

WORD PLAY FEBRUARY 1987

FROM THE PREZ.....

You know, it never ceases to amaze me how creative people can be when trying to use developed programs to do jobs the program was never intended to do. The applications can be phenomenal. For example, I heard of someone using Multiplan for a Bartenders guide. You just typed in what you had on the shelf, and it would tell you what you could make with what you had. I remember Cricket saying that she had been using Futura mailing list to catalog magazine articles. All it takes is a little imagination. I know there are people in our club, doing things on their computer, that I would never think of. Doing useful tasks that the rest of use are still dredging through in a much more difficult fashion, just because we never thought of it.

This is one of the benefits of a user group. To share our imagination with other users, to the benefit of all. In the coming months, I would encourage you to consider what useful tasks you do with your computer, and consider giving a brief workshop, just going through the motions, of how you accomplish these tasks. There are many of us who just haven't stopped to consider how else we can implement this "tool" that is so often thought of as just a toy.

Let us not forget that each of us, in spite of what we might think, has something to offer the other members of this club. How many times have I done exhaustive research to solve a problem, only to have someone soon after walk up and show me a simple and obvious solution. I have something to learn from each of you members. You have only to teach me. I eagerly await.....

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MURPHY'S RULE

If more than one person is responsible for a calculation, no one will be at fault.

HAPPY NEW YEAR -- TI-994A

It is indeed when you consider the imminent arrival of the 9640 by MYARC and that an expansion system is about to appear that will allow you to use IBM compatibility.

One feature comes to mind. MS DOS would allow you to use Lotus 123. Increased memory and more sophisticated word processing programs are others. In any case there is a new beginning in the 99/4A world. Our home computer was orphaned and now is resurrected. The future appears nothing but bright and promising.

The TI/4A was abandoned not because of technical inferiority, but because of errors in marketing. Because we were orphaned in 1983 by Texas Instruments, we had to acquire more technical skills than other home computerists who had purchased different brands. Many of the products we have today come from among us. Those that have risen in computer science were driven by the need to support a machine where no support existed.

We should all feel proud and thankful that this support has emerged, for without it we might have to put our computers on the closet shelf to gather dust.

So it is good to look forward to this year and to next year too. Clouds do have a silver lining!

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EXTENDED BASIC EXECUTION SPEED

Are your Extended BASIC programs executing far too slow? The problem may be the version of Extended BASIC module you are using. The older Extended BASIC modules (version 100) in some cases execute the program code much slower than the newer modules. To find out which version you have, type CALL VERSION(X)::PRINT X. If 100 prints out on the screen, you have an older module. If you have 32K memory expansion, you can increase execution speed by using the following information:

1. If the program DOES NOT use sprites, add the following line to your program: 1.CALL INIT :: CALL LOAD(-31878,0). This will increase the speed of your program considerably. NOTE: Be sure line 1 is not already used in the program. You may need to resequence.

2. If the program DOES use sprites, add this line to your program: 1.CALL INIT :: CALL LOAD(-31878,n) where n equals the highest number sprite value used in the program. Also, if the program uses the statement CALL DELSPRITE(ALL), replace it with CALL DELSPRITE(#1,2,3,...#) where n equals the highest sprite value used in the program.

CLUB NEWS

Your new slate of officers have now got down to business and they plan a good year for PUNN during 1987. The January meeting was well attended and the workshops proved very interesting. For this month Keith Fast promises some more insight in the PR Base program and there will be other workshops of equal interest.

Upcoming workshops include the latest on Funnelweb and how it enhances the use of TI-Writer. Your editor uses this program and it outshines the original TI disk by a long ways.

The TI Faire is still in the planning stage. It requires lead time to arrange for speakers, hotel space and vendors. When we do it, it will be a good one.

Don't forget to watch the date in the upper part of your mailing label on the newsletter. It tells you when your dues are due. Your treasurer will accept dues during the meeting or you can mail them in to the PUNN P.O. Box number that is printed on the bulletin.

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DM-1000 IMPROVED

If you have not already upgraded your DM-1000 disk, you will want to do so. The latest version is available from the PUNN Library and has a remarkable improvement.

When you have displayed the files on your screen from the file prompt, you now have 2 additional options to choose from:

1.) By pressing "T" at the left column of a particular file, you can have displayed on your screen a DISPLAY VARIABLE/80 file when you press ENTER.

2.) In a like manner if you press "D" in this column you will have your file printed out on your printer.

If you decide to add these improvements to the DM/1000 file on your FunnelWriter disk, you will have to make some room. MGR1 and MGR2 previously took up 33 and 24 sectors respectively. The new version takes up 33 and 30 sectors. Thus you need to remove some file as there are only 2 additional sectors available. I took the Documentation File off as I had already printed it out and did not need it there.

