@ 640,"NEXT TRANSACTION"
2900 GOTO 2440
2920 '
CHECK FIX
---------
2940 GOSUB 6800
2960 PRINT@ 457,"";:PRINTUSING "CURRENT BALANCE $######.##";B,
2980 PRINT@ 49,"OP CODES";
3000 PRINT@ 111,"0=NO CHANGES";
3020 PRINT@ 175,"1=FIX #";
3040 PRINT@ 239,"2=FIX AMOUNT";
3060 PRINT@ 303,"3=FIX ITEM NAME";
3080 PRINT@ 367,"4=VOID";
3100 PRINT@ 640,"";
3120 INPUT"ENTER OP CODE";A
3140 IF A = 0 THEN 2020
3160 IF A = 4 LET S = 1 : GOTO 3580
3180 IF A = 3 LET S = 1 : GOTO 3480
3200 IF A = 2 LET S = 1 : GOTO 3380
3220 IF A <> 1 PRINT "WHAT?" : GOTO 3120
3240 S = 1
3260 INPUT"ENTER NEW TRANSACTION #";J
3280 FOR K = 0 TO I-1 STEP 3
3300 IF A(K)=J PRINT"OPS? TRANSACTION #";C;"ALREADY EXSISTS.":GOTO3120
3320 NEXT K
3340 A(N) = J
3360 GOTO 2940
3380 INPUT"ENTER NEW AMOUNT $";J
3400 IF A(N+1)>0 LET J=-J
3420 B = B - A(N+1) - J
```



```
3440 A(N+1) = -J
3460 GOTO 2940
3480 GOSUB 9820
3500 INPUT"ENTER NEW BUDGET NUMBER";J
3520 IF (J<0) OR (J>31) PRINT"WHAT?":GOTO 3500
3540 A(N+2)=J
3560 GOTO 2940
3580 B = B - A(N+1)
3600 FOR K = N TO I-4
3620 A(K) = A(K+3)
3640 NEXT K
3660 I = I - 3
3680 GOTO 2020
3700 A(N) = C
3720 INPUT"ENTER AMOUNT $";A(N+1)
3740 INPUT"CHECK OR DEPOSIT";B$
3760 IF LEFT$(B$,1) = "C" LET A(N+1) = -A(N+1) : GOTO 3840
3780 IF LEFT$(B$,1) = "D" THEN 3840
3800 PRINT"WHAT?"
3820 GOTO 3740
3840 GOSUB 9820
3860 INPUT"ENTER BUDGET NUMBER";A(N+2)
3880 IF (A(N+2) < 0) OR (A(N+2) > 32) THEN 3860
3900 S = 1
3920 I = I + 3
3940 B = B + A(N+1)
3960 GOSUB 6800
3980 PRINT@ 115,"NEW";
4000 PRINT@ 177,"BALANCE";
4020 PRINT@ 304,"";:PRINTUSING FX$;B,
4040 GOTO 2860
4060 '
CANCELL OUTSTANDING CHECK/DEPOSITS
-----------------------------------
4080 IF T = 2 THEN 4240
4100 CLS:PRINT BIG$
4120 IF T <> 0 PRINT@ 320,"REMOVE OUTSTANDING CHECKS TAPE."
4140 PRINT@ 512,"LOAD CANCELLED CHECKS TAPE."
4160 PRINT"TYPE CASSETTE # (1 OR 2) TO":INPUT"WRITE TO";TAPE%
```

