

SoftSide™

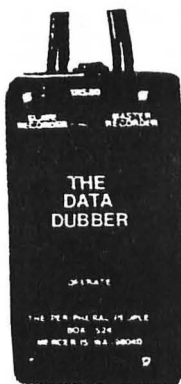
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SoftSide™

OCTOBER 1979

VOL. 2, NO. 1

“ your BASIC software magazine ”

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Publisher

Roger W. Robitaille, Sr.

Publishing Coordinator

Elizabeth Robitaille

Editor

George Blank

Art/Production Manager

Sharon Demmerle

Marketing Manager

Joseph Breton

Software Editor

Jack Moore

Customer Service

Bette Keenan

Subscriptions

Diana Bishop, Mgr.

Shipping

Bea Kimball

Jeanne Stroncer

Copy Editor

Freida Day

Accounting

Rita Ellis, Office Mgr.

Mailing Department

Lester Anderson, Courier

Programmers

Phillip Brown

Mark Ohlund, Asst.

Programming Assistants

Bryan Berkebile

David K. Robitaille

Printing

Memorial Press Group

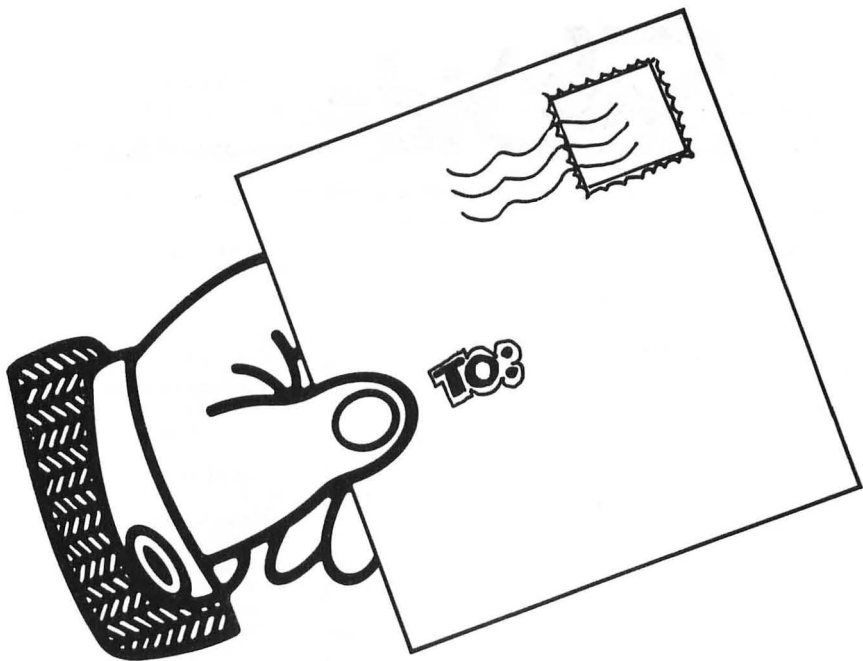
Submissions

att: Joseph Breton

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.

SoftSide is published monthly by SoftSide Publications, 17 Briar Cliff Dr. Milford, NH 03055 Telephone: 603-673-5144. Subscription rates: USA bulk rate — \$18 per year. USA first class, APO, FPO, Canada, Mexico, overseas surface mail - \$75 per year. Overseas airmail - \$30 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

by George Blank

According to your replies to our June Poll on Software Suppliers, there is a high rate of satisfaction among those purchasing from the TRS-80 Software Exchange. Only Michael Schrayer Software (the Electric Pencil) had more favorable ratings. Passing over the suppliers for which less than ten replies were received, Michael Schrayer, TSE, Small Systems Software, G2, and Lifeboat Associates rated significantly above average. The rating for G2 should be qualified however, as it is an average of very high ratings (usually mentioning Level III BASIC) and rather low ratings for other products.

After Radio Shack (let's face it; every TRS-80 owner has heard of Radio Shack) and the TRS-80 Software Exchange (most SoftSide subscribers have heard of it) with 145 and 116 ratings respectively, the apparent best selling software suppliers are Instant Software, CLOAD magazine, Sensational Software, and Small Systems Software. Since Small Systems Software has higher prices for their average items than the other three, we suspect that they are doing better than the others. Their high ratings and excellent programs make this a well-deserved tribute.

Our own experience with programmers who have software for sale with other suppliers (your editor is one of them) leads us to suspect that we sell at least 50 percent more software than any other independent software supplier. Unfortunately, from our viewpoint, Radio Shack probably sells more than all the independents, including TSE, put together.

We did not conduct this survey out of idle curiosity. If you will look through the Market Basket in the back of this issue, you will find that we sell the software of all the top rated suppliers, as well as some items that are usually not sold directly by the originating firm. The TRS-80 Software Exchange is your single source for top quality software from Microsoft, Apparat, Miller Microcomputer Service, Small System Software, and others, including our own authors. We also invite you to compare our speed with the others, especially when you use our new telephone WATS line. TSE gives the fastest delivery on the best software.

We also received a few brickbats in with our kudos. The worst problems tended to be with missing documentation. Apparently quite a few of our programs have been mailed out without the accompanying instructions. We are deeply embarrassed, and sympathize with the customer who receives a system tape and can't load it because he doesn't know the title, or who can't make sense of a game because the instructions are missing. We are making changes. For one thing, we will now use pink labels for programs that receive instructions separately, and yellow labels for ones without instructions, so that our mailroom staff can keep track of them more easily. Please call on the toll-free line (1-800-258-1790) if you think you have received a program without instructions.

We also had our attention called to a few bugs in some of our programs. They are being corrected, and we are making up a problem notebook to record problems noted and appropriate solutions. We will correct the programs before further sales, offer corrections in the magazine, tell callers what the problems are on the telephone, and even send out listings of the solutions for errors upon request. Our growth these past fourteen months has been explosive, but we now have a larger staff and are going all out for quality.

It has been my pleasure as editor to receive an advance look at the manuscript for a new and desperately needed TRS-80 publication, 80 Software Critique. The manuscript I saw was fifty pages long and contained full reviews of fifty programs. The reviews were well done (of course I agreed with some and disagreed with others!) and even listed bugs and their solutions. This new quarterly is \$24 a year from 80 Software Critique, P.O. Box 134, Waukegan, IL 60085.

For those of you who prefer charts and numbers to comments, we will close the editorial this month with the results of the June poll in chart form. Our apologies to Hayden Publications for leaving them off the poll. They also have excellent programs.

A handwritten signature in black ink, consisting of the letters 'JWB' in a stylized, cursive script. The signature is written with a pen and has a long, sweeping underline that extends to the right.

Software Supplier	Replies	Average Rating
Michael Schrayner (Electric Pencil)	21	8.0
TRS-80 Software Exchange	116	7.4
Small Systems Software	47	7.0
G2 (Level III Basic)	35	6.8
Lifeboat Associates	10	6.5
Personal Software	41	6.1
Computronics	40	5.9
CLOAD magazine	54	5.8
Instant Software (Kilobaud)	55	5.6
Sensational Software (Creative Comp.)	51	5.5
People's Software (TRS-80 Computing)	34	5.2
The Bottom Shelf	37	5.2
Mad Hatter Software	41	5.1
Radio Shack	145	5.0
Software 80	22	4.8

(The following suppliers received less than ten responses)

Practical Applications	4	7.3
Level IV	9	6.1
ACS Services	5	5.8
Hobby World	8	5.3
FMG Corporation	6	5.2
Micro Architect	8	4.6
Computrex	8	3.1

Feed your imagination

Coming soon to a
distributor near you.



Lifeboat Associates, specialists in microcomputer disk software, is proud to offer the first professional disk-based language and utility package for the Radio Shack TRS-80 computer. Written by Microsoft, creators of Level II BASIC, the package runs on a TRS-80 system with 32K RAM, one or more drives and TRSDOS. The software is supplied on diskettes and consists of:

FORTRAN a true relocatable machine code compiler for ANSI FORTRAN X3.9 (except COMPLEX variables).

MACRO ASSEMBLER a disk-based macro assembler utilizing Zilog mnemonics and producing relocatable code.

LINKING LOADER a link-edit and load FORTRAN and assembler modules for execution.

SUBROUTINE LIBRARY a complete library of subroutines existing as relocatable linkable modules for Fortran or assembler programs - e.g., double precision square root, natural log, transcendentals, etc.

DISK TEXT EDITOR to create and modify Fortran and assembler programs as disk files: also can be used as a general purpose text editor for correspondence and other documents.

TRS-80 TRANSFORMED WITH PROFESSIONAL SOFTWARE PACKAGES

This high-powered professional software package with full documentation is available at the
DISCOUNT PRICE OF **\$150.**

PER COMPUTER SYSTEM

The Macro Assembler, Loader, Editor, and Cross Reference Utilities alone **\$80.**

The Fortran Compiler, Loader, Editor, and extensive library of scientific functions alone **\$80.**



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TIRED OF DISK ERRORS?

STOP BLAMING YOUR DRIVES — FIX YOUR DOS!

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

- 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

NEWDOS+

- 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

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

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



TRS-80 SOFTWARE EXCHANGE
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What Kind of Work Do You Enjoy?



by G. P. Cocanour

If a computer hobbyist were to collect a dime everytime he was asked, "What are you going to do with it?", I'm sure he could purchase an additional 4K of RAM in short order and if he's one of those old timers, at least a floppy disk. My general reply covers a multitude of things, but, almost always fits into one of two categories. The first category is the constructive one. The one that makes my life easier by keeping records, balancing the checkbook, and telling how to keep the budget in line. The second category, the one I enjoy the most, is recreation. Oh, the games you can play, and the hours you can spend. The price tag is small!!!

However, showing someone your computer and keeping his or her interest is a tall order to fill if these someones range from small daughter, to an old neighbor, with your wife thrown in for good mixture. The first good rule of thumb when showing off your computer is to involve that person directly with the computer. So, how about a game? Maybe a Star War of some kind? Or, how about the ageless game of Nim? Well, games are good, but I've found that generally the rules are too complicated and lengthy to understand, or, too simple and are of no challenge to the individual. Besides, after losing to a computer, most people's egos are ready to eliminate the word computer from the dictionary. The question is . . . what can we use? After a few days of musing the idea, (see, I don't have very fast access time) I recalled an article my wife had shown me in a Family Circle magazine. It was a test and the reason she had brought it to my attention was because of the difficult-to-understand scoring directions. This test was the jewel I was looking for. It seems this Doctor Dichter fellow had come up with a test you can't fail (where was he when I was going to school?). Not only that, this test involves the person in a very special way. The test is designed to tell him something about himself that maybe, just maybe, he doesn't know - like what kind of work does he enjoy doing?

Doctor Dichter's test is very short and easy to understand. The test is comprised of eight questions regarding your working preferences, such as in a group of people or all alone, or with tangible items, or abstract ideas. Out of these eight questions and answers comes one or several occupational areas which are suitable for you. It's only fair to mention that this is a very broad test and only includes 27 occupational areas. Also remember, this test only tells you the type of work you would enjoy, not necessarily a job you are able to do.

This program requires 16K and will work in either Level I or II. The Level I users must substitute the lines 25 & 80 as remarked in the program listing. Level I users must also press ENTER after selecting an answer.