In taking on the PUNN newsletter responsibility, I use FunnelWriter with DM-1000 on the disk, constantly and find the updated version a real time-saver.

Charles Bell

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FOR KIDS-AROUND THE WORLD

```

AROUND THE
WORLD
IN 80 DAYS!
100 ! *****
110 ! * BY STEVEN A HOUSE *
120 ! * RIVERSIDE CA 92536 *
130 ! *
140 ! * TRANSLATED FROM A *
150 ! * TRS-80 BASIC PROG. *
160 ! *****
170 CALL CLEAR
180 PRINT "          AROUND THE
WORLD":
190 PRINT "          IN EIGHTY
DAYS":
200 FOR D=1 TO 750
210 NEXT D
220 C=0
230 PRINT "PHILEAS FOGG BET
HE COULD GO AROUND THE WORLD
IN 80 DAYS!"
240 PRINT "WHY NOT JOIN HIM
IN HIS HOT AIR BALLOON? HE'LL
TELL YOU"
250 PRINT "WHAT HE SEES ON HIS
TRAVELS AND YOU HELP HIM
NAME THE"
260 PRINT "CONTINENT YOU'RE
PASSING OVER. REMEMBER TO
SPELL"
270 PRINT "THE CONTINENT COR-
RECTLY!":
280 GOSUB 1000
290 CALL CLEAR
300 READ N$,X$,Y$,Z$
310 IF N$="END" THEN 930
320 PRINT X$
330 PRINT
340 INPUT "Where are we? ":A$

```

```

350 PRINT :: CH=CH+1
360 IF A$=N$ THEN 540
370 PRINT "That's not it. H
ere's another clue:":
380 PRINT
390 PRINT Y$:
400 PRINT
410 INPUT "Now, where are we
? ":A$
420 PRINT :: CH=CH+1
430 IF A$=N$ THEN 540
440 PRINT "That doesn't see
m right... Here is one more
clue:":
450 PRINT
460 PRINT Z$:
470 PRINT
480 INPUT "Your last chance.
..Where are we? ":A$
490 PRINT :: CH=CH+1
500 IF A$=N$ THEN 540
510 PRINT "LOOK! I see a sig-
n that says 'We're over ";N$
":":
520 PRINT ::
530 GOTO 620
540 R=R+1
545 IF R>3 THEN R=1
550 ON R GOTO 560,580,600
560 PRINT "That's it!!!":
570 GOTO 610
580 PRINT "ALL RIGHT! YOU G
OT IT!!!"
590 GOTO 610
600 PRINT "WAY TO GO, CHAMP
! YOU'RE RIGHT"
610 C=C+1
620 PRINT "Now we will move
on to          another continent
.":

```

```

630 GOTO 1000
640 GOTO 290
650 DATA EUROPE
655 DATA MY HOME COUNTRY OF
ENGLAND IS ON THIS CONTINEN
T.
670 DATA THE COUNTRIES ARE S
MALL BUT THE ALPS ARE Soooo
BIG
680 DATA I CAN SEE THE LARGE
ST CON- TINENT OFF TO THE E
AST
690 DATA AFRICA
700 DATA LOOK AT THE PEOP
LE CANOE- ING DOWN THE NILE R
IVER
710 DATA I SEE A VAST DESERT
IN THE NORTH AND A JUNGLE
TO THE SOUTH.
720 DATA I SEE A SIGN FOR E
GYPT
730 DATA ASIA
740 DATA A SIGN POINTS THE W
AY TO AUSTRALIA.
750 DATA WE'LL FLY OVER THE
HIGHEST MOUNTAIN IN THE WOR
LD
760 DATA THIS CONTINENT GOES
FOREVER! I'M SURE IT IS THE
LARGEST
770 DATA AUSTRALIA
780 DATA REEFINES WERE THE
FIRST TO SETTLE HERE!
790 DATA THIS HAS TO BE THE
SMALLEST CONTINENT
800 DATA WHAT WEIRD CREATURE
S! LOALA BEARS AND KANGAROOS
.
810 DATA ANTARCTICA
820 DATA BRRR! IT'S FREEZING