```
4180 IF (TAPE%<1) OR (TAPE%>2) THEN 4160
4200 T = 2
4220 CLS
4240 INPUT"ENTER TRANSACTION #";C
4260 IF C = 9999 THEN 2020
4280 FOR N = 0 TO I-1 STEP 3
4300 IF A(N) = C THEN 4440
4320 NEXT N
4340 CLS
4360 PRINT"SORRY"
4380 PRINT"TRANSACTION #";C;"IS NOT OUTSTANDING."
4400 PRINT
4420 GOTO 4240
4440 GOSUB 6800
4460 PRINT"IF WRONG TRANSACTION ENTER -1.  IF CORRECT TRANSACTION,"
4480 PRINT"ENTER NEXT TRANSACTION NUMBER TO BE CANCELLED, ELSE TYPE 9999."
4500 PRINT
4520 INPUT"ENTER TRANSACTION #";C
4540 IF C = -1 CLS : GOTO 4240
4560 IF A(N+1) <= 0 LET Q = Q - A(N+1)
4580 IF A(N+1) > 0 LET R = R + A(N+1)
4600 PRINT@ 464,"";:PRINTUSING "#WRITING##*";TAPE%
4620 PRINT #-TAPE%,A(N);",";A(N+1);",";A(N+2)
4640 FOR K = N TO I-1
4660 A(K) = A(K+3)
4680 NEXT K
4700 S = 1
4720 I = I - 3
4740 IF I > 2 THEN 4260
4760 CLS
4780 PRINT"NO MORE TRANSACTIONS IN THE FILE."
4800 PRINT
4820 GOTO 2040
4840 CLS
4860 '
IMPACT
------
4880 CLS
4900 PRINT . PRINT
```

```
4920 PRINT"ENTER YOUR BILLS TO BE PAID TO SEE HOW MUCH THEY ARE AND"
4940 PRINT"HOW MUCH MONEY YOU WILL HAVE LEFT."
4960 D = 0
4980 PRINT@ 640,"ENTER 9999 TO STOP."
5000 INPUT"ENTER BILL $";C
5020 IF C = 9999 THEN 2020
5040 D = D + C
5060 CLS
5080 PRINT@ 128,"YOUR TOTAL BILLS ARE $";:PRINTUSING DLR$;D
5100 PRINT"WHICH WOULD LEAVE YOUR BALANCE AT $";:PRINTUSING DLR$;B-D
5120 GOTO 4980
5140 '
JUSTIFY CHECKING ACCOUNT WITH BANK
----------------------------------
5160 CLS
5180 PRINT@ 448,"";
5200 INPUT"ENTER BALANCE FROM LAST BANK STATEMENT $";C
5220 D = 0
5240 IF I < 3 THEN 5340
5260 FOR N = 1 TO I-1 STEP 3
5280 D = D + A(N)
5300 NEXT N
5320 CLS
5340 PRINT@ 290,"CANCELLED CHECKS. ";:PRINTUSING FX$;Q,
5360 PRINT@ 352,"CANCELLED DEPOSITS: ";:PRINTUSING FX$;R,
5380 PRINT@ 256,"BANK STATEMENT",:PRINTUSING FX$;C,
5400 PRINT@ 320,"OUTSTANDING",:PRINTUSING FX$;D,
5420 PRINT@ 384," ","---------";
5440 PRINT@ 436,"---------";
5460 PRINT@ 448,"TOTALS",:PRINTUSING FX$;C+D,
5480 PRINT@ 500,"";:PRINTUSING FX$;R-Q,
5500 PRINT@ 576," ","CURRENT BALANCE $";:PRINTUSING DLR$;B,
5520 E = ABS(B - (C+D))
5540 IF E > 1 THEN 5640
5560 IF INT(E*1000) <> 0 THEN 5640
5580 PRINT@ 832,"";
5600 INPUT"HIT ''ENTER'' TO CONTINUE";B$
5620 GOTO 2020
5640 PRINT@ 0,"*** ERROR ***","$";:PRINTUSING DLR$;ABS(B-(C+D)),
5660 PRINT@ 832,"";
```