I feel this test does its job convincing people of some of the usefulness of a home computer. What I'm worried about now is all the telephone calls I've been receiving asking if they can bring over their friends and show them the computer test.

```

10 REM FROM FAMILY CIRCLE 1/77, PAGE 4, ARTICLE by DICHTER
20 REM PROGRAM WRITTEN BY G. P. COCANOUR
25 DIMA(27):C=1
26 REM *** LEVEL 1 USE THIS LINE *** 25 C=1
35 GOTO100
50 FORA=1TO3:L=INT(M):A(L)=A(L)+1:M=M-L:M=M*100+.0005:L=INT(N):A
(L)=A(L)+1:N=N-L:N=N*100+.0005:L=INT(O):A(L)=A(L)+1:O=O-L:O=O*10
0+.0005:L=INT(P):A(L)=A(L)+1:P=P-L:P=P*100+.0005:L=INT(R):A(L)=A
(L)+1:R=R-L:R=R*100+.0005:NEXT
60 M=0:N=0:O=0:P=0:R=0:C=C+1:ONCGOTO100,200,300,400,500,600,700,
800,860
75 PRINT@960,"YOUR ANSWER PLEASE";
80 Z$=INKEY$:IFZ$=""THEN80ELSEB=VAL(Z$):CLS:RETURN
81 REM *** LEVEL 1 USE THIS LINE *** 80 INPUT B:CLS:RETURN
100 CLS:PRINT"RELATION TO COLLEAGUES. HOW DO YOU PREFER TO RELA
TE TO"
105 PRINT"OTHERS IN YOUR JOB?":PRINT:PRINT
110 PRINT"(1) AS A LEADER AMONG CO-WORKERS.":PRINT
120 PRINT"(2) BEING TOLD WHAT TO DO BY OTHERS":PRINT
125 PRINT"(3) WITH SOME COLLEAGUES ON THE SAME LEVEL, OTHERS BE
LOW":PRINT
130 PRINT"(4) I WANT TO BE INVOLVED WITH OTHERS":PRINT
135 GOSUB75
140 ONBGOTO1000,1005,1010,1015
150 GOTO100
200 CLS:PRINT"MATERIALS. WHAT TYPE OF MATERIALS DO YOU PREFER T
O"
205 PRINT"WORK WITH?":PRINT:PRINT
210 PRINT"(1) WOOD, STEEL, STONE":PRINT
215 PRINT"(2) TEXTILES, PLASTIC":PRINT
220 PRINT"(3) PAINT, TILE":PRINT
225 PRINT"(4) PAPER, BOOKS":PRINT
230 PRINT"(5) PEOPLE":PRINT
235 GOSUB75
240 ONBGOTO2000,2005,2010,2015,2020
250 GOTO200
300 CLS:PRINT"REWARDS. WHAT TYPE OF REWARDS DO YOU PREFER?":PR
INT:PRINT
305 PRINT"(1) NORMAL PAY, NO RISK":PRINT
310 PRINT"(2) GOOD PAY, SOME RISK":PRINT

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315 PRINT"(3) EXCELLENT PAY, LOTS OF RISKS":PRINT
320 GOSUB75
330 ONBGOTO3000, 3005, 3010
340 GOTO300
400 CLS:PRINT"RELATION TO COMPANY. WHAT KIND OF RELATIONSHIP W
ITH A"
405 PRINT"COMPANY OR GROUP DO YOU PREFER?":PRINT:PRINT
410 PRINT"(1) BEING A COG IN THE MACHINE":PRINT
415 PRINT"(2) BEING AN INTEGRAL PART OF THE OPERATION":PRINT
420 PRINT"(3) BEING A BIG WHEEL IN THE COMPANY":PRINT
425 GOSUB75
430 ONBGOTO4000, 4005, 4010
440 GOTO400
500 CLS:PRINT"SOCIABILITY. HOW DO YOU PREFER TO RELATE TO INDI
VIDUALS"
505 PRINT"IN A JOB?":PRINT:PRINT
510 PRINT"(1) WORKING ALONE":PRINT
515 PRINT"(2) WORKING WITH ONE PERSON":PRINT
520 PRINT"(3) BELONGING TO A SMALL GROUP":PRINT
525 PRINT"(4) BELONGING TO A LARGE GROUP":PRINT
530 GOSUB75
540 ONBGOTO5000, 5005, 5010, 5015
550 GOTO500
600 CLS:PRINT"RESULTS. WHAT KIND OF RESULTS DO YOU PREFER?":PR
INT:PRINT
605 PRINT"(1) IMMEDIATELY VISIBLE":PRINT
610 PRINT"(2) VISIBLE WITHIN A SHORT TIME":PRINT
615 PRINT"(3) VISIBLE IN ONE MONTH":PRINT
620 PRINT"(4) VISIBLE IN THREE MONTHS":PRINT
625 PRINT"(5) VISIBLE IN ONE YEAR":PRINT
630 PRINT"(6) NEVER VISIBLE":PRINT
635 GOSUB75
640 ONBGOTO6000, 6005, 6010, 6015, 6020, 60
650 GOTO600
700 CLS:PRINT"TEMPO AND RHYTHM. WHAT TEMPO, OR PACE OF WORK, I
S MOST"
705 PRINT"PLEASING TO YOU?":PRINT:PRINT
710 PRINT"(1) AN EVEN PROGRESSION":PRINT
715 PRINT"(2) SECURE AND PROTECTED, QUIET":PRINT
720 PRINT"(3) UPS AND DOWNS, LOTS OF EXCITEMENT":PRINT
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725 PRINT"(4) A REGULAR RHYTHM":PRINT
730 GOSUB75
740 ONBGOTO7000,7005,7010,7015
750 GOTO700
800 CLS:PRINT"BODY. WHICH PART OF THE BODY DO YOU WANT TO BE E
MPLOYED"
805 PRINT"MOST OF THE TIME IN YOUR WORK?":PRINT
810 PRINT"(1) EYES":PRINT
815 PRINT"(2) BRAIN":PRINT
820 PRINT"(3) HANDS":PRINT
825 PRINT"(4) LEGS":PRINT
830 PRINT"(5) ARMS":PRINT
835 PRINT"(6) TOTAL BODY":PRINT
840 GOSUB75
850 ONBGOTO8000,8005,8010,8015,60,8025
855 GOTO800
860 H=9:I=0
870 PRINT"THE TYPE OF WORK YOU MIGHT ENJOY DOING"
880 GOSUB975
890 IFI>2GOTO910
899 Z=0:X=14
900 H=H-1:GOTO880
910 INPUT"PRESS ENTER TO CONTINUE";B$:CLS:PRINT"THE TYPE OF WORK
YOU MIGHT NOT ENJOY DOING"
920 H=0:I=0
930 GOSUB975
940 IFI>=2GOTO960
950 H=H+1:GOTO930
960 INPUT"PRESS ENTER TO TAKE THE TEST AGAIN";B$:RUN
975 RESTORE
980 FORG=1TO27:READ A$
985 IFH=A(G)GOSUB995
990 NEXTG:RETURN
995 PRINTA$:I=I+1:RETURN
1000 M=5,1013:N=14,1819:O=20,2225:P=26:GOTO50
1005 M=9,24:GOTO50
1010 M=2,0106:N=7,1627:GOTO50
1015 M=11,1215:N=21:GOTO50
2000 M=1,0327:GOTO50
2005 M=2,06:GOTO50

```

2010 M=4. 15:GOT050
2015 M=16. 17:GOT050
2020 M=5. 0910:N=12. 1820:O=21. 2225:P=26:GOT050
3000 M=6. 0708:N=11. 1213:O=15. 16:P=23. 27:GOT050
3005 M=2. 1418:N=19. 2024:O=25. 26:GOT050
3010 M=1. 0304:N=5. 0910:O=17:GOT050
4000 M=12. 1516:GOT050
4005 M=1. 0206:N=7. 0809:O=11. 1921:P=23. 27:GOT050
4010 M=3. 0405:N=10. 1718:O=20. 2224:P=25. 26:GOT050
5000 M=1. 0203:N=4. 0514:O=17. 2223:P=24. 2526:GOT050
5005 M=6. 0708:N=16. 1819:O=21. 27:GOT050
5010 M=9. 1015:N=20:GOT050
5015 M=11. 1213:GOT050
6000 M=6. 0825:N=26. 27:GOT050
6005 M=7. 0911:N=12. 1415:O=18. 1920:P=24:GOT050
6010 M=2. 0410:N=16. 23:GOT050
6015 M=1. 0305:N=13. 1721:GOT050
6020 M=22:GOT050
7000 M=11. 16:GOT050
7005 M=3. 0406:N=7. 1215:O=19. 2021:P=22. 27:GOT050
7010 M=1. 0205:N=8. 0913:O=14. 1823:GOT050
7015 M=10. 1724:N=25. 26:GOT050
8000 M=1. 0203:N=5. 0607:O=8:GOT050
8005 M=6. 0710:N=12. 1516:O=17. 1819:P=20. 2122:R=23. 24:GOT050
8010 M=3. 04:GOT050
8015 M=9. 1112:GOT050
8025 M=13. 1425:N=26. 27:GOT050
9000 DATAARCHITECT, INT. DECORATOR, SCULPTOR, PAINTER, ENTREPRENEUR
9010 DATAFASHION DESIGNER, FURNITURE DESIGNER, LAYOUT ARTIST, SALES
9020 DATAPROMOTION, NURSE, CHILD CARE, TEACHER, PHYSICAN, SECRETARY
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**THEN THERE WAS LEVEL II
NOW - LEVEL III BASIC**

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For the TRS-80.**

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EASIER LOADING, FEWER KEYBOARD ERRORS. G2 Level III Basic eliminates aggravations you've had, including keyboard "bounce" and those super-sensitive tape deck settings. Programs will load easier, and you'll have far less trouble with input errors.

BASIC ACCESS TO RS-232. Until now, if you wanted to access your RS-232 interface, you had to work in assembly language. G2 Level III Basic does the work for you, letting you use your interface with Basic statements

HAVE YOU WISHED FOR MORE POWER? This new interpreter gives you 10 machine language user calls for subroutines, long error messages, a new TIMES call for your real time accessory, plus measure or limit input timing that lets you put a time limit on responses when you're playing games or giving exams. And the list doesn't stop here.

EASIER AND MORE POWERFUL GRAPHICS. This new Basic includes three simple commands that can eliminate dozens of program steps. PUT transfers information from a designated array to your screen; GET reverses the process. LINE makes your computer do the work when you input beginning and end points. Give it two diagonally opposite corner locations, and it'll outline the rectangle you're looking for.

ONLY MICROSOFT COULD DO IT. G2 Level III Basic was created by Microsoft, the same company that wrote Level II Basic for Radio Shack. And it actually uses Level II as a foundation for this enhanced add-on. By the time you've mastered all it can do, calling up the flexibility of the graphics commands, and even enjoying the convenience of renumbering, you'll wonder how it was all possible. It's like getting a whole new computer for your computer.

AVAILABLE NOW FOR ONLY \$49.95. You get the power that might otherwise cost you hundreds of dollars in additional equipment for only \$49.95. Price includes the Users Manual, a Quick Reference Card, and a preprogrammed cassette tape. Load the tape, open the manual, and get ready to work with the most powerful Basic Interpreter you've ever had your hands on. Level III Basic for the TRS-80.



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KVP

by Lance Micklus

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

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:

USE AN EXTERNAL KEYBOARD
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 in 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.

EXCHANGE PROGRAMS WRITTEN IN BASIC WITH OTHER COMPUTERS. From the Sorcerer to the IBM 370 (and TRS-80's, too!)

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Self-relocating for 16K, 32K or 48K systems

\$24.95 on tape \$29.95 on disk

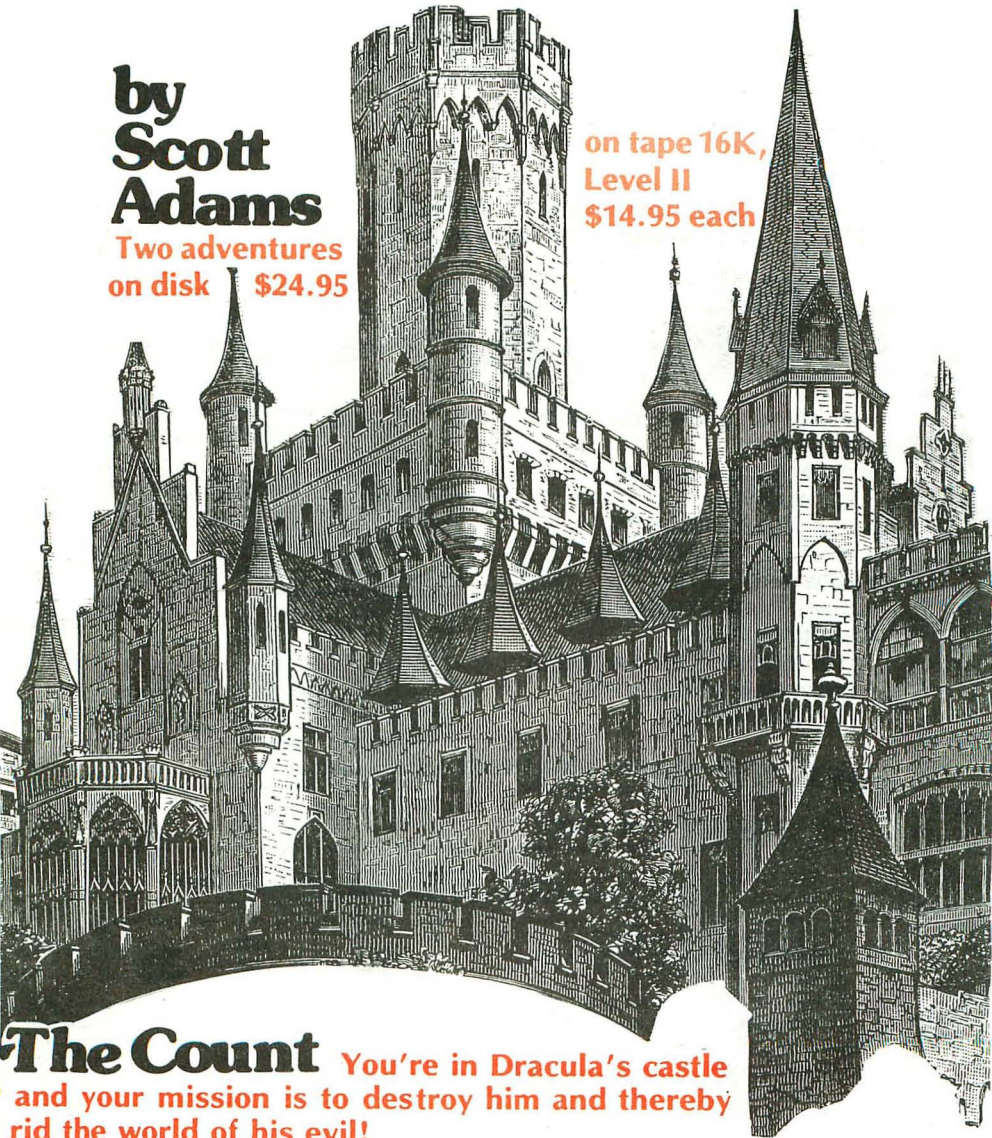
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by
**Scott
Adams**

Two adventures
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and your mission is to destroy him and thereby
rid the world of his evil!