```

```

DOWN
830 DATA WE'RE ON THE BOTTOM
OF THE EARTH!
840 DATA LOOK! THERE'S THE S
OUTH POLE
850 DATA SOUTH AMERICA
860 DATA THE ANDES MOUNTAINS
LOOK BEAUTIFUL DOWN THE
E.
870 DATA THE AMAZON RIVER HAS
TO BE THE WIDEST IN THE W
ORLD.
880 DATA WE'RE SOUTH OF THE
EQUATOR.
890 DATA NORTH AMERICA
900 DATA THERE'S GREENLAND T
O THE EAST.
910 DATA THIS CONTINENT STRE
TCHES ALL THE WAY TO THE NORT
H POLE.
920 DATA LOOK HOW TALL AND W
IDE THE ROCKY MOUNTAINS ARE
!
930 DATA END,END,END,END
940 CALL CLEAR
950 PRINT "PHILEAS MADE IT W
ITH ONE SECCON TO SPARE!"
960 PRINT "THANKS FOR THE HEL
P":
970 PRINT "BY THE WAY, YOU H
AD";C;"OUT OF SEVEN CORRECT!"
980 PRINT "IN ONLY";CH;"TRIE
S!"
990 END
1000 PRINT "(Press <ENTER> t
o continue)"
1010 CALL KEY(0,K,S)
1020 IF S=0 THEN 1010
1030 RETURN

```

BULLETIN BRIEFS

There is something for everyone in this month's bulletin. A game for the kids, how to print out your biorhythm and a host of routines that you can use in your programs.

We are using the 28 column converter to print out the listings. This makes it easier to check for errors as they are printed just as they appear on your screen.

If you don't want to take the time to enter them you can get them from the library at the next meeting.

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28 COLUMN CONVERTER

This program converts DIS/VAR 80 data files to a 28 column width. One use would be in debugging programs. It will print out in the same manner as your screen and thus it would be easier to track errors in a program that you had typed in. It could also have some use for newsletter editors as it would have an even right hand margin.

To use it you must first load your program into console memory and then convert the program to DIS/VAR 80 by typing:

LIST"DSK1.filename" (use a different name than your original program name.)

You now have a file that can be loaded into TI-WRITER. Follow the prompts in the program and give the new file another name and you'll be able to print out your program in a 28 column format.

(from Jim Peterson--TigerCub Software)

```
100 DISPLAY AT(3,4)ERASE ALL
: "28-COL3" M CONVERTER" :: DI
SPLAY AT(3,12): "By Jim Peter
son"
```

```
110 DISPLAY AT(5,1): " To con
vert a program, saved": "with
LIST "G$1.FILENAME" ": "i
nto 28-column format which":
"can be merged into the text
"
```

```
120 DISPLAY AT(9,1): "buffer
of TI-WRITER."
```

```
130 DISPLAY AT(11,1): " Optio
nally with transliter-": "ate
d @, &, %, ^ and . for": "pri
nting from formatter": "mode.
"
```

```
140 DISPLAY AT(16,1): " Progr
am should be RES in": "steps
of 10 starting at 100": "befo
re LISTING to disk."
```

```
150 DISPLAY AT(20,1): " Do yo
u want to print the": "file f
rom the": "(E)ditor?": "(F)
ormatter?"
```

```
160 ACCEPT AT(24,1)VALIDATE(
"EF"PEF:Q$
```

```
170 LN=100 :: CALL CLEAR ::
INPUT "What is the FILENAME?
": FN$: FN$ = "DS
K1."&FN$: PRINT ::
```

```
180 INPUT "What is the new F
ILENAME? DSK1.": PN$: PN$
="E": "&PN$: OPEN #1:FN$,
DI:PLAY,VARIABLE 80,INPUT:
: OPEN #2:PN$,DISPLAY,VARIA
BLE 80,C:PUT
```

```
190 IF Q$="E" THEN 200 :: PR
INT #2:".TL 126:94;" :: PRIN
```

```
T #2:".TL 123:64;" :: PRINT
#2:".TL 125:38;" :: PRINT #2
:".TL 124:42;" :: PRINT #2:
.TL 92:46;" :: PRINT #2:".NF
"
```

```
200 IF EOF(1)=1 THEN 300 ::
LINPUT #1:A$
210 IF LEN(A$)<80 THEN LN=LN
+10 :: GO TO 260
```

```
220 LINPUT #1:B$ :: IF POS(B
$,STR$(LN),1)=1 THEN FLAG=1
:: LN=LN+10 :: GO TO 260
```

```
230 A$=A$&B$ :: IF LEN(A$)<1
60 THEN LN=LN+10 :: GO TO 260
240 LINPUT #1:B$ :: IF POS(B
$,STR$(LN),1)=1 THEN FLAG=1
:: LN=LN+10 :: GO TO 260
```

```
250 A$=A$&B$ :: LN=LN+10
260 S=1
270 L$=SEG$(A$,S,28):: IF Q$
="E" THEN 280 :: GO TO 320
```

```
280 IF L$<>" " THEN C$ :: IF
FLAG=1 THEN FLAG=0 :: A$=B$
:: GO TO 210 :: ELSE GO TO 20
0
```