```
5680 INPUT"ENTER NEW BALANCE TO BE USED BY PROGRAM $";B
5700 S = 1
5720 GOTO 2020
5740 '
PROGRAM STATUS
--------------
5760 CLS
5780 PRINT@ 0,"CURRENT BALANCE IS $";:PRINTUSING DLR$;B
5800 PRINT@ 128,"CURRENT TAPE",
5820 IF T = 1 PRINT"OUTSTANDING CHECKS",":READ:"
5840 IF T = 2 PRINT"CANCELLED CHECKS   ","*WRITE*"
5860 IF T = 3 PRINT"OUTSTANDING CHECKS","*WRITE*"
5880 IF T = 0 PRINT"NONE"
5900 PRINT"O.C. FILE",
5920 IF S = 0 PRINT"UNCHANGED"
5940 IF S = 1 PRINT"UPDATED"
5960 PRINT"# ON FILE",INT(I/3)
5980 C = 0
6000 IF I < 3 THEN 6080
6020 FOR N = 0 TO I-1 STEP 3
6040 C = C + A(N+1)
6060 NEXT N
6080 PRINT"OUTSTANDING","$";:PRINTUSING DLR$;C
6100 PRINT
6120 INPUT"HIT ''ENTER'' TO CONTINUE";B$
6140 GOTO 2020
6160 '
END SESSION
-----------
6180 CLS:PRINT BIG$
6200 IF T <> 2 THEN 6400
6220 PRINT@ 528,"";:PRINTUSING "*WRITING##*";TAPE%
6240 PRINT #-TAPE%,"9999";",";"0";",";"0"
6260 CLS:PRINT BIG$
6280 PRINT@ 320,"REMOVE CANCELLED CHECKS TAPE."
6300 T = 0
6320 IF S = 0 THEN 6660
6340 PRINT@ 512,"LOAD A NEW".PRINT"OUTSTANDING CHECKS TAPE.":PRINT
6360 PRINT"TYPE THE CASSETTE # (1 OR 2)":PRINT"WHEN READY
     TO *WRITE*";:INPUT TAPE%
```

```
6380 GOTO 6460
6400 IF S = 0 THEN 6660
6420 IF T = 1 PRINT@320,"REMOVE CURRENT":PRINT"OUTSTANDING CHECKS TAPE."
6440 IF T <> 3 THEN 6320
6460 T = 3
6480 CLS:PRINT BIG$
6500 PRINT@ 528,"";:PRINTUSING "##WRITING###";TAPE%
6520 PRINT #-TAPE%,I,B
6540 IF I < 3 THEN 6660
6560 FOR N = 0 TO I-1 STEP 24
6580 IF PEEK(15360)=32 THEN POKE 15360,42 ELSE POKE 15360,32
6600 PRINT#-TAPE%,A(N),A(N+1),A(N+2),A(N+3),A(N+4),A(N+5),A(N+6),A(N+7),
     A(N+8),A(N+9),A(N+10),A(N+11),A(N+12),A(N+13),A(N+14),A(N+15
     ),A(N+16),A(N+17),A(N+18),A(N+19),A(N+20),A(N+21),A(N+22),A(N+23)
6620 NEXT N
6640 PRINT #-TAPE%,"EOF"
6660 CLS
6680 FOR Y = 0 TO 13
6700 FOR X = 0 TO 60 STEP 4
6720 PRINT@ (64*Y)+X,"END";
6740 NEXT X
6760 NEXT Y
6780 END
6800 '
PRINT CHECK/DEPOSIT ROUTINE
---------------------------
6820 CLS
6840 IF A(N+1) > 0 THEN 7240
6860 Y = 34
6880 GOSUB 9240
6900 PRINT@ 68,A$
6920 Y = 35
6940 GOSUB 9240
6960 PRINT@ 132,A$;
6980 PRINT@ 88,"CHECK #";C;
7000 PRINT@ 196,STRING$(24,"-");
7020 Y = A(N+2)
7040 GOSUB 9240
7060 PRINT@ 196,A$;" ";
```