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Reaction Time

by
Chris Freund

Reaction time is a very short program that does what its title implies -- measure reaction time. Or, two players can use it as a game to see who has the faster reaction time.

For the timed reaction, enter a "1" to the question that asks if a timed reaction or competition is desired. After pressing ENTER to start, the screen will clear. When the word "GO!!" appears on the screen, press any key, and the reaction time will be given. Since the time must be computed by using a FOR-NEXT loop, various computers may give slightly different times. To calibrate, use a stopwatch to see how long the computer takes to complete the 1000 loop maximum (when the word "GO!!" appears, start timing, and when it comes up on the computer, stop timing). Divide the time it took (in seconds) to complete the loop by 10000, and this will give the constant needed in line 50 of the program. It should be approximately .005.

The two player game is not timed. One player uses the "Z" key, and the other player uses the "/" key. When the word "GO!!" appears, both players press their respective keys as quickly as possible. The computer will then tell who was quickest.

NOTE -- anticipation is impossible since the time loop before the actual timing is random.

```
2 'BY CHRIS FREUND
5 CLS:INPUT"REACTION TIME.
ENTER A 1 FOR TIMED REACTION OR A 2 FOR COMPETITION";Q
6 IFQ=2PRINT"ONE PLAYER TAKE THE 'Z' KEY AND THE OTHER THE '/' K
EY"
7 INPUT "PRESS ENTER TO START";F$
10 CLS:PRINTCHR$(23):FORX=1TORND(500)+500:IFINKEY$=""PRINT"YOU
PRESSED TOO EARLY":INPUT"PRESS ENTER";K:GOTO10
20 NEXT
23 IFQ=2THEN241
25 PRINT"GO!!":A$=INKEY$
30 FORZ%=1T010000:IFINKEY$=""THEN50
40 NEXT
50 PRINT"REACTION TIME: ";USING"###.##";Z%*.005365:PRINT" SECOND
5"
100 INPUT"PRESS ENTER";K:GOTO10
241 PRINT"GO!!"
242 A$=INKEY$:IFA$=""THEN242
243 IFA$="Z"PRINT"THE LEFT PLAYER WON"
244 IFA$="/"PRINT"THE RIGHT PLAYER WON"
246 INPUT"PRESS ENTER";K$:GOTO10
```

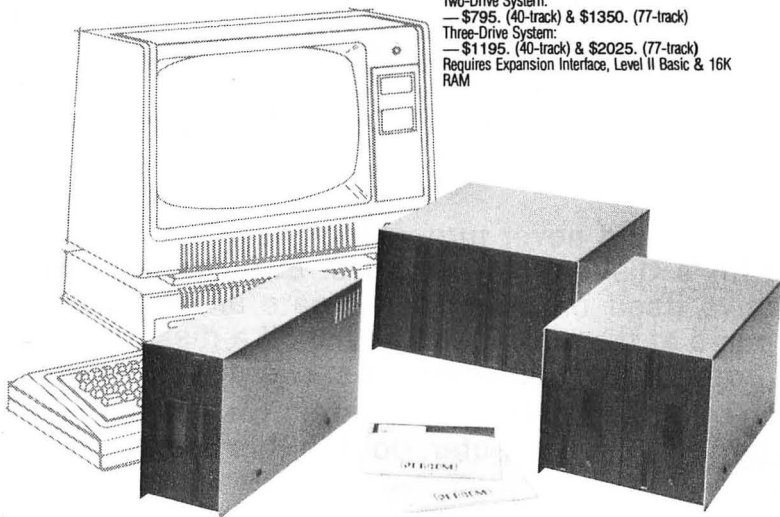
Warning to Disk Users!

You should never turn your system ON or OFF with a diskette in the drive. Even turning the drive itself on or off can create an electronic pulse at the write head and spoil a diskette. To protect your diskettes, remove them before turning any part of the system off. When you turn on the computer, do it in this order:

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Radio Shack announced several months ago that diskettes were to be removed prior to shutting down the computer, but only recently have problems been verified when turning the system on. To be absolutely save, never turn any part of the system on or off with a diskette in the drive. (Note: It will not harm your disk drive to run empty on power up.)



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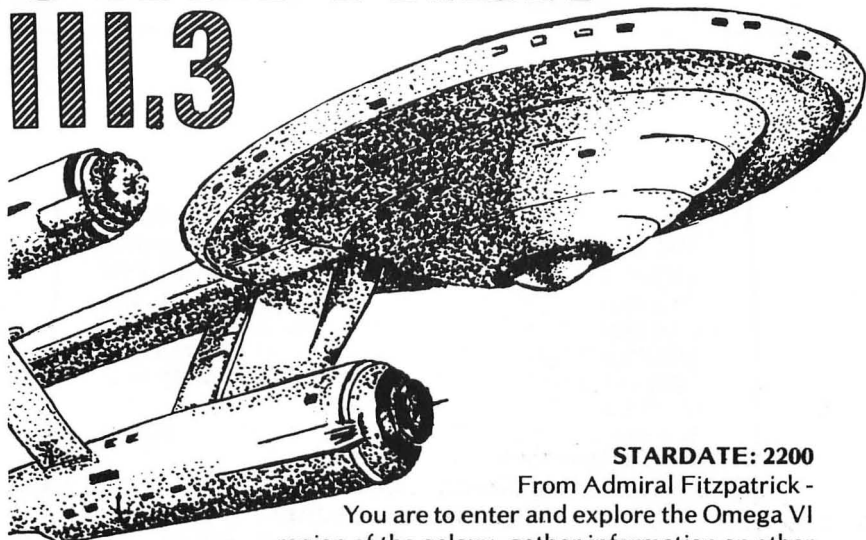
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CHECKMATE

Sargon

by Dan & Kathe Spracklen

Winner of the 1978 West Coast Computer Faire, this revolutionary chess playing program won 5 games out of 5 played. Sargon is written in Z-80 language using the TDL Macro Assembler and occupies 8K RAM - 2K for data areas, 2K for graphics display and user interface, 4K move logic. Spectators were left in awe as the formidable field of opponents including Chess Challenger - 10, Chess Challenger - 3, Boris, Atari, and Microchess 1.0 was defeated.

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by M. Kelleher

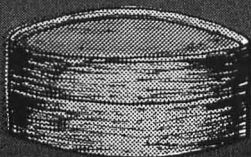
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by Lance Micklus



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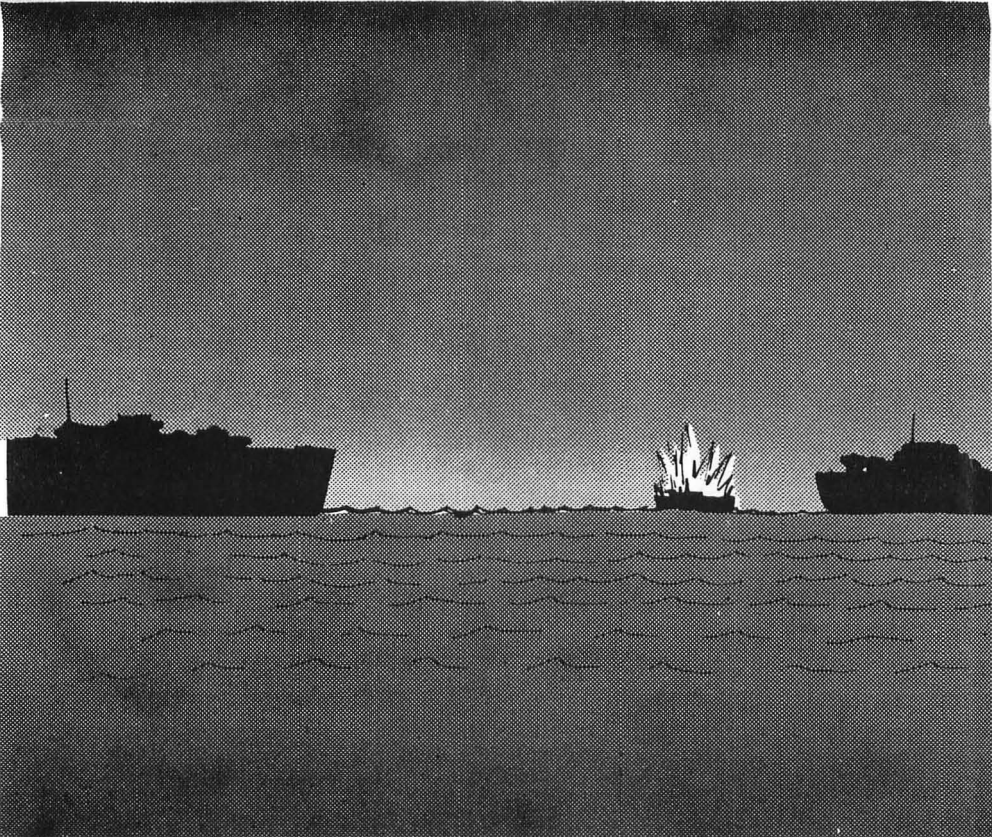
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Battleship

by John M. Delaney

This is a single player game of war in which the computer is a formidable opponent. It can be enjoyed by children of about ten up to adult level.

Each side places its fleet of six warships of varying sizes on a 10 X 10 Grid. With each turn, you enter horizontal and vertical coordinates and fire upon the enemy grid. If you make a hit on one of the enemy's ships, you try to zero in for the kill and keep hitting until it sinks. The screen shows hits and misses at all times for you and the enemy, but of course doesn't reveal the position of any enemy ship until one is sunk.

The first one to send all six ships in the enemy fleet to Davy Jones's Locker wins the game. So, Anchors Aweigh . . .

```

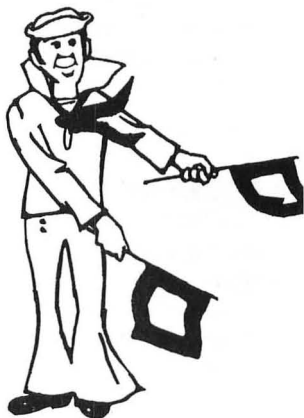
10 CLS:PRINTTAB(12)"BATTLESHIP A DELANEY ENTERPRISE CREATION":PR
INT"DO YOU NEED INSTRUCTIONS (Y/N) -- NOTE DON'T PRESS ENTER KEY !";
20 XX$=INKEY$
30 IFXX$=""THEN20
40 IFXX$="Y"GOSUB2000ELSEGOTO50
50 CLS:RANDOM:CLR500
60 PRINT"THIS IS THE LAST TIME YOU USE 'ENTER' KEY !!!"
70 INPUT"WHAT IS YOUR NAME";NA$
80 DIMD$(10,10,2),S$(10,10,2),SK(6),F(2)
90 DIM C9(10,10)
100 DIM H(6,2),GG$(10,10)
110 DIMUU(10,10)
120 SK(1)=3:SK(2)=3:SK(3)=2:SK(4)=2:SK(5)=4:SK(6)=5:F(1)=0:F(2)=0
130 GOSUB200
140 K=1:GOSUB410
150 GOSUB870
160 GOSUB1070
170 GOSUB820
180 GOSUB1390
190 GOTO160
200 CLS
210 FORJ=1TO11
220 FORI=1TO11
230 PRINT@64*(J)+4+2*(I-1),". ";
240 PRINT@64*(J)+36+2*(I-1),". ";
250 NEXTI,J
260 FORI=0TO9
270 PRINT@4+2*I,I;
280 PRINT@36+2*I,I;
290 PRINT@129+64*I,I;
300 PRINT@161+64*I,I;
310 NEXTI
320 UU=LEN(NA$):PRINT@781-(UU/2),NA$;
330 PRINT@811,"TRS-80";
340 RETURN
350 IFD$(X,Y,K)=""THENIFK=1THENG$(X,Y)="M"
360 IFD$(X,Y,K)=""THEND$(X,Y,K)="M":C$="NS":GOTO390
370 IFD$(X,Y,K)="M"ORD$(X,Y,K)="*":THENC$="G":RETURN
380 C$=D$(X,Y,K):D$(X,Y,K)="*":IFK=1GG$(X,Y)="*"
390 PRINT@69+32*(K-1)+64*(Y+1)+2*(X),D$(X,Y,K);
400 RETURN