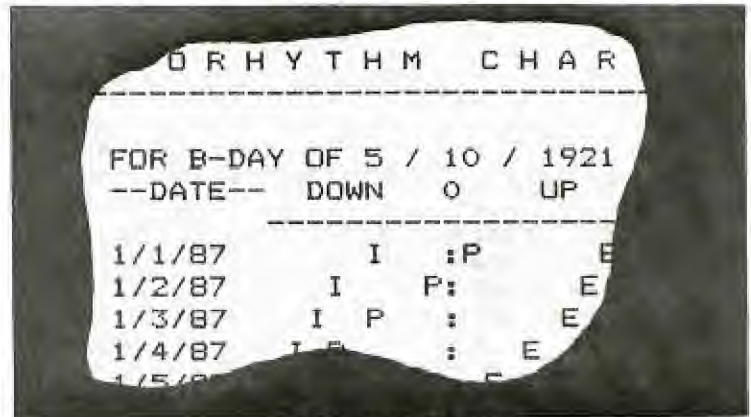
```
290 PRINT #2:L$ :: S=S+28 ::
GO TO 270
```

```
300 IF Q$="E" THEN 310 :: PR
INT #2:".FI:AD;"
310 CLOSE #1 :: CLOSE #2 ::
END
```

```
:: : A @ , ( , & , ^ , * , ! , . , \
:: : STORE 320 :: FOR W=1 T
O 5 :: READ CH$,R$
```

```
340 X=POS(L$,CH$,1):: IF X=0
THEN 360
```

```
350 L$=SEG$(L$,1,X-1)&R$&SEG
$(L$,X+1,LEN(L$)): GO TO 340
360 NEXT W :: RETURN
```



BIORHYTHM

BIORHYTHM theory states that we all have cycles, starting from birth. There are three cycles; physical (23 days), emotional (28 days) and intellectual (33 days).

The chart works something like a sine wave. It starts at zero; goes up to a maximum and then down to a minimum. Each cycle is independent, but since they are of different lengths they will intersect or coincide from time to time.

The theory goes on to say that if a particular cycle is down (negative) that particular cycle of yours is not so good. Likewise if the cycle is at or near to the crest, then you're doing good. If by chance you're at the crest on all three cycles that's the time to go to RENO! However, the time will come when you could have all three cycles at the low end. Stay home on those days!

Critical days are when the cycles cross the middle line, going down or going up. They have little importance unless they coincide with another cycle doing the same thing. Be extremely wary when all three cycles coincide at this point, regardless of whether they are going up or down.

HOW TO USE: You provide the month and day and year when asked. (xx/xx/19xx).

The program then asks for a start date (naturally later than your birth date). The program responds with a chart and you can see how your (P)hysical, (E)motional and (I)ntellectual cycles are doing.

As programmed the chart will be printed out for 18 days. Press any key for another 18 days.

(Ed's Note: I found this old program in my pile of disks. It was very simple and without embellishments or a print routine. Dan Hawes provided these and makes what was a dull program now very interesting. --ccb)