```
7080 PRINT@ 222,"";:PRINTUSING "$#####.##";-A(N+1);
7100 FOR K = 7 TO 33
7120 IF RND(2) = 1 THEN SET(K,15)
7140 NEXT K
7160 Y = 33
7180 GOSUB 9240
7200 PRINT@ 340,A$;
7220 GOTO 7340
7240 PRINT@ 72,"DEPOSIT #";A(N)
7260 PRINT@ 200,"";:PRINTUSING "AMOUNT ----------$#####.##";A(N+1)
7280 Y = A(N+2)
7300 GOSUB 9240
7320 PRINT@ 328,"FOR: ";A$;
7340 FOR K = 0 TO 84
7360 SET(K,1)
7380 SET(K,18)
7400 NEXT K
7420 FOR K = 1 TO 18
7440 SET(0,K)
7460 SET(1,K)
7480 SET(84,K)
7500 SET(85,K)
7520 NEXT K
7540 FOR K = 0 TO 127 STEP 4
7560 SET(K,25)
7580 SET(K+1,25)
7600 NEXT K
7620 PRINT@ 640,"";
7640 RETURN
7660 '
LIST OUTSTANDING CHECKS
-----------------------
7680 CLS
7700 IF I < 3 THEN RETURN
7720 X = 0
7740 FOR K = 0 TO I-1 STEP 3
7760 IF X <> 0 THEN 7820
7780 PRINT "TRANSACTION #","  AMOUNT","ITEMIZED AS","TYPE"
7800 PRINT
7820 Y = A(K+2)
```

```
7840 GOSUB 9240
7860 B$ = "CHECK":IF A(K+1) > 0 B$ = "DEPOSIT"
7880 FRMT$="  ######.#     $$#####.##        %                %%       %"
7900 PRINTUSING FRMT$;A(K),ABS(A(K+1)),A$,B$
7920 X = X + 1
7940 IF X < 11 THEN 8060
7960 PRINT
7980 INPUT"TYPE 1 TO CONTINUE, ELSE 2";A
8000 IF A = 2 THEN RETURN
8020 CLS
8040 X = 0
8060 NEXT K
8080 PRINT
8100 INPUT"** END OF LIST **   HIT ''ENTER''";B$
8120 RETURN
9000 '
LIST ITEM NAMES
---------------
9020 CLS : RESTORE: Y%=0
9040 FOR Z% = 0 TO 32
9060 READ A$
9080 PRINT@ Y%,Z%;
9100 PRINT@ (Y%+4),A$;
9120 Y% = Y% + 64
9140 IF Y% > 703 LET Y% = Y% - 683
9160 NEXT
9180 PRINT@ 768,"";
9200 RETURN
9220 '
CODE TO ITEM NAME CONVERSION
----------------------------
9240 IF (Y < 0) + (Y > 35) THEN 9300
9260 RESTORE
9280 FOR Z%=0 TO CINT(Y): READ A$: NEXT: RETURN
9300 A$ = NULL
9320 RETURN
9340 '
10000 DATA CHILD CARE, TONY MISC., MAJOR TONY, ITEM 3
10004 DATA ITEM 4, HOBBIES, HOUSEHOLD, GROCERIES
```