```

```

410 GOSUB820:PRINT@832,"CRUISER COORDINATES - X,Y ";
420 GOSUB2450
430 B$="C":N=5:GOSUB660
440 IFE=1THEN410
450 GOSUB820:PRINT@832,"BATTLESHIP COORDINATES - X,Y ";
460 GOSUB2450
470 B$="B":N=4:GOSUB660
480 IFE=1THEN450
490 GOSUB820:PRINT@832,"SUBMARINE #1 COORDINATES - X,Y ";
500 GOSUB2450
510 B$="S1":N=3:GOSUB660
520 IFE=1THEN490
530 GOSUB820:PRINT@832,"SUBMARINE #2 COORDINATES - X,Y ";
540 GOSUB2450
550 B$="S2":N=3:GOSUB660
560 IFE=1THEN530
570 GOSUB820:PRINT@832,"DESTROYER #1 COORDINATES - X,Y ";
580 GOSUB2450
590 B$="D1":N=2:GOSUB660
600 IFE=1THEN570
610 GOSUB820:PRINT@832,"DESTROYER #2 COORDINATES - X,Y ";
620 GOSUB2450
630 B$="D2":N=2:GOSUB660
640 IFE=1THEN610
650 GOSUB820:RETURN
660 XS=X:YS=Y
670 FORI=1TON
680 IFX<@ORX>90RY<@ORY>9THENE=1:RETURN
690 IFD$(X,Y,K)◊"THENE=1:RETURN
700 IFA$="H"THENX=X+1:GOTO730
710 IFA$="V"THENY=Y+1:GOTO730
720 E=1:RETURN
730 NEXTI
740 X=XS:Y=YS
750 FORI=1TON
760 D$(X,Y,K)=B$:S$(X,Y,K)=B$
770 IFK=1THENPRINT@69+64*(Y+1)+2*X,LEFT$(B$,1);
780 IFA$="H"THENX=X+1

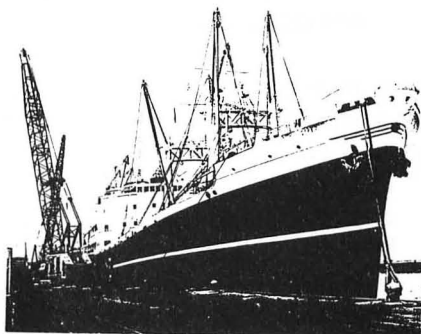
```



```

790 IFA$="V"THENY=Y+1
800 NEXTI
810 E=0:RETURN
820 PRINT@832, "
      "
830 PRINT@896, "
      "
840 RETURN
850 X=RND(10)-1:Y=RND(10)-1:T=RND(2):A$="H":IFT=2THENA$="V"
860 RETURN
870 K=2
880 GOSUB850
890 B$="C":N=5:GOSUB660
900 IFE=1THEN880
910 GOSUB850
920 B$="B":N=4:GOSUB660
930 IFE=1THEN910
940 GOSUB850
950 B$="S1":N=3:GOSUB660
960 IFE=1THEN940
970 GOSUB850
980 B$="S2":N=3:GOSUB660
990 IFE=1THEN 970
1000 GOSUB850
1010 B$="D1":N=2:GOSUB660
1020 IFE=1THEN1000
1030 GOSUB850
1040 B$="D2":N=2:GOSUB660
1050 IFE=1THEN1030
1060 RETURN
1070 K=2:GOSUB820:PRINT@896,NA$;" GUESS X,Y VALUES: ";
1080 X$=INKEY$:IFX$=""ORVAL(X$)<0ORVAL(X$)>9THEN1080ELSEPRINTX$;
1090 U$=INKEY$:IFU$=""ORU$<>," THEN1090ELSEPRINTU$;
1100 Y$=INKEY$:IFY$=""ORVAL(Y$)<0ORVAL(Y$)>9THEN1100ELSEPRINTY$;
1110 X=VAL(X$):Y=VAL(Y$):IFX<0ORX>9ORY<0ORY>9THEN1070
1120 GOSUB350
1130 IFC$="G"THEN1070
1140 IFC$="NS"THEN RETURN
1150 GOSUB1320
1160 H(L,K)=H(L,K)+1

```



```

1170 IF H(L,K)>=SK(L) THEN 1190
1180 RETURN
1190 GOSUB1210
1200 RETURN
1210 REM *SUB SINK*
1220 FOR J=0T09
1230 FORI=0T09
1240 IFK=2THENIF$$(I, J, K)=C$THEN PRINT@101+64*(J+1)+2*I, LEFT$(C$,
, 1);
1250 IFK=1THENIF$$(I, J, K)=C$THENG$$(I, J)=C$
1260 NEXT I, J
1270 F(K)=F(K)+1: IFF(K)<>6THEN RETURN
1280 GOSUB820
1290 IFK=2THENGOSUB2310:GOTO1310
1300 GOSUB2390:GOSUB2350
1310 END
1320 IFC$="S1"THENL=1
1330 IFC$="S2"THENL=2
1340 IF C$="D1"THEN L=3
1350 IF C$="D2"THEN L=4
1360 IF C$="B"THEN L=5
1370 IF C$="C"THEN L=6
1380 RETURN
1390 K=1:GOSUB820
1400 GOTO1510
1410 X=RND(10)-1:Y=RND(10)-1
1420 IFY>0THENIFGG$(X, Y-1)=""THEN1470
1430 IFX<9THENIFGG$(X+1, Y)=""THEN1470
1440 IFY<9THENIFGG$(X, Y+1)=""THEN1470
1450 IFX>0THENIFGG$(X-1, Y)=""THEN1470
1460 GOTO1410
1470 GOSUB350
1480 IFC$="G"THEN 1410
1490 IFC$="NS"THENRETURN
1500 GOTO1150
1510 FORX1=0T09
1520 GOSUB820:PRINT@896, "TR5-80 IS GUESSING !";
1530 FORY1=0T09
1540 IFGG$(X1, Y1)=""*THENC9(X1, Y1)=C9(X1, Y1)+1: IFC9(X1, Y1)>15THE

```



N1560

```

1550 IFGG$(X1, Y1)="*"THEN GOTO1580
1560 NEXTY1, X1
1570 GOTO 1410
1580 X2=X1: Y2=Y1
1590 IFUU(X1, Y1)=0THEN1640
1600 IFUU(X1, Y1)=1THEN1730
1610 IFUU(X1, Y1)=2THEN1820
1620 IFUU(X1, Y1)=3THEN1910
1630 IFUU(X1, Y1)=4THEN1560
1640 Y2=Y2-1: IFY2<0THEN1720
1650 IFGG$(X2, Y2)="*"THEN1640
1660 IFGG$(X2, Y2)<>"*THEN1720
1670 X=X2: Y=Y2
1680 GOSUB350
1690 IFC$="G"THEN1720
1700 IFC$="N5"THENRETURN
1710 GOTO1150
1720 UU(X1, Y1)=1: GOTO1580
1730 X2=X2+1: IFX2>9THEN1810
1740 IFGG$(X2, Y2)="*"THEN1730
1750 IFGG$(X2, Y2)<>"*THEN1810
1760 X=X2: Y=Y2
1770 GOSUB350
1780 IFC$="G"THEN1810
1790 IFC$="N5"THENRETURN
1800 GOTO1150
1810 UU(X1, Y1)=2: GOTO1580
1820 Y2=Y2+1: IFY2>9THEN1900
1830 IFGG$(X2, Y2)="*"THEN1820
1840 IFGG$(X2, Y2)<>"*THEN1900
1850 X=X2: Y=Y2
1860 GOSUB350
1870 IFC$="G"THEN1900
1880 IFC$="N5"THENRETURN
1890 GOTO1150
1900 UU(X1, Y1)=3: GOTO1580
1910 X2=X2-1: IFX2<0THEN1990
1920 IFGG$(X2, Y2)="*"THEN1910
1930 IFGG$(X2, Y2)<>"*THEN1990

```



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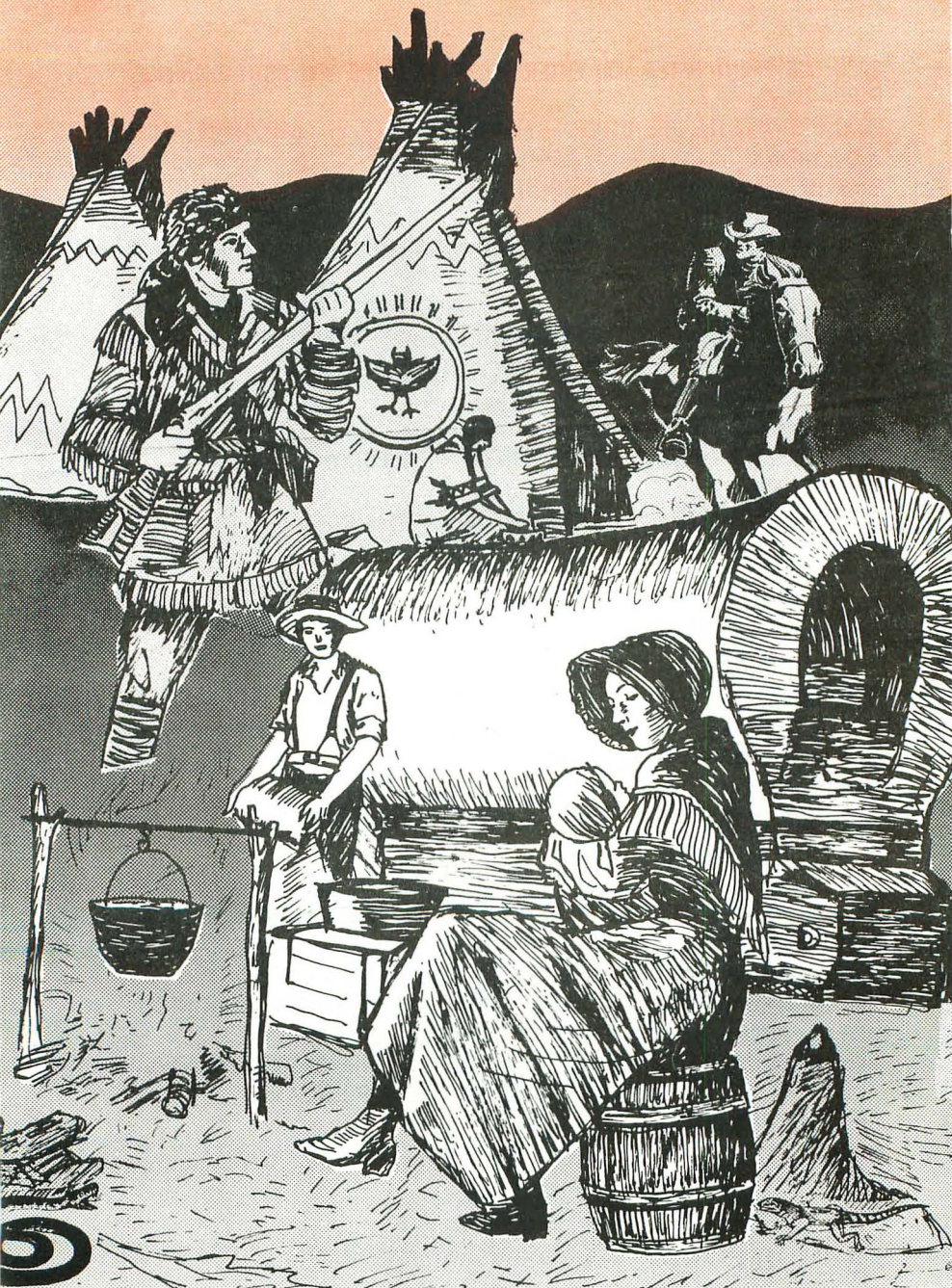
1940 X=X2:Y=Y2
1950 GOSUB350
1960 IFC$="G"THEN1990
1970 IFC$="NS"THENRETURN
1980 GOTO1150
1990 UU(X1,Y1)=4:GOTO1580
2000 CLS:PRINT:PRINT:PRINT" THIS IS THE GAME OF BATTLESHIP IN W
HICH YOU WILL PLAY AGAINST"
2010 PRINT"THE TRS-80 IN A GAME OF WAR. THE FIRST ONE TO SINK A
LL HIS "
2020 PRINT"OPPONENTS SHIPS WINS! THERE ARE 6 SHIPS - THE CRUISE
R (CCCC)"
2030 PRINT"THE BATTLESHIP (BBBB) - SUBMARINE #1 (SSS) - SUBMARIN
E #2 (SSS)"
2040 PRINT"DESTROYER #1 (DD) AND DESTROYER #2 (DD). THE PLAYING
BOARD"
2050 PRINT"CONSISTS OF TWO 10 X 10 GRIDS, YOURS AND THE TRS-80'S
YOU"
2060 PRINT"ENTER X (HORIZONTAL) AND Y (VERTICAL) COORDINATES - (
X,Y). "
2070 PRINT"TO CONTINUE PRESS 'ENTER' ";:INPUTXY
2080 NA$="PLAYER":GOSUB 200
2090 PRINT:PRINT"THIS IS WHAT THE GRIDS LOOK LIKE!"
2100 PRINT"TO CONTINUE PRESS 'ENTER' ";:INPUTXY
2110 CLS:PRINT:PRINT"THE FIRST THING YOU ARE TO DO IS POSITION Y
OUR 6 SHIPS ON YOUR"
2120 PRINT"ARRAY. YOU DO THIS BY PICKING THE TOP OR LEFTMOST PO
INT, WHERE"
2130 PRINT"YOU WISH TO ENTER THE SHIP, AND THEN ENTER WHETHER YO
U WISH IT"
2140 PRINT"ENTERED VERTICALLY (V) OR HORIZONTALLY (H) FORM THAT
POINT. "
2150 PRINT"TO CONTINUE PRESS 'ENTER' ";:INPUTXY
2160 CLS:GOSUB200:B$="C":A$="H":X=0:Y=0:NA$="PLAYER"
2170 FORI=1TO5:PRINT@69+64*(Y+1)+2*I,LEFT$(B$,I);
2180 IFA$="H"THENX=X+1
2190 NEXTI
2200 PRINT@832,"AN EXAMPLE FOR CRUISER AT (0,0) H !";
2210 PRINT@896,"TO CONTINUE PRESS 'ENTER' ";:INPUTXY

```