BIORHYTHM

```
CHART YOUR BIORHYTHMS!
100 DATA 31,29,31,30,31,30,3
1,31,30,31,30,31
110 @=0 :: [1 :: ]=2 :: =3
:: \=4 :: GO TO 130 :: A$,C$,
DEC$,DEV$,L$,PR$,Q$ :: B,D,
DY,I,J,JB,JC,JD,K,L,M,MO,N,P,
R,S,T,U,V,W,X,Y,YR,Z
120 CALL CHAR :: CALL CLEAR
:: CALL COLOR :: CALL GET$
:: CALL HCHAR :: CALL KEY ::
CALL PEFV :: CALL SAY :: CA
LL SCEN :: CALL SOUND :: C
ALL V$4$ :: @P-
130 REM BIORHYTHM
```

```
140 CALL CLEAR
150 ON WARNING NEXT
160 ! AN OLD PUBLIC DOMAIN P
ROGRAM
170 ! WITH EXTENSIVE MODIFIC
ATION BY DAN HAWES(THE TINna
n)
180 Z=.9999
190 T=9
200 P=3.1415926535
210 GOSUB 1730
220 CALL SCREEN(13):: CALL C
HAR(128,"FF",129,RPT$("80",B
),130,RPT$("01",B),131,RPT$
("0",14)&"FF",95,"00000FFFF")
```

```

230 FOR I=1 TO 12 :: CALL CO
LOR(I,13,[]): NEXT I :: CALL
COLOR(13,13,[]): CALL HCHAR
(I,,131,30):: CALL HCHAR(24
,1,128,30)
240 CALL VCHAR(,1,129,22)::
CALL VCHAR(1,31,130,22)
250 GOTO 1670
260 GOSUB AT(,9)SIZE(-10)
:"B:OPHYTHMS" :: DISPLAY AT(
\,9)SIZE(-10):F="$(CHR$(95),
10):: CALL SCREEN(16):: CALL
SOUND(262,1,330,1,392,1)
270 DISPLAY AT(6,10):"PHYSIC
AL" :: CALL SOUND(950,262,1,
349,1,440,1):: DISPLAY AT(6,
10):"EMOTIONAL" :: CALL SOUN
D(950,294,1,349,1,494,1)
280 DISPLAY AT(10,8):"NELL
ECTUAL" :: CALL SOUND(1200,3
30,1,392,1,527,1)
290 DISPLAY AT(12,7):"With E
XTENSIVE" :: DISPLAY AT(14,6
):"modifications by" :: DISP
LAY AT(16,10):"Dan Hawes" ::
FOR I=1 TO 500 :: NEXT I
300 DISPLAY AT(22,1):"Need I
nstructions? (Y/N) N" :: ACC
EPT AT(22,26)SIZE(-1)VALIDAT
E("YN")BEEP:DEC$ :: IF DEC$=
"Y" THEN GOSUB 1870
310 L=@ :: CALL BLANK :: DIS
PLAY AT(6,6):"ENTER YOUR BIR
THDATE" :: DISPLAY AT(7,6):"
"
320 DISPLAY AT(9,7):"DON'T
LIE! COMPUTERS DO!" :: DISPL
AY AT(10,):"(NOT CARE ABOUT
YOUR AGE)"
330 DISPLAY AT(12,):"DISPL
AY AT(12,):"ENTER MONTH (1
TO 12):" :: ACCEPT AT(12,25)
BEEP:M :: MO=M
340 IF M<1 THEN 330 ELSE IF
M>12 THEN 330
350 RESTORE
360 FOR J=[ TO M
370 READ X
380 NEXT J
390 !
400 A$="DAY (1 TO "&STR$(X)&
") "
410 DISPLAY AT(14, )BEEP:"EN
TER "&A$ :: ACCEPT AT(14,22)
SIZE(1):D :: D=D
420 IF D<1 THEN 410 ELSE IF
D>X THEN 410
430 DISPLAY AT(16, ):"ENTER
YEAR: " :: ACCEPT AT(16,14)S
IZE(1)BEEP:Y
440 IF Y<@ THEN 430
450 IF Y>=100 THEN 480
460 Y=Y+1900
470 DISPLAY AT(17, )BEEP:Y;"
AGE" I
480 GOSUB 1040 :: YR=Y
490 JB=JD
500 CALL BLANK :: DISPLAY AT
(6,1):"ENTER START DATE OF C
HART" :: DISPLAY AT(7,1):"
"
510 DISPLAY AT(9,7):"ENTER M
ONTH (1 TO 12): " :: ACCEPT
AT(9,25)SIZE(1)BEEP:M
520 IF M<1 THEN 510
530 IF M>12 THEN 510
540 RESTORE
550 FOR J=[ TO M
560 READ X
570 NEXT J
580 A$="DAY (1 TO "&STR$(X)&
") "
590 DISPLAY AT(11, ):"ENTER
"&A$ :: ACCEPT AT(11,23)SIZ
E(1)BEEP:D
600 IF D<1 THEN 590
610 IF D>X THEN 590
620 DISPLAY AT(13, ):"ENTER
YEAR: " :: ACCEPT AT(13,14)S
IZE(1)BEEP:Y
630 IF Y<@ THEN 620
640 IF Y>=100 THEN 670
650 Y=Y+1900
660 DISPLAY AT(14, )Y;"ASSU
ME"
670 GOSUB 1040
680 JC=JD
690 IF JC>=JB THEN 750
700 DISPLAY AT(20, )BEEP:"CH
ART DATE CAN'T BE"
710 DISPLAY AT(21, ):"EARLIE
R THAN BIRTH DATE."
720 FOR J=[ TO 1000
730 NEXT J
740 CALL BLANK :: GOTO 310
750 CALL BLANK :: DISPLAY AT
(5,10):"CHECKING" :: DISFLAY
AT(6,10):" :: DISP
LAY AT(8, ):"YOU ENTERED: "
760 DISPLAY AT(10, ):"YOUR B
IRTHDATE AS: " :: DISPLAY AT(
11, ):"M:"/" :D:"/" :Y
770 DISPLAY AT(16, ):"IS THI
S CORRECT? (Y/N) " :: ACCEPT
AT(16,26)SIZE(1)VALIDATE("YN
")BEEP:DEC$ :: IF DEC$="N" T
HEN CALL BLANK :: GOTO 310 E
LSE REM
780 CALL BLANK :: DISPLAY AT
(8, ):"DO YOU HAVE A PRINT?
? Y" :: ACCEPT AT(8,25)SIZ
E(1)VALIDATE("YN")BEEP:PR$ ::
IF PR$="N" THEN 800
790 DISPLAY AT(10, ):"ENTER
DEVICE NAME" :: DISPLAY AT(1
1, ):"P:" :: ACCEPT AT(11, )
)SIZE(-15)BEEP:DEV$
800 CALL BLANK :: FOR J=[ TO
300
810 NEXT J
820 GOSUB 1140
830 N=JC-JB
840 V=23