```
10008 DATA ENTERTAINMENT, MISC. EXP., CASH, UTILITES
10012 DATA MONTHLY EXP., REV. CHARGES, ITEM 14, ITEM 15
10016 DATA RENT, ITEM 17, AUTO OPERATE, AUTO REPAIR
10020 DATA MAJOR BILLS, INSURANCE, T.D. INSURANCE, SALES TAX
10024 DATA TAXES, DRUGS, DOCTORS, DENTISTS
10028 DATA ITEM 28, CHK ] ^ SAV, SALARY, MISC DEPOSITS
10032 DATA CHECKING^CASH
10036 DATA LANCE MICKLUS, 28A HAWTHORNE ST., WINOOSKI VT.
20000 REM
20020 REM     TEST PROGRAM
20040 REM   ---------------
20060 PRINT"XEQ TEST DRIVER PRGM"
20080 FOR Y = 0 TO 31
20100 Z = Y * 3
20120 A(Z) = Y + 1
20140 A(Z+1) = RND(10) * (-10)
20160 IF RND(4) = 4 THEN A(Z+1) = -A(Z+1)
20180 A(Z+2) = Y
20200 NEXT Y
20220 I = 96 : B = 200 : S = 0 : T = 0
20240 GOTO 2020
```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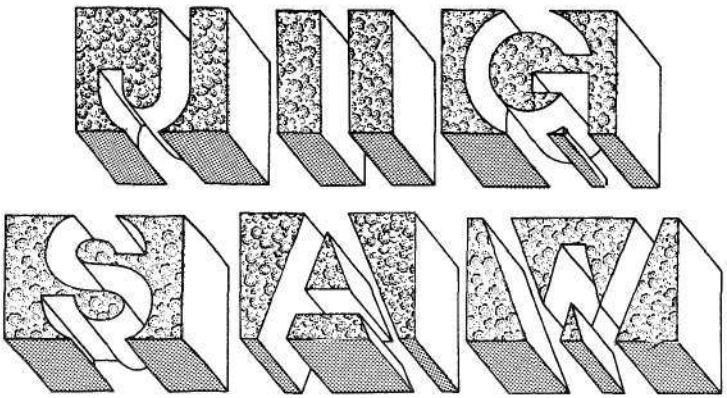


by David Bohlke

At last — a program for the person who's always going to pieces!

If getting yourself together seems to be something you never quite accomplish, now you can practice on a puzzle that has fewer pieces than the average person has problems. Exercise your problem-solving abilities and get yourself ready for the big challengers such as what to do when the TRS-80 club meeting, big football game and your wife's class reunion all occur at the same time.

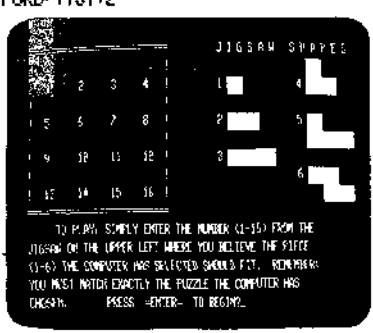
The pieces can be rotated to fit in upside down or sideways, and if you guess at any square that the piece will cover, your guess is correct. The computer will pick the puzzle — you must guess it. When playing in a group, each member can take certain pieces so that you've got a guessing strategy for each piece. Or, compete to assemble the puzzle in the fewest tries. Here's how you can score yourself:

5-7	**Genius**-President Carter needs you to figure out inflation
8-10	**Expert**-You could get away with dating four people at one time
11-15	**Good**-Able to chew gum, walk, and think simultaneously
16-20	**Fair**-Must chew, walk or think, one thing at a time
Over 21	**Try Again**-After all, even Einstein didn't talk until he was 3!

```
1 DEFINT A-Z
2 DIMA(32):REM BY DAVID BOHLKE **** ** *
3 GOSUB900
4 DATA74,6,74,12,80,12,74,18,80,18,86,18,104,3,104,6,110,6
5 DATA104,12,104,15,110,15,116,15,104,21,110,21,110,24,116,24
7 DATA203,1403,2603,3803,209,1409,2609,3809
8 DATA215,1415,2615,3815,221,1421,2621,3821
```