```

2220 CLS:PRINT"AFTER YOU ENTER ALL YOUR SHIPS YOU BOTH EXCHANGE
FIRE, ONE"
2230 PRINT"AFTER THE OTHER, BY ENTERING A (X,Y) COORDINATE WHERE
YOU THINK"
2240 PRINT"THE TRS-80'S SHIP MIGHT BE. IF YOU MISS, NO SHIP IS
THERE AND"
2250 PRINT"A 'M' WILL APPEAR. IF YOU HIT A SHIP A '*' WILL APPE
AR. WHEN"
2260 PRINT"YOU SINK ONE OF THE TRS-80'S SHIPS IT WILL APPEAR ON
THE SCREEN"
2270 PRINT"AS LETTERS, I. E. (SSS). FIRST ONE TO SINK ALL THE EN
EMYS SHIPS"
2280 PRINT"IS THE WINNER!!"
2290 PRINT"TO CONTINUE PRESS 'ENTER' ";:INPUTXY
2300 RETURN
2310 FORX7=1TO1000
2320 PRINTNA$;" YOU WON ! ";
2330 NEXTX7
2340 RETURN
2350 CLS:FORX7=1TO1000
2360 PRINT" TRS-80 WINS !";
2370 NEXTX7
2380 RETURN
2390 PRINT@832,"GAME IS OVER";
2400 FORJ=0TO9
2410 FORI=0TO9
2420 PRINT@101+64*(J+1)+2*I,LEFT$(S$(I,J,2),1);
2430 NEXTI,J
2440 PRINT@896,"WHEN YOU HAVE SEEN ENOUGH PRESS 'ENTER' ";:INPUT
XY:RETURN
2450 REM*JOHNS SUB*
2460 X$=INKEY$:IFX$=""ORVAL(X$)<0ORVAL(X$)>9THEN2460ELSEPRINTX$;
2470 U$=INKEY$:IFU$=""ORU$<>," THEN2470ELSEPRINTU$;
2480 Y$=INKEY$:IFY$=""ORVAL(Y$)<0ORVAL(Y$)>9THEN2480ELSEPRINTY$;
2490 X=VAL(X$):Y=VAL(Y$):IFX<0ORX>9ORY<0ORY>9THEN2450
2500 PRINT@896,"H OR Y";
2510 A$=INKEY$
2520 IFA$=""THEN2510
2530 IFA$="H"THENRETURN
2540 IFA$="Y"THENRETURN
2550 GOTO2500

```



Westward-1847

by Jon C. Sherman

William E. Taylor sat despondent on what remained of his new \$200 wagon on a cold September morning in 1846. The spark from last night's cook fire that ignited the canvas top of the wagon might just be the last catastrophe needed to end the dreams of Bill and his family. How could it have happened so close to the end of the trail? Nineteen weeks ago in Independence, Missouri, Bill, his wife Martha, and children, Sara and Jamie, had headed westward toward a new life in Oregon. They paid \$300.00 for the best team in town, \$100.00 for warm clothing, \$50.00 for ammunition for the rifle and Bill's Colt .45, \$100.00 for flour, salt and beans, and another \$100.00 for medicine, wagon parts and other goods. It left them with only \$50.00 from the sale of their worn-out Kentucky farm. Bill wanted to buy more bullets or a couple sacks of flour, but Martha said no. They would make do with what they had.

"A real blessing, that woman," Bill thought, as he climbed down to inspect the damage for the tenth time. Without that \$50.00 they would have all died. A band of riders, who looked so friendly, turned out to be hostile. The Doc at the fort charged \$20.00 to patch up Bill's wounded leg. Another \$20.00 went to replace the clothes they had lost when the wagon was swamped in some nameless river. The last \$10.00 bought medicine when Sara caught pneumonia in the blizzard.

Bill pulled hard at the left rear wheel. It groaned. It had been groaning ever since it broke the first week into the mountains, and he was forced to spend a full day replacing the two ruined spokes. "It'll hold," Bill said, "now that the fire has lightened the load."

It was the mountain that had hurt the Taylors the most. The rugged trail and the snow in the passes stopped them for days; the bad water made the animals sick; the small and infrequent game meant they were hungry most of the time.

Bill finished his inspection as the sun struggled over the eastern mountains. He knelt and kissed Martha lightly on the cheek and pulled Jamie's blanket up against the morning cold. Then he picked up his rifle and the last box of bullets and headed into the forest.

By noon, Martha had sorted through the supplies, keeping what could be used and throwing out what was ruined. In the wagon sat three pounds of beans, five pounds of flour, a little salt and some coffee. "Not enough," she said to herself.

A rifle shot! And then another!! Far off, they echoed between the mountain walls. A minute passed . . . two minutes . . . and there was only silence. Five minutes. Had he missed? In ten minutes Martha's hope began to fade. Surely, he would have found the game animal by now and ended its pain with a final shot. Twenty minutes passed. Sara sat rocking her old doll and humming a hymn. Jamie just stared into the forest. He **had** missed. Martha was sure of it. She fought the tears and the hunger and set about watering the team. If worst came to worst they could...

Another shot!! It came from just inside the forest. Bill's yell, triumphant and relieved, started them all cheering. He **had** hit it! It must be a big animal to have run so long and so far before falling. They would eat well tonight. They **would** make it to their new home in Oregon.

William E. Taylor and his family and hundreds of others did make it to Oregon in 1846. Thousands came in the three decades from 1840 to 1870. Could you have made it? WESTWARD - 1847 is your chance to try.

You will first be asked how good a shot you are.

- (1) ace marksman
- (2) good shot
- (3) fair to middlin'
- (4) need more practice
- (5) shaky knees

The better you claim to be, the faster you will have to be with your rifle. However, you will have a better chance to hit your target as an 'ace marksman' than as a 'shaky knees'.

You have just spent \$200.00 for a new wagon and have \$700.00 left to buy a team of oxen, food, and supplies. You can spend \$200.00 to \$300.00 on your team. The more you spend, the better your animals will be and the faster you will go. The more food you have the less chance there is of getting sick. You will need bullets to drive away bandits and hostile riders, to fight off wolves, and to hunt for more food along the trail. One dollar buys a box of 50 bullets. You must have enough warm clothing for the cold weather and snow you will encounter in the mountains. Miscellaneous supplies include medicine, wagon and harness parts and other things you will need for sickness and emergency repairs.

You can spend all of your money in Independence, or you can save part of it to spend along the way. However, things cost more at the forts (forts appear every other turn). You can also hunt along the trail to replenish your food supply.

At the beginning of each turn, you will be told your current supply situation. All the amounts will be given in dollar values except bullets. You will be asked if you want to stop at a fort, hunt, or continue. Stopping at a fort costs time, but gives you the opportunity to buy food and supplies. Hunting costs time and bullets, but will add to your food supply if you are successful. Continuing is the fastest way to get to Oregon, provided you have enough supplies.

You will next be asked how well you want to eat. Eating well takes lots of food. Eating poorly risks illness.

From now until the beginning of the next turn your fate is in the hands of the computer, but don't just sit there! There may be bandits or wolves you will have to frighten off with your gun, or one of your oxen may wander off. Oops! Was that your daughter who just fell and broke her arm? Ouch!

When you must use your gun along the trail, you will be told to type a four letter word which sounds like a gunshot. The faster you type the word and hit the space-bar, the better chance you will have of hitting the target. Don't forget to hit the space-bar.

Strategies:

It might be interesting to play the game a few times before reading this section. After all, most of the folk who started out from Independence in 1840-1870 did make it to Oregon or California with no more experience or information that you have now. However, if your aim is to complete your journey quickly and as safely as possible, I can offer some advice.

Your survival rests heavily on your ability to keep food on the table. I suggest you hunt on turns that do not have forts. If you miss, stop at the fort on the next turn and buy enough food to last you to the next fort. That way you will have enough, even if you should have bad luck on your next hunt.

The most devastating occurrence is an attack by hostile riders. Luckily for you, the riders, like the rain in Spain, stay mainly on the plain. It is advisable to get across the first 950 miles as fast as possible. Hunting and stopping at forts will only slow you down. Incidentally, the program's evaluation of the possible hostility of the riders is wrong 20 percent of the time.

Eating poorly invites sickness, and sickness invites disaster. However, if you have gone more than 1850 miles you can probably get away with it. Anything over 2040 miles will get you safely to Oregon.

Program improvements:

WESTWARD-1847 is written for people with average typing ability. If you are an expert typist, or, as you become more proficient at typing four letter words, you should consider making these changes.

LINE NUMBER	CHANGE FROM	CHANGE TO
800	TT/4	TT/3 or TT/2
800	<S	< S + 2
810	TT < 45	TT < 35
950	M+200	M + 175 or M + 150

You can change the words to be typed when using your gun by changing the string variable S\$ in the shooting sub-routine line 2170.

```

10 CLEAR950
20 DEFINT A, X, E, M
30 CC#=STRING$(60, 32)
40 DIMD$(20)
50 CLS:PRINTCHR$(23):PRINT@400, "
    WESTWARD
    1847":GOSUB5000
55 '
    ** SET UP GAME **
60 CLS:PRINT:PRINT"
    HOW GOOD A SHOT ARE YOU WITH YOUR RIFLE?"
70 PRINT:PRINT"          (1) MARKSMAN
    (2) GOOD SHOT
    (3) FAIR
    (4) NEED PRACTICE
    (5) SHAKY KNEES"
80 PRINT"
    ENTER ONE OF THE ABOVE";
90 INPUTS
100 S=INT(S):IFS>5THENS=5 ELSE IFS<1THENS=1
110 F=1
120 CLS
125 '
    ** BUY SUPPLYS **
130 PRINT"HOW MUCH DO YOU WANT TO SPEND ON -
    YOUR OXEN TEAM ($200 - $300)
    FOOD
    AMMUNITION
    CLOTHING
    MISCELLANEOUS SUPPLIES"
140 PRINT@168, " "; :INPUTA(1)
150 IFA(1)<200PRINT@168, "NOT ENOUGH"ELSEIFA(1)>300PRINT@168, "TOO
    MUCH"ELSEGOTO170
160 FORT=1TO250:NEXTT:PRINT@168, "          "; :GOTO140
170 GOSUB330
180 PRINT@296, " "; :INPUTA(2)
190 IFA(2)<0THENX=296:GOSUB340:GOTO180
200 GOSUB330
210 PRINT@424, " "; :INPUTA(3)

```