850 GOSUB 1200
860 GOSUB 1230
870 V=28
880 GOSUB 1200
890 GOSUB 1230
900 V=33
910 GOSUB 1200
920 GOSUB 1230
930 GOSUB 1490
940 L=L+1
950 DISPLAY AT(7+L, )C$;TAB
(9);L$
960 JC=JC+1
970 IF L<15 THEN 830
980 IF PR$="Y" THEN DISPLAY
AT(23, )BEEP:"PLEASE WAIT..
PRINTING" :: CALL PRINT(DEV$
)ELSE REM
990 DISPLAY AT(23, ):"CONTIN
UE CHART? Y" :: ACCEPT AT(23
,17)SIZE(-1)VALIDATE("YN")BE
EP:DEC$ :: IF DEC$="Y" THEN
L=@ :: GOTO 820 ELSE REM
1000 DISPLAY AT(23, ):"ENTER
A DIFFERENT B-GA? Y" :: AC
CEPT AT(23,26)SIZE(-1)VALIDA
TE("YN")BEEP:DEC$ :: IF DEC$
="Y" THEN 310
1010 CALL CLEAR
1020 CALL PEEK(-28672,P):: I
F P<@ THEN CALL SAY("GOODBY
E")
1030 END
1040 W=INT((M-14)/12+Z)
1050 JD=INT(1461*(Y+4800+W)/
\ )
1060 B=367*(M-1)+W*12/12
1070 IF B>@ THEN 1090
1080 B=B+Z
1090 B=INT(B)
1100 JD=JD+B
1110 B=INT(INT( (Y+4900+W)/
100)/\ )
1120 JD=JD+D-32075-B
1130 RETURN
1140 !
1150 CALL BLANK
1160 DISPLAY AT(5, ):"FOR B-
DAY OF:"/" :D:"/" :YR
1170 DISPLAY AT(6, ):"--DATE
-- DOWN";TAB(18);"0";TAB(23
);"UP"
1180 DISPLAY AT(7,9):RPT$("
",19)
1190 RETURN
1200 W=INT(N/V)
1210 R=N-W*V
1220 RETURN
1230 IF V<23 THEN 1260
1240 L$=Q$
1250 C$="P"
1260 IF V<>28 THEN 1280
1270 C$="E"
1280 IF V<>33 THEN 1300
1290 C$="I"
1300 W=R/V
1310 W=W*1#P
1320 W=T#SIN(W)
1330 W=W+T+1.5
1340 W=INT(W)
1350 A$=SEG$(L$,W,1)
1360 IF A$="P" THEN 1400
1370 IF A$="E" THEN 1400
1380 IF A$="I" THEN 1400
1390 GOTO 1410
1400 C$="X"
1410 IF W=[ THEN 1450
1420 IF W=19 THEN 1470
1430 L$=SEG$(L$,1,W-1)&C$&S
E
G$(L$,LEN(L$)-(19-W)+1,(19-W
))
1440 RETURN
1450 L$=C$&SEG$(L$,1,18)
1460 REVERSE
1470 L$=SEG$(L$,1,18)&C$
1480 REVERSE
1490 W=JL+88569
1500 R=INT((W/146097))
1510 W=W-INT((146097*R+ )/\ )
1520 Y=INT(4000*(W+1)/146100
1)
1530 W=W-INT(1461*Y/\ )+31
1540 M=INT(BOXW/2447)
1550 D=W-INT(2447*M/80)
1560 M=INT(M/11)
1570 M=M+1-12*M
1580 Y=100*(R-49)+Y+W
1590 A$=STR$(M)
1600 C$=A$&"/"
1610 A$=STR$(D)
1620 C$=C$&A$&"/"
1630 A$=STR$(Y)
1640 W=LEN(A$)-1
1650 C$=C$&SEG$(A$,W,1)
1660 RETURN
1670 Q$=""
1680 FOR J=[ TO T
1690 Q$=Q$&CHR$(32)
1700 NEXT J
1710 Q$=Q$&": "&Q$
1720 RETURN
1730 RESTORE 1780 :: FOR I=9
7 TO 121
1740 READ A$
1750 CALL CHAR(I,A$)
1760 NEXT I
1770 RETURN
1780 DATA 00000038043C643C,0
040404078444478,0000001C2020
201C
1790 DATA 000404043C44443C,0
00000384478403C,001824203820
2020
1800 DATA 00000038443C0438,0
040404078444444,001000101010
1010
1810 DATA 0004000404042418,0
020202428302824,001010101010
1010
1820 DATA 0000006854544444,0
000005864444444,000000384444
4438
1830 DATA 0000007844784040,0
000003C443C0404,000000586440
4040
1840 DATA 0000003C40380478,0
01010381010100C,000000444444
4438
1850 DATA 0000004444282810,0
000004444545428,000000442810
2844
1860 DATA 00000044443C0438,0
000003C0408103C
1870 CALL BLANK :: DISPLAY A
T(12, )SIZE(-26):: DISPLAY A
T(5, ):"This program calcula
tes a" :: DISPLAY AT(6, ):"c
hart of your biorhythms."
1880 DISPLAY AT(8, )SIZE(-26
):"WHAT ARE BIORHYTHMS?" ::
DISPLAY AT(11, )SIZE(-26):"
Biorhythms are rhythmic" :
: DISPLAY AT(12, )SIZE(-26):
"changes occurring in the"
1890 DISPLAY AT(13, ):"Acti
ons or activities" :: DISFL
AY AT(14, ):"of organs and o
rganisms."
1900 DISPLAY AT(16, ):"In hu
mans these activities" :: DI
SFLAY AT(17, ):"are broken d
own into three"
1910 DISPLAY AT(18, ):"categ
ories. They are:" :: DISPLA
Y AT(20,10):"PHYSICAL" :: DI
SPLAY AT(21,10):"
"
1920 DISPLAY AT(22, ):"Physi
cal/motion activities" :: DI
SPLAY AT(23,5)BEEP:"** PRESS
ANY KEY **"
1930 CALL KEY(@,K,S):: IF SK
=@ THEN 1930
1940 CALL BLANK
1950 DISPLAY AT(5, ):"Like s
kiing, hiking etc." :: DISPL
AY AT(7,9):"EMOTIONAL" :: DI
SPLAY AT(8,9):"
"
1960 DISPLAY AT(9,7):"This i
s how you feel" :: DISPLAY A
T(10, ):"depression, anger,
etc.." :: DISPLAY AT(12,8):"