```
10 DATA5,5,6,6,5,6,6,3,5,4,2,3,4,4,2,3
12 DATA6,3,3,3,6,6,2,2,5,6,4,4,5,5,5,4
14 DATA3,2,4,4,3,2,4,5,3,6,6,5,6,6,5,5
16 DATA4,5,5,5,4,4,6,5,2,2,6,6,3,3,3,6
20 DATA4,4,6,5,4,6,6,5,2,6,5,5,2,3,3,3
22 DATA5,5,5,3,6,6,5,3,4,6,6,3,4,4,2,2
24 DATA3,3,3,2,5,5,6,2,5,6,6,4,5,6,4,4
26 DATA2,2,4,4,3,6,6,4,3,5,6,6,3,5,5,5
30 DATA1,6,6,3,6,6,5,3,4,4,5,3,4,1,5,5
32 DATA3,3,3,5,6,5,5,5,6,6,4,1,1,6,4,4
34 DATA5,5,1,4,3,5,4,4,3,5,6,6,3,6,6,1
36 DATA4,4,6,1,1,4,6,6,5,5,5,6,5,3,3,3
40 DATA5,5,6,1,1,5,6,6,4,5,1,6,4,4,2,2
42 DATA1,6,6,2,6,6,1,2,5,5,5,4,5,1,4,4
44 DATA2,2,4,4,6,1,5,4,6,6,5,1,1,6,5,5
46 DATA4,4,1,5,4,5,5,5,2,1,6,6,2,6,6,1
50 DATA5,5,6,1,5,2,6,6,5,2,1,6,1,3,3,3
52 DATA1,6,6,3,6,6,1,3,5,2,2,3,5,5,5,1
54 DATA3,3,3,1,6,1,2,5,6,6,2,5,1,6,5,5
56 DATA1,5,5,5,3,2,2,5,3,1,6,6,3,6,6,1
60 DATA1,5,5,1,3,1,5,2,3,4,5,2,3,4,4,1
62 DATA1,2,2,1,5,5,5,4,5,1,4,4,1,3,3,3
64 DATA1,4,4,3,2,5,4,3,2,5,1,3,1,5,5,1
66 DATA3,3,3,1,4,4,1,5,4,5,5,5,1,2,2,1
70 DATA1,6,4,4,6,6,1,4,6,1,2,2,3,3,3,1
72 DATA4,4,2,1,4,1,2,3,6,6,1,3,1,6,6,3
74 DATA1,3,3,3,2,2,1,6,4,1,6,6,4,4,6,1
76 DATA3,6,6,1,3,1,6,6,3,2,1,4,1,2,4,4
100 GOSUB700
110 FORA=1TO16:READA(A):NEXTA
140 A=RND(28):IFA=28GOTO150
143 T=0
145 FORB=1TOA*16:READX:NEXTB
150 FORA=1TO16:READA(A+16):NEXTA
200 A=RND(16):S=A(16+A):IFS=0GOTO200
210 PRINT@704,"WHERE IN THE  J I G S A W  WOULD YOU LIKE"
220 PRINT"TO PLACE PIECE  # ";S;"  (ENTER  1-16) ";:INPUTP
230 PRINT@704,"";:PRINT:PRINT:IFP>16THEN 210
300 IFA(16+P)<>5GOTO390
```

```
310 PRINT@704," Y O U   G O T   IT  ! ! !                "
320 IFS=1A=P:GOSUB750:A(16+A)=0:GOTO395
330 FORA=1TO16
340 IF A(16+A)=5GOSUB750:A(16+A)=0
350 NEXTA:GOTO395
390 PRINT@704,"S O R R Y  --  IT  DOESN'T  FIT  THERE .     "
395 FORA=1TO1000:NEXTA
410 T=T+1:PRINT@610,"TRIES ";T;
490 PRINT@704,"";:PRINT:PRINT
500 FORA=1TO16:IFA(A+16)<>0GOTO200
510 NEXTA
515 FORA=1TO200:RESET(RND(48)+1,RND(24)+2):NEXTA
520 PRINT@704,"";:INPUT"PRESS  =ENTER=  FOR ANOTHER PUZZLE";A$
530 CLS:RESTORE:GOTO100
700 CLS:PRINT@35,"J I G S A W   S H A P E S"
702 FORA=0TO25:PRINT@A,"=";:PRINT@A+576,"=";:NEXTA
705 FORA=64TO512STEP64:PRINT@A,"!";:PRINT@A+25,"!";:NEXTA
710 PRINT@131,"1     2     3     4";
712 PRINT@259,"5     6     7     8";
714 PRINT@387,"9     10    11    12";
716 PRINT@515,"13    14    15    16";
730 PRINT@163,"1";:PRINT@291,"2";:PRINT@419,"3";
732 PRINT@178,"4";:PRINT@306,"5";:PRINT@498,"6";
736 FORC=1TO17:READX,Y:FORA=XTOX+5:FORB=YTOY+2
738 SET(A,B):NEXTB:NEXTA:NEXTC
739 RETURN
750 X=INT(A(A)/100):Y=A(A)-X*100
755 FORC=YTOY+5:FORB=XTOX+11
759 SET(B,C):NEXTB:NEXTC:RETURN
900 GOSUB700:PRINT@640,"";
```