```

220 IFB<0THENX=424:GOSUB340:GOTO210
230 GOSUB330
240 PRINT@552," ";:INPUTA(4)
250 IFA(4)<0THENX=552:GOSUB340:GOTO 240
260 GOSUB330
270 PRINT@680," ";:INPUTA(5)
280 IFA(5)<0THENX=680:GOSUB330:GOTO270
290 GOSUB330
300 A(6)=700-A(1)-A(2)-A(3)-A(4)-A(5)
310 IFA(6)>=0GOTO340
320 PRINT@0,"YOU OVERSPENT - YOU ONLY HAD $700 TO SPEND. TRY AG
AIN":GOSUB2290:GOTO110
330 PRINT@832,"YOU HAVE ";700-A(1)-A(2)-A(3)-A(4)-A(5);" DOLLARS
LEFT. ";:RETURN
340 A(3)=50*A(3)
350 PRINT@989,"ARE ALL OF THE AMOUNTS OK";:INPUTC$:IFLEFT$(C$,1)
="N"FORX=1TO6:A(X)=0:NEXT:GOTO110
355 '
        ** START EACH TURN **
360 RANDOM:IFA(5)<0GOTO1900
370 IFA(2)<0GOTO1960
375 '
        ** SET DATE **
380 RESTORE
390 CLS:T=T+1
400 IFT>20GOTO440
410 FORX=1TOT:READD$:NEXTX
420 DATA MARCH 29 ,APRIL 12 ,APRIL 26 ,MAY 10 ,MAY 24 ,JUNE 7 ,J
UNE 21 , JULY 5 ,JULY 19 ,AUGUST 2 ,AUGUST 16 ,AUGUST 31 ,SEPTEM
BER 13 ,SEPTEMBER 27 , OCTOBER 11 ,OCTOBER 25 ,NOVEMBER 8 ,NOVEM
BER 22 ,DECEMBER 6 ,DECEMBER 20
430 PRINT@0,"MONDAY, ";D$," ",1847 " ";:GOTO460
440 PRINT@0,"YOU HAVE BEEN ON THE TRAIL TOO LONG -----
YOUR FAMILY DIES IN THE FIRST BLIZZARD OF WINTER."
450 GOTO2020
460 FORX=1TO6:IFA(X)<0THENA(X)=0
470 NEXTX
480 IFA(2)<13PRINT@704,"YOU'D BETTER DO SOME HUNTING OR BUY FOOD
!!!";
490 GOSUB2300
495 '

```

** PRINT SCREEN **

```
500 PRINT@30, STRING$(30, 32); :PRINT@30, "TOTAL MILEAGE IS "; M;
510 PRINT@64, " FOOD BULLETS CLOTHING MISC. SUPP. CASH"
;
520 PRINT@128, " "; A(2); :PRINT@139, A(3); :PRINT@149, A(4); :PRINT@161
, A(5); :PRINT@173, A(6);
530 IF M>2040 GOSUB2290:GOTO2100
540 IF F=1PRINT@768, CC$; :PRINT@768, "DO YOU WANT TO (1) HUNT, OR
(2) CONTINUE"; :GOTO560
550 PRINT@768, CC$; :PRINT@512, F$; :PRINT@768, "DO YOU WANT TO (1) H
UNT, (2) CONTINUE,
OR (3) STOP AT THE FORT";
555 '
```

** GET CHOICE OF ACTION **

```
560 INPUTX
570 IF X<1 OR X>3 THEN X=2
580 IF X=1 AND A(3)<40 PRINT@832, CC$; :PRINT@832, "YOU DON'T HAVE
ENOUGH AMMUNITION TO HUNT. "; :GOSUB2290:GOTO540
590 F=F*(-1)
600 ONXGOTO760, 880
605 '
```

** STOPPING AT FORT **

```
610 PRINT@704, CC$; :PRINT@704, "ENTER WHAT YOU WISH TO SPEND ON TH
E FOLLOWING";
620 PRINT@768, CC$; " "; :PRINT@768, " FOOD BULLETS CLOTH
ING MISC. SUPP. ";
630 PRINT@832, CC$; :P1=835:GOSUB720
640 A(2)=A(2)+D*2/3
650 GOSUB720
660 A(3)=A(3)+D*3/3
670 GOSUB720
680 A(4)=A(4)+D*2/3
690 GOSUB720
700 A(5)=A(5)+D*2/3
710 M=M-25:GOTO880
720 PRINT@P1, " "; :INPUTD
730 IF D<0 THEN D=0:RETURN
740 IF A(6)-D<0 PRINT@960, CC$; :PRINT@960, "YOU DON'T HAVE THAT MU
```

```

CH - KEEP YOUR SPENDING DOWN";:GOSUB2290:PRINT@960,CC$;:PRINT@P1
," ";:PRINT@P1," ";:GOTO720
750 A(6)=A(6)-D:P1=P1+11:RETURN
755 '

** HUNTING **
760 GOSUB2350:IF A(3)>40 GOTO 780
770 PRINT@704,"SORRY -- YOU NEED MORE BULLETS TO GO HUNTING";:GO
T0560
780 M=M-15
790 GOSUB2140
800 IF X>3 OR RND(100)<TT/4 OR RND(10)<S GOTO 870
810 IFTT<45THEN840
820 A(2)=A(2)+50-TT/75:A(3)=A(3)-10-TT/5
830 PRINT@768,"BULLS-EYE --
GOOD EATIN' TONIGHT !!";:GOSUB2290:GOTO880
840 PRINT@768,"RIGHT BETWEEN THE EYES --- YOU GOT A BIG ONE
FULL BELLIES TONIGHT!!";
850 A(2)=A(2)+52+RND(10):A(3)=A(3)-10-RND(8):GOSUB2290:GOTO880
860 GOTO 880
870 PRINT@768,"YOU MISSED---AND YOUR DINNER GOT AWAY....";:GOSU
B2290
880 IF A(2)<15 GOSUB2290:GOTO1960
890 GOSUB2350
895 '

** EATING? **
900 PRINT@768,"DO YOU WANT TO EAT (1) POORLY (2) MODERATELY (3
) WELL";:INPUTE
910 IFE>3ORE<1GOTO890
920 X=A(2)-5*(E+1)-RND(10)
930 IF X<0PRINT@896,"*** YOU CAN'T EAT THAT WELL ***";:GOTO8
90
940 A(2)=X
950 M=M+200-(220-A(1))/3+RND(10)
955 '

** RIDERS **
960 IF M>950 GOTO 1260
970 IF RND(100)>10*(5.2-(ABS(400-M)/90)+50R(((400-M)/900)*(400-M
)/90)) GOTO 1260
980 FORTT=1T01000:NEXT:CLS:PRINT@478,W$;:PRINT@256,SR$;:PRINT@27

```

```

8, SR$: :PRINT@393, SR$: :PRINT@578, LR$: :PRINT@527, LR$:
990 PRINT@0, "RIDERS APPROACHING.  THEY "; :IF RND(10)<
'T "; :F1=1
1000 PRINT"LOOK HOSTILE";
1010 PRINT@724, "TACTICS";
1020 PRINT@768, "(1) RUN (2) ATTACK (3) CONTINUE (4) CIRCLE WA
GONS";
1030 PRINT@832, "IF YOU RUN YOU'LL GAIN DISTANCE BUT TIRE YOU OXE
N.
IF YOU CIRCLE YOU'LL LOSE TIME BUT BE RELATIVELY SAFE. ";
1040 INPUTX1:GOSUB2350
1050 IF X1<1 OR X1>4 THEN 1020
1060 IF RND(5)=1 THEN F1=-1*F1
1070 ON X1-1 GOTO 1110,1190,1230
1080 M=M+20:A(1)=A(1)-20
1090 IF F1=1 GOTO 1190
1100 A(3)=A(3)-100:PRINT@768, "WHAT A FIGHT --
BUT YOU ESCAPED. "; :GOSUB2290:GOTO1260
1110 PRINT@0, CC$: :GOSUB2170
1120 A(3)=A(3)-120-TT/3
1130 GOSUB2350
1140 IF X>3 GOTO 1170
1150 IF TT<5*28 THEN 1180
1160 PRINT@768, "NICE SHOOTING --- YOU DROVE THEM OFF"; :GOSUB2290
:GOTO1260
1170 PRINT@768, "LOUSY SHOT --- YOU GOT KNIFED
YOU HAVE TO SEE OL' DOC BLANCHARD"; :GOSUB2290:A(6)=A(6)-20:IF A(
6)<0 THEN F3=1:GOTO1970 ELSE GOTO1260
1180 PRINT@768, "YOU NEED PRACTICE WITH YOUR COLT .45"; :GOSUB2290
1190 IF F1=1PRINT@832, "RIDERS WERE FRIENDLY"; :GOSUB2290:GOTO126
0
1200 A(3)=A(3)-150:M=M-15:A(1)=A(1)-10:A(2)=A(2)-25:A(4)=INT(A(4
)/1.5)
1210 PRINT@832, "RIDERS WERE HOSTILE"; :IF A(3)<0 GOSUB2290:GOTO12
20 ELSE PRINT" --- CHECK FOR LOSSES"; :GOSUB2290:GOTO1260
1220 CLS:PRINT"YOU RAN OUT OF AMMUNITION AND THE RIDERS KILLED Y
OU AND
YOUR FAMILY":GOSUB2290:GOTO2020
1230 M=M-20

```

```

1240 IF F1=1PRINT@768,"THEY DIDN'T ATTACK";:ELSEPRINT@768,"YOU D
ROVE THEM OFF";:A(3)=A(3)-100
1250 GOSUB2290
1255 '
      ** HAZARDS **
1260 CLS:GOSUB2300:IFM(950)PRINT@387,T$;:PRINT@335,T$;
1270 RANDOM
1280 R1=RND(85)
1290 IF R1<7PRINT@683,"      ";:PRINT@768,"BROKEN WAGON WHEEL --
YOU MUST STOP AND USE SUPPLIES TO FIX IT. ";:GOSUB2290:M=M-5-RND(
5):A(5)=A(5)-8:GOTO1610
1300 IF R1<12 PRINT@768,"OX INJURES A LEG ---
HE WILL SLOW YOU DOWN THE REST OF THE TRIP. ";:GOSUB2290:A(1)=A(1
)-15-RND(10):GOTO1610
1310 IF R1<14PRINT@768,"YOUR ";:IF RND(2)=1 PRINT"SON BROKE HIS
";:ELSE PRINT"DAUGHTER BROKE HER ";:ELSE GOTO 1330
1320 PRINT"ARM --
YOU HAVE TO STOP AND MAKE A SLING. ";:GOSUB2290:M=M-5-RND(5):A(5)
=A(5)-5:GOTO1610
1330 IF R1<16PRINT@768,"AN OX WANDERS OFF --
YOU MUST SPEND HALF A DAY LOOKING FOR IT. ";:GOSUB2290:M=M-20:GOT
01610
1340 IF R1<18PRINT@768,"YOUR ";:X=RND(5):IF X<3PRINT"SON ";:ELSE
IF X<4PRINT"DOG ";:ELSE PRINT"DAUGHTER ";
1350 IFR1<18 PRINT"WANDERS AWAY FROM THE WAGON --
YOU MUST SPEND TIME LOOKING FOR ";:IF X<4PRINT"HIM. ";:ELSEPRINT"
HER. ";
1360 IF R1<18 GOSUB2290:M=M-10-RND(10):GOTO1610
1370 IF R1<23 PRINT@768,"BAD WATER --
YOU MUST SPEND TIME LOOKING FOR A CLEAN SPRING. ";:GOSUB2290:M=M-
10-RND(10):GOTO1610
1380 IF R1<26 PRINT@768,"BANDITS ATTACK";:PRINT@0,CC$,CC$;:ELSE
GOTO 1460
1390 PRINT@583,LR$;:PRINT@526,LR$;:PRINT@595,LR$;:GOSUB2170
1400 A(3)=A(3)-TT:IF A(3)<0PRINT@768,"YOU RAN OUT OF BULLETS --
THEY GOT MOST OF YOUR MONEY. ";:GOSUB2290:A(6)=INT(A(6)/1.5):IF R
ND(4)=1PRINT" AND ";:GOTO1420
1410 IF X<3GOTO1450
1420 PRINT@896,"THEY SHOT YOU IN THE ";:IF RND(2)=1PRINT"ARM ";:

```

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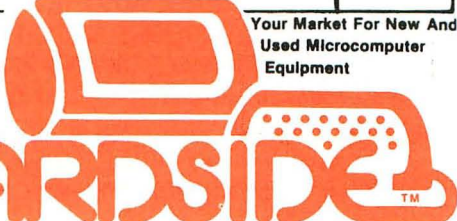
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```

ELSEPRINT"LEG ";
1430 PRINT"AND TOOK ONE OF YOUR OXEN
BETTER HAVE THE DOC LOOK AT YOUR WOUND!"; F3=1:GOSUB2290
1440 A(5)=A(5)-5:A(1)=A(1)-20:A(6)=A(6)-20:IF A(6)<0 GOTO 1960:EL
LSE GOTO1610
1450 PRINT@768,"FASTEST DRAW IN THE WEST !!
YOU CHASED 'EM AWAY!";:GOSUB2290:GOTO1610
1460 IF R1<28 PRINT@768,"THERE IS A FIRE IN YOUR WAGON --";:FOR Y
=21TO4STEP-1:FOR X=1TOY-3:Z=129-Y-RND(Y+2):SET(Z,Y):NEXT X,Y:ELSE
GOTO1480
1470 PRINT@832,"FOOD, CLOTHING AND SUPPLIES ARE DAMAGES. ";:A(2)=
A(2)-RND(80):A(3)=A(3)-RND(500):A(4)=A(4)-RND(30):A(5)=A(5)-RND(
10):M=M-25:GOSUB2290:GOTO1610
1480 IF R1<33 PRINT@768,"YOU GET LOST IN HEAVY FOG. ";:GOSUB2290:
M=M-10-RND(5):GOTO1610
1490 IF R1<35PRINT@768,"YOU KILL A POISONOUS SNAKE ";:A(3)=A(3)-
10:IF RND(4)<4PRINT"AFTER IT BITES YOU!";:A(5)=A(5)-5:ELSE:ELSE
GOTO 1510
1500 IF A(5)<0PRINT@896,"YOU HAVE RUN OUT OF MEDICINE -
SO YOU DIE OF SNAKEBITE!";:GOSUB2290:GOTO2020:ELSE GOSUB2290:GOT
O1610
1510 IF R1<45 PRINT@768,"YOUR WAGON GETS SWAMPED FORDING A RIVER
YOU LOSE FOOD AND CLOTHING. ";:ELSE GOTO 1530
1520 FOR X=0TO6STEP3:PRINT@640+X,WT$(1):PRINT@576+X,WT$(2):NEX
T:GOSUB2290:A(2)=A(2)-RND(30):A(4)=A(4)-RND(20):M=M-15-RND(10):G
OTO1610
1530 IF R1<55PRINT@768,"WILD ANIMALS ATTACK!!";:FOR X=5TO15STEP5
:PRINT@644+X,WA$:PRINT@581+X,WA$:NEXT:PRINT@643,WA$:PRINT@0,C
C$:CC$:GOSUB2170:ELSE GOTO 1580
1540 A(3)=A(3)-TT/2
1550 IF A(3)<0PRINT@768,"YOU ARE TOO LOW ON BULLETS --
THE WOLVES OVERPOWER YOU!";:A(2)=A(2)-RND(20):A(5)=A(5)-10:IFA(5
)<0 THEN F3=1:GOTO1980:ELSEGOTO1610
1560 IF X>3PRINT@896,"THEY GOT AT YOUR FOOD AND CLOTHING!";:A(2)
=A(2)-RND(20):A(4)=A(4)-RND(10):GOSUB2290:GOTO1610
1570 PRINT@768,"NICE SHOOTIN' PARDNER --
THEY DIDN'T GET ANYTHING!";:GOSUB2290:GOTO1610
1580 IF R1<61PRINT@768,"FRIENDLY INDIANS HELP YOU FIND MORE FOOD