```

```

-> INTELLECTUAL"
1970 DISPLAY AT(13,8):"
      " :: DISPLAY AT(14,7)
:"Learning/thinking ability"
1980 DISPLAY AT(16, ):"Simpl
e, isn't it?" :: DISPLAY AT(
17, ):"Biorhythms are analyz
ed" :: DISPLAY AT(18, ):"on
a day-to-day basis."
1990 DISPLAY AT(19, ):"All y
ou have to do" :: DISPLAY AT
(20, ):"is tell the computer
your" :: DISPLAY AT(21, ):"
birthday and in what"
2000 DISPLAY AT(23,5)BEEP:*
* PRESS ANY KEY **
2010 CALL KEY(@,K,S):: IF SK
=@ THEN 2010
2020 CALL BLANK
2030 I!:"PLAY AT(5, ):"year y
ou would like to" :: DISPLAY
AT(6, ):"start printing the
charts." :: DISPLAY AT(7, )
:"The computer takes it from
"
2040 DISPLAY AT(8, ):"there!
" :: DISPLAY AT(10, ):"The c
omputer will say" :: DISPLAY
AT(11, ):"which category it
is by"
2050 DISPLAY AT(12, ):"one o
f three symbols:" :: DISPLAY
AT(13, ):"either a P, E, or
I." :: DISPLAY AT(15, ):"P
= PHYSICAL"
2060 DISPLAY AT(16, ):"E = E
MOTIONAL" :: DISPLAY AT(17,
 ):"I = INTELLECTUAL" :: DISP
LAY AT(19, ):"if the symbol
is in the up"
2070 DISPLAY AT(20, ):"column
then that category" :: DISP
LAY AT(21, ):"is in it's po
sitive cycle."
2080 DISPLAY AT(23,5)BEEP:*
* PRESS ANY KEY **
2090 CALL KEY(@,K,S):: IF SK
=@ THEN 2090
2100 CALL BLANK
2110 DISPLAY AT(5, ):"if a c
ategory is in the" :: DISPLA
Y AT(6, ):"down column then
it's in" :: DISPLAY AT(7, ):"
it's negative cycle."
2120 DISPLAY AT(8, ):"if a c
ategory is in the 0" :: DISP
LAY AT(9, ):"column then it'
s in it's" :: DISPLAY AT(10,
 ):"critical cycle."
2130 DISPLAY AT(11, ):"The c
ritical cycle is" :: DISPLAY
AT(12, ):"the worst of the
three."
2140 DISPLAY AT(13, ):"Let's
say you get a" :: DISPLAY A
T(14, ):"-I, a +P, and a 0E.
" :: DISPLAY AT(15, ):"This
means you have a "
2150 DISPLAY AT(16, ):"posit
ive physical, but " :: DISPL
AY AT(17, ):"a critical emot
ional & a" :: DISPLAY AT(18,
 ):"negative intellectual da
y"
2160 DISPLAY AT(20, ):"So ev
en though you" :: DISPLAY AT
(21, ):"might have lots of e
nergy" :: DISPLAY AT(22, ):"
you might be depressed."
2170 DISPLAY AT(23,5)BEEP:*