```
910 PRINT"    TO PLAY, SIMPLY ENTER THE NUMBER (1-16) FROM THE"
920 PRINT"JIGSAW ON THE UPPER LEFT WHERE YOU BELIEVE THE PIECE"
930 PRINT"(1-6) THE COMPUTER HAS PICKED SHOULD FIT.  REMEMBER:"
940 PRINT"YOU MUST MATCH EXACTLY THE PUZZLE THE COMPUTER HAS"
950 INPUT"CHOSEN.     PRESS  =ENTER=  TO BEGIN";A$
960 CLS:RESTORE:GOTO100
```

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SoftSide™ Presents:
A Page from The BASIC Handbook by David A. Lien

The ASC function converts a character or string variable to ASCII integer code.

Function

For example, PRINT ASC("A") prints 65, the ASCII code for the letter A. PRINT ASC(A$) prints the ASCII code of the first character in string variable A$.

TEST PROGRAM

```
10 REM 'ASC(CHARACTER)' TEST PROGRAM
20 PRINT "THE ASCII CODE FOR LETTER A IS";
30 PRINT ASC ("A")
40 IF ASC("A")=65 THEN 70
50 PRINT "ASC FAILED THE TEST"
60 GOTO 99
70 PRINT "ASC PASSED THE TEST"
99 END
```

SAMPLE RUN

```
THE ASCII CODE FOR LETTER A IS 65
ASC PASSED THE TEST
```

The next program tests the ASC function with a variable.

TEST PROGRAM

```
10 REM 'ASC(STRING VARIABLE)' TEST PROGRAM
20 PRINT "TYPE ANY LETTER, NUMBER, OR CHARACTER";
30 INPUT A$
40 PRINT "THE ASCII CODE FOR ";A$;" IS";ASC(A$)
99 END
```

SAMPLE RUN *(using II)*