```



```

.:GOSUB2290:A(2)=A(2)+RND(30):GOTO1610
1590 IF R1<66PRINT@768,"HAIL STORM --
YOUR OXEN ARE INJURED AND YOUR WAGON DAMAGED!";GOSUB2340:GOSUB2
290:A(1)=A(1)-RND(10):A(5)=A(5)-RND(10):GOTO1610
1600 GOTO1620
1610 F4=1
1620 IFM>900 GOTO 1640
1630 IF R1>76PRINT@832,"HEAVY RAIN --
YOU MUST STOP AND WAIT IT OUT. ";GOSUB2340:GOSUB2290:M=M-10-RND(
20):A(5)=A(5)-RND(10):F3=1
1635 /
      ** ILLNESS **
1640 IF E=3 AND RND(100)<13 GOTO 1670
1650 IF E=2 AND RND(100)<20 GOTO 1670
1660 IF E=1 AND RND(100)<26 GOTO 1670 :ELSE GOTO 1740
1670 GOSUB2350
1680 IF RND(9)<<(2[E]+1 GOTO 1710
1690 IF RND(10)<<(2[E]+1 GOTO 1720
1700 PRINT@768,"SERIOUS ILLNESS --
YOU MUST STOP TO SEE A DOCTOR!";GOSUB2290:M=M-30:A(5)=A(5)-10:A
(6)=A(6)-20:IF A(6)<0 GOTO 1970 ELSE GOTO 1730
1710 PRINT@768,"MILD SICKNESS -- MEDICINE USED. ";GOSUB2290:M=M-
5:A(5)=A(5)-5:GOTO1730
1720 PRINT@768,"VERY BAD ILLNESS --
YOU MUST STOP AND RECOVER. ";GOSUB2290:M=M-20:A(5)=A(5)-10
1730 IF A(5)<0 GOTO 1980
1735 /
      ** MOUNTAINS **
1740 IF M<1050 GOTO 360
1750 IF F4=1 CL5.PRINT@478,W$:GOSUB2360:F4=0:ELSE GOSUB2350
1760 R1=RND(10)
1770 IF R1<5PRINT@21,"***  RUGGED MOUNTIANS  ***":A(1)=A(1)-R
ND(5):ELSE GOTO 1850
1780 IF R1=1PRINT@768,"YOU GOT LOST --
YOU LOSE A DAY TRYING TO FIND THE TRAIL!";GOSUB2290:M=M-45:GOTO
1850
1790 IF R1=2PRINT@693,"      ";PRINT@768,"WAGON BREAKS DOWN --
YOU MUST USE SUPPLIES TO FIX IT. ";GOSUB2290:M=M-15-RND(20):A(5)
=A(5)-5:GOTO1850
1800 IF R1=3PRINT@768,"STEEP TRAILS SLOW YOU DOWN. ";GOSUB2290:M

```

```

=M-20-RND(20):GOTO1850
1810 PRINT@768, "                BRRRRRRRRR!!!
        ***  COLD WEATHER  ***
        YOU";:IF A(4)<20PRINT" DON'T";
1820 PRINT" HAVE ENOUGH CLOTHING. ";:GOSUB2290
1830 IF A(4)<20 GOSUB2350:PRINT@768, "YOU AND YOUR FAMILY FREEZE
TO DEATH!!";:GOSUB2290:GOTO2020
1845 '
        ** SNOW? **
1850 IF F2=0 AND RND(10)<9 THEN F2=1:GOTO1920
1860 IF M<1700 AND RND(10)<8 GOTO 1910
1870 IF RND(10)<3 GOTO 1910
1880 PRINT@768, "                YOU MADE IT THROUGH ";:IF F2=0PRINT"S
OUTH ";:ELSEPRINT"THE ";
1890 PRINT"PASS
        ***  NO SNOW  ***";:GOSUB2290:F2=1:GOTO360
1900 GOTO 360
1910 IFF2=1ANDRND(10)<11-TGOTO360
1920 PRINT@0, CC$;:PRINT@768, "SNOW IN MOUNTAIN PASS --
TIME AND SUPPLIES LOST. ";:FORX=1TO600:XX=RND(126):YY=RND(33):SET
(XX,YY):NEXTX
1930 GOSUB2290:A(1)=A(1)-5:A(2)=A(2)-5:A(5)=A(5)-RND(10):M=M-40-
RND(40)
1940 IF A(4)<20GOSUB2350:PRINT@768, "YOU DON'T HAVE ENOUGH WARN C
LOTHING --
YOU AND YOUR FAMILY FREEZE TO DEATH!";:GOSUB2290:GOTO2020
1950 GOTO 360
1955 '
        ** DYING **
1960 GOSUB2350:PRINT@768, "YOU RAN OUT OF FOOD AND STARVED TO DEA
TH";:GOTO2020
1970 GOSUB2350:T=0:PRINT@768, "YOU CAN'T AFFORD A DOCTOR
YOU DIED FROM LACK OF MEDICAL ATTENTION. ";:GOSUB2290:GOTO1980
1980 GOSUB2350:PRINT@768, "YOU RAN OUT OF MEDICAL SUPPLIES.
YOU DIED OF ";
1990 IF F3=1 GOTO 2010
2000 PRINT"PNEUMONIA. ";:GOTO2020
2010 PRINT"INJURIES";
2020 GOSUB2290:CLS

```

```

2040 PRINT:PRINT"WOULD YOU LIKE A FANCY FUNERAL";:INPUTC$
2050 PRINT:PRINT"WOULD YOU LIKE US TO INFORM YOUR NEXT OF KIN";:
INPUTC$
2060 IF LEFT$(C$,1)="N" THEN 2080
2070 PRINT:PRINT"THAT WILL BE $. 50 FOR THE TELEGRAPH CHARGE. "
2080 GOSUB2290:PRINT:PRINT"SORRY YOU DIDN'T MAKE IT TO OREGON.
BETTER LUCK NEXT TIME. "
2090 INPUT"
PRESS ENTER FOR A NEW GAME";Q$:RUN
2100 '
2105 '
      ** SUCCESS **
2110 GOSUB2350:PRINT@768,"YOU FINALLY ARRIVED AT OREGON CITY
AFTER ";M;" LONG MILES --- HOORAY!!!";
2120 GOSUB2290:GOSUB2350:PRINT@768,"      *** CONGRATULATIONS
***";
2130 GOSUB2290:GOSUB2350:PRINT@768,"WE WISH YOU A GOOD LIFE
IN YOUR NEW HOME. ";:INPUT"
PRESS ENTER FOR A NEW GAME";Q$:RUN
2135 '
      ** SHOOTING **
2140 CLS
2150 FOR X=0T020STEP8:Y=RND(4):Z=RND(4):PRINT@64+X+Y*64,T$;:PRIN
T@99+X+Z*64,T$;:NEXTX
2160 Z=RND(500):FORX=1T0Z:NEXTX:PRINT@472,E$;
2170 A1$="":R$="BANGLAMWHAMPOW!":R=(RND(4)-1)*4+1
2180 PRINT@20,"TYPE ";MID$(R$,R,4);" ";
2190 FOR TT=1T050*5
2200 A$=INKEY$
2210 IF A$="" GOTO2250
2220 IFA$=CHR$(32) GOTO2270
2230 PRINTA$;
2240 A1$=A1$+A$
2250 NEXTTT
2260 PRINT@768,"SORRY -- YOU WHERE TOO SLOW";:GOSUB2290:X=4:RETU
RN
2270 IFA1$<MID$(R$,R,4)PRINT@768,CC$;:PRINT@768,"YOU MISSED";:G
OSUB2290:X=5:RETURN
2280 X=0:RETURN

```

2285

** UTILITIES **

2290 FORTL=1T01000:NEXTTL:RETURN

2300 PRINT@478,W\$;

2310 IFM=950PRINT@256,MT\$(1);:PRINT@448,MT\$(2);

2320 IFM<950 AND F=1PRINT@387,T\$;:PRINT@335,T\$;

2330 RETURN

2340 FORZ=1T0350:X=RND(126):Y=RND(30):SET(X,Y):SET(X,Y+1):SET(X,
Y+2):NEXT:RETURN

2350 PRINT@768,CC\$:CC\$:CC\$:CC\$: :RETURN

2360 PRINT@256,MT\$(1);:PRINT@448,MT\$(2);:RETURN

5000 W\$=STRING\$(11,128)+CHR\$(172)+CHR\$(172)+CHR\$(188)+CHR\$(188)+
CHR\$(156)+CHR\$(188)+CHR\$(188)+CHR\$(156)+STRING\$(3,188)+CHR\$(172)
+CHR\$(188)+CHR\$(188)+CHR\$(156)+CHR\$(188)+CHR\$(188)+CHR\$(156)+CHR
\$(156)

5010 W\$=W\$+CHR\$(26)+STRING\$(31,24)

5020 W\$=W\$+CHR\$(160)+STRING\$(12,128)+CHR\$(137)+CHR\$(187)+CHR\$(19
1)+CHR\$(181)+CHR\$(191)+CHR\$(191)+CHR\$(181)+STRING\$(3,191)+CHR\$(1
86)+CHR\$(191)+CHR\$(191)+CHR\$(181)+CHR\$(191)+CHR\$(183)+CHR\$(150)+
CHR\$(128)

5030 W\$=W\$+CHR\$(26)+STRING\$(30,24)

5040 W\$=W\$+CHR\$(143)+CHR\$(139)+STRING\$(6,191)+CHR\$(189)+CHR\$(160
)+CHR\$(160)+CHR\$(170)+CHR\$(147)+CHR\$(184)+CHR\$(134)+CHR\$(131)+CH
R\$(137)+CHR\$(180)+CHR\$(160)+STRING\$(3,176)+CHR\$(160)+CHR\$(156)+C
HR\$(131)+CHR\$(131)+CHR\$(172)+CHR\$(144)

5050 W\$=W\$+CHR\$(149)+CHR\$(128)

5060 W\$=W\$+CHR\$(26)+STRING\$(30,24)

5070 W\$=W\$+STRING\$(2,128)+CHR\$(138)+CHR\$(129)+CHR\$(128)+CHR\$(128
)+CHR\$(128)+CHR\$(130)+CHR\$(135)+STRING\$(4,128)+CHR\$(130)+CHR\$(13
7)+CHR\$(140)+CHR\$(134)+CHR\$(129)+STRING\$(5,128)+CHR\$(131)+CHR\$(1
40)+CHR\$(140)+CHR\$(131)+STRING\$(3,128)

5080 T\$=CHR\$(128)+CHR\$(176)+CHR\$(156)+CHR\$(188)+CHR\$(152)+CHR\$(1
80)+CHR\$(156)+CHR\$(144)+CHR\$(128)+CHR\$(26)+STRING\$(9,24)+CHR\$(17
0)+CHR\$(177)+CHR\$(173)+CHR\$(149)+CHR\$(187)+CHR\$(185)+CHR\$(167)+C
HR\$(191)+CHR\$(132)