```
TYPE ANY LETTER, NUMBER, OR CHARACTER? H
THE ASCII CODE FOR H IS 72
```

Some computers which incorporate the ASC function can *accept* character strings longer than one character, but only the first character is evaluated and converted to ASCII code. To test for the ASC string limit, use the second Test Program and INPUT progressively longer strings until an error message appears.

VARIATIONS IN USAGE

Some interpreters (e.g. MAXBASIC) use the format ASC(A$,X) which prints the ASCII code of the first X characters contained in A$.

ALSO SEE

CHR$, Appendix A for the ASCII code.

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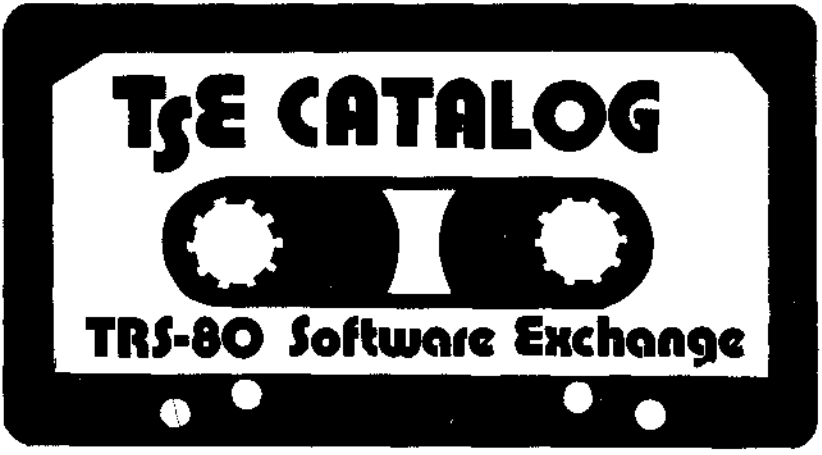

SPRING 1979

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Games

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Many TRS-80 programs have been written to play digital Mastermind. But they would only let the computer make the codes, and the human break the codes. Our version of the classic game lets you and the computer take turns making and breaking codes so you can both play. This program is a beautiful example of the speed of the Z-80 cpu. The computer takes less than 3 seconds to make a guess, and will usually figure out a code on the 5th guess. It's uncanny! The secret is that it is written in machine language, not BASIC. We supply you with an object tape which loads in addresses 7600 to 7FF0 using the SYSTEM command. It is also DOS compatible. Thus, the object code may be stored on disk using TAPEDISK and executed under DOS from disk. If you like to play challenging games of logic, we strongly recommend this one. Price, $7.95
Source Listing Price, $20.00

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Everyone knows this game, but how about a 4 x 4 x 4 version? Three skill levels for computer competition — author warns you to practice before tackling the computer's third skill level. Level I and II, 16K Price,$7.95

GAME OF LIFE by Small System Software
A game of birth, growth and death of a colony of cells. Enter any pattern (4 furnished) with unique repeating keyboard, then save on tape. A fast, machine language program (about 1 second per generation). Price, $14.95

STAR TREK III by Lance Micklus
One of the most advanced Star Trek type games ever written. Object of the game is to explore as much of the galaxy as possible, destroy the 20 Klingons and locate the 5 Class M planets. Exploration facet of the game gives it a whole new dimension. Extensive use of graphics, including a 3-dimensional galaxy. During a Klingon battle you see the phasers fire, hit the Klingons and explode. Hazards to be aware of are large stars, black holes and a pulsar. Pulsar makes space noise in adjacent quarters where the Klingons are hidden. Docking must be controlled to avoid collision or docking failure. At game's end you return to Star Fleet Headquarters where collected data is evaluated by your ship's computer and your performance is rated. Takes about 2 hours to play a game.
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High speed machine language program with large and small aircraft flying at different altitudes. Ground-based missile launcher airmed and fired from keyboard. Planes explode when hit, sometimes cause damage to nearby aircraft. Score tallied for hits or misses, then saved for challenge by another player.
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PILLBOX by Gene Perkins
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SARGON: A COMPUTER CHESS PROGRAM by Dan & Kathe Spracklen
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Business

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Inventory System 2.2 is based upon the utilization of "random files" with 6 sub-records per random file buffer. This method of data storage allows for maximum utilization of diskette space and is briefly discussed in the Radio Shack DOS 2.0 Users Manual. It is assumed the user is familiar with the TRS-80 operation methods as well as Radio Shack Disk BASIC and DOS 2.1. If you need information in depth, consider Inventory 2.0 as an alternative.

Price, $59.95

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

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

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'ROUND THE HORN
WEATHER BULLETIN

Latest information received from Central Weather Service informs us of the following necessary modification to line 7540 in **'Round the Horn**:

```
7540 W(3,2) = RND(3)-1:IF W(3,1))29 THEN W(3,2) = -W(3,2)
```

We hope the change improves your voyage!

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