5090 T\$=T\$+CHR\$(26)+STRING\$(9,24)+CHR\$(128)+CHR\$(130)+CHR\$(141)+
CHR\$(187)+CHR\$(181)+CHR\$(141)+CHR\$(135)+CHR\$(129)+CHR\$(128)+CHR\$(
26)+STRING\$(9,24)+STRING\$(3,128)+CHR\$(170)+CHR\$(149)+STRING\$(4,
128)

5100 T\$=T\$+CHR\$(26)+STRING\$(9, 24)+CHR\$(128)+CHR\$(128)+CHR\$(160)+
 CHR\$(186)+CHR\$(181)+CHR\$(144)
 5110 E\$=STRING\$(2, 128)+CHR\$(160)+STRING\$(6, 128)+CHR\$(26)+STRING\$(
 9, 24)+CHR\$(130)+CHR\$(131)+CHR\$(189)+STRING\$(5, 188)+CHR\$(148)+CH
 R\$(26)+STRING\$(9, 24)+STRING\$(2, 128)+CHR\$(138)+CHR\$(129)+STRING\$(
 3, 128)+CHR\$(139)+CHR\$(129)
 5120 SR\$=CHR\$(156)+CHR\$(141)+CHR\$(158)+CHR\$(129)
 5130 LR\$=CHR\$(160)+CHR\$(176)+CHR\$(141)+CHR\$(176)+CHR\$(184)+CHR\$(
 140)+CHR\$(26)+STRING\$(6, 24)+CHR\$(170)+CHR\$(131)+CHR\$(129)+CHR\$(1
 31)+CHR\$(151)+CHR\$(128)
 5140 F\$=CHR\$(136)+CHR\$(188)+CHR\$(132)+CHR\$(128)+CHR\$(160)+STRING
 \$(3, 176)+CHR\$(144)+CHR\$(128)+CHR\$(128)+CHR\$(172)+CHR\$(156)+CHR\$(
 26)+STRING\$(13, 24)+CHR\$(128)+STRING\$(4, 191)+STRING\$(3, 188)+STRIN
 G\$(4, 191)+CHR\$(149)
 5150 MT\$(1)=STRING\$(3, 128)+CHR\$(184)+CHR\$(144)+STRING\$(3, 128)+CH
 R\$(184)+CHR\$(189)+CHR\$(144)+STRING\$(3, 128)+CHR\$(144)+STRING\$(10,
 128)+CHR\$(26)+STRING\$(25, 24)
 5160 MT\$(1)=MT\$(1)+CHR\$(128)+CHR\$(160)+CHR\$(142)+CHR\$(155)+CHR\$(
 191)+CHR\$(164)+CHR\$(160)+CHR\$(174)+CHR\$(191)+CHR\$(175)+CHR\$(191)
 +CHR\$(164)+CHR\$(160)+CHR\$(190)+CHR\$(167)+CHR\$(180)+STRING\$(9, 128
)+CHR\$(26)+STRING\$(25, 24)
 5170 MT\$(1)=MT\$(1)+CHR\$(136)+CHR\$(129)+STRING\$(3, 128)+CHR\$(152)+
 CHR\$(129)+CHR\$(128)+CHR\$(131)+CHR\$(128)+CHR\$(129)+CHR\$(128)+CHR\$(
 137)+CHR\$(144)+CHR\$(128)+CHR\$(129)+CHR\$(137)+CHR\$(144)+CHR\$(128
)+CHR\$(184)+CHR\$(189)+CHR\$(144)+STRING\$(3, 128)
 5180 MT\$(2)=STRING\$(3, 128)+CHR\$(160)+CHR\$(134)+STRING\$(8, 128)+CH
 R\$(130)+CHR\$(164)+CHR\$(128)+CHR\$(128)+CHR\$(162)+CHR\$(134)+CHR\$(1
 30)+CHR\$(128)+CHR\$(130)+CHR\$(164)+STRING\$(2, 128)+CHR\$(26)+STRING
 \$(25, 24)
 5190 MT\$(2)=MT\$(2)+STRING\$(2, 128)+CHR\$(152)+CHR\$(129)+STRING\$(11
 , 128)+CHR\$(137)+CHR\$(152)+CHR\$(129)+STRING\$(5, 128)+CHR\$(137)+CHR
 \$(144)+CHR\$(26)+STRING\$(25, 24)
 5200 MT\$(2)=MT\$(2)+CHR\$(128)+CHR\$(130)+STRING\$(13, 128)+CHR\$(130)
 +STRING\$(8, 128)+CHR\$(130)
 5210 WT\$(1)=CHR\$(59)+CHR\$(44)+CHR\$(46):WT\$(2)=CHR\$(44)+CHR\$(46)+
 CHR\$(59)
 5220 WA\$=CHR\$(156)+CHR\$(172)+CHR\$(132)
 5230 RETURN

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By Level IV



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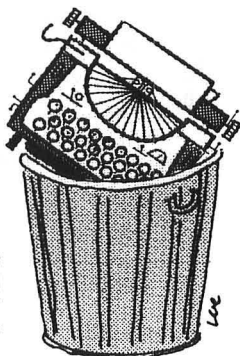
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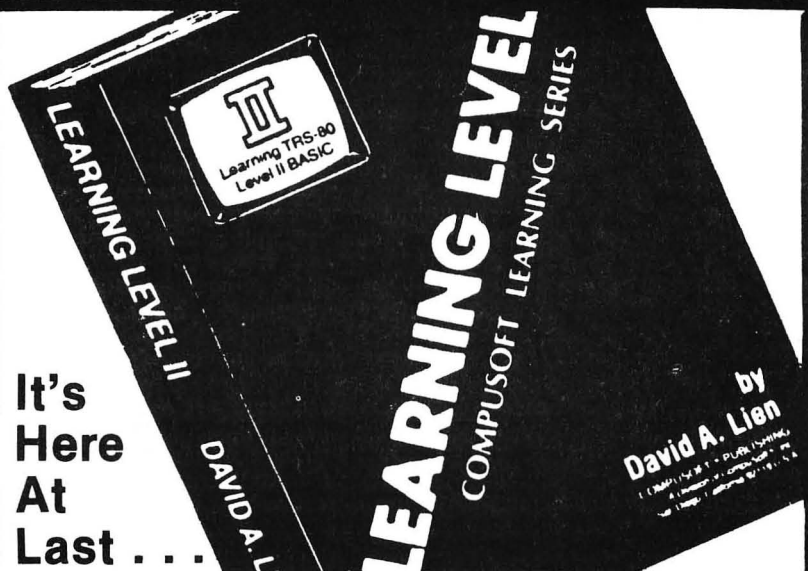
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This most ancient of games may be older than mankind itself, considering that all it takes, in its most basic form, is two sets of teeth and a length of vine, bone, stick, or whatever. Early players could hardly have imagined that in several millennia their favorite pastime would be played by strange, hairless, upright creatures who, instead of a length of vine, use a thinking machine which flashes messages of light. One wonders, in an age several millennia hence, will Tug of War be played in Galactic Olympics in outer space, or in an earth cave, with a length of vine and two sets of teeth? One player uses the Q, W and E keys, the other P, O and I. The screen displays the 'rope' and center line. Pressing any of your keys moves the 'rope' in your direction; pressing a wrong key benefits your opponent. The faster player wins the tug. The game is over when the center mark on the 'rope' slips over the line.

```
10 M=0:N=0:CLS:RANDOM: '*TUG OF WAR J. R. DUCHEK, JAX. FLA. 790630 *
20 INPUT "WOULD YOU LIKE INSTRUCTIONS";A$
30 CLS:IF A$="Y"GOTO5000
35 FORJ=1TO2:INPUT "PLAYER NAME";F$(J):NEXT
37 CLS
40 FORX=0TO127:SET(X,23):NEXT
50 FORY=0TO47STEP2:SET(9,Y):SET(118,Y):NEXT
60 W=63:RESET(W,23)
65 PRINT@906,F$(1):PRINT@939,F$(2)
70 B=RND(3):C=RND(3)
80 IFB=1B$="Q"
90 IFC=1C$="P"
100 IFB=2B$="W"
110 IFC=2C$="O"
120 IFB=3B$="E"
130 IFC=3C$="I"
```

```

200 PRINT@8, B$:PRINT@55, C$
220 E$=INKEY$
230 IFE$=""GOTO220
240 IFE$=B$ORE$=C$GOTO300
300 IFE$=B$ SET(W, 23):W=W-2:RESET(W, 23):GOTO310
305 IFE$="Q"ORE$="W"ORE$="E"SET(W, 23):W=W+2:RESET(W, 23)
310 IFE$=C$ SET(W, 23):W=W+2:RESET(W, 23):GOTO320
315 IFE$="P"ORE$="O"ORE$="I"SET(W, 23):W=W-2:RESET(W, 23)
320 IFW<=9THENCLS:PRINTCHR$(23):FORI=1TO10:PRINTF$(1); ", YOU'RE
THE WINNER!!!":NEXT:M=M+1:GOTO600
330 IFW>=118THENCLS:PRINTCHR$(23):FORI=1TO10:PRINTF$(2); ", YOU'R
E THE WINNER!!!":NEXT:N=N+1:GOTO600
340 GOTO70
515 PRINT
600 PRINTF$(1); " HAS WON ";M;" TUGS OF WAR AND ";F$(2); " HAS WON
";N;" TUGS OF WAR !!!"
605 INPUT"WOULD YOU LIKE TO PLAY AGAIN";A$
610 IFA$="Y"CLS:GOTO40
620 END
5000 PRINT"      THIS IS THE GAME OF TUG OF WAR. THE OBJECT IS TO
PULL
5010 PRINT"THE CENTER MARK ON THE ROPE OVER THE DOTTED LINE.
5020 PRINT"DURING THE GAME YOU CAN OBSERVE THE PROPER KEY TO 'TU
G'
5030 PRINT"TO PULL THE ROPE AT THE TOP OF YOUR SIDE OF THE SCREE
N.
5035 PRINT
5040 PRINT"THE PLAYER ON THE LEFT MUST HIT Q,W OR E AS INDIC-
5050 PRINT"ATED TO MOVE THE ROPE. THE PLAYER ON THE RIGHT MUST
HIT
5060 PRINT"P,O OR I AS INDICATED TO MOVE THE ROPE. THE FASTER
5070 PRINT"PLAYER WINS THE 'TUG'.
5080 PRINT
5090 PRINT"      IF YOU PRESS THE WRONG KEY (THE BOARD SAYS 'Q' &
UT YOU
5100 PRINT"PRESS 'E' FOR EXAMPLE) THE OTHER PLAYER IS AWARDED TH
E TUG.
5105 INPUT"WHEN READY HIT ENTER";Z
5110 CLS:GOTO35

```


MMSFORTH

INTRODUCTORY
OFFER

The **MMSFORTH** system diskette or cassette tape provides for the expansion of **FORTH** commands by the user. There are many programs and routines provided as examples of **FORTH** programming, such as:

Routines For:

String Handling
Graphics
File Sorting
Screen Printing

Programs For:

Game of Life
Checkbook Balancing
String Sort
Number Guessing Game

The **TRS-80 Software Exchange** intends to fully support the introduction of **MMSFORTH** with the development of supporting application modules. Early **MMSFORTH** projects are:

- floating-point package •
- assembler/cross compiler to provide •
- standard TRS-80 load modules
- large flexible mailing list system •
- generalized data base management system •
- word-processing package (**FORTHWRITE**) •

MMSFORTH, by **Miller Microcomputer Services**, includes introductory documentation with further references to the **MicroFORTH** primer of **FORTH, Inc.** This manual is an invaluable reference for the **FORTH** programmer, and can be purchased separately by anyone desiring more information on the **FORTH** language structure.

30-DAY INTRODUCTORY PRICE

MMSFORTH cassette version, Level II, 16K	\$34.95
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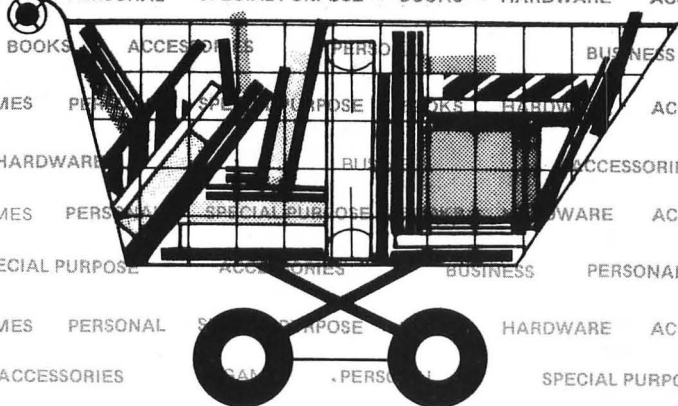
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