```

```

* PRESS ANY KEY **
2180 CALL KEY(@,K,S):: IF SK
=@ THEN 2180
2190 CALL BLANK
2200 DISPLAY AT(5, ):"You al
so might not" :: DISPLAY AT(
6, ):"concentrate and make"
:: DISPLAY AT(7, ):"decision
s as well as you"
2210 DISPLAY AT(8, ):"usuall
y do. So physical"
2220 DISPLAY AT(9, ):"activi
ties are your" :: DISPLAY AT
(10, ):"best bet." :: DISPLA
Y AT(12, ):"If you see an 'X
",
2230 DISPLAY AT(13, ):"that
means that two or"
2240 DISPLAY AT(14, ):"more
categories are " :: DISPLAY
AT(15, ):"crossed in that co
lumn."
2250 DISPLAY AT(17, ):"If al
l three cat's are +
"
2260 DISPLAY AT(18, ):"then
you can do anything" :: DISP
LAY AT(19, ):"without worry.
" :: DISPLAY AT(20, ):"If al
l three are -, then"
2270 DISPLAY AT(21, ):"be a
little cautious of" :: DISPL
AY AT(22, ):"what you do."
2280 DISPLAY AT(23,5)BEEP:*
* PRESS ANY KEY **
2290 CALL KEY(@,K,S):: IF SK
=@ THEN 2290
2300 CALL BLANK
2310 DISPLAY AT(5, ):"If all
three are 0, " :: DISPLAY AT
(6, ):"then look out! You s
hould" :: DISPLAY AT(7, ):"u
se extreme caution on" :: DI
SPLAY AT(8, ):"these days.
HAVE FUN!"
2320 DISPLAY AT(23, )BEEP:"P
RESS ANY KEY TO RETURN"
2330 CALL KEY(@,K,S):: IF SK
=@ THEN 2330
2340 CALL BLANK
2350 RETURN
2360 !@P+
2370 SUB BLANK
2380 @=0 :: [1 :: ]=2 :: =
3 :: \=4 :: GOTO 2390 :: I-
: !@P-
2390 FOR I=5 TO 23 :: DISPLA
Y AT(I, I)SIZE(-28):: NEXT I
2400 !@P+
2410 E:SEND
2420 SUB PRINT(DEV$)
2430 @=0 :: [1 :: ]=2 :: =
3 :: \=4 :: GOTO 2440 :: DMP
$ :: COLUMN,G,ROW :: !@P-
2440 OPEN #[:DEV$,OUTPUT
2450 DMP$="" :: PRINT #[:""
:: PRINT #[:"" :: PRINT #[:"
B I O R H Y T H M   C H A R
T" :: PRINT #[:"-----"
-----"
2460 PRINT #[:""
2470 FOR ROW=5 TO 22 :: FOR
COLUMN=30 TO [ STEP -[ :: CA
LL #[:4*ROW,COLUMN,G):: IF
G=95 THEN DMP$=" "&DMP$ ELSE
DMP$=CHR$(G)&DMP$
2480 NEXT COLUMN :: PRINT #[:
:DMP$ :: DMP$="" :: NEXT ROW
:: CLOSE #[:
2490 !@P+
2500 SUBEND

```

TIPS ON TRIPLE TECH

One of the nice features of the Corcomp Triple Tech Card is the 64K print buffer. If you have a printer such as the (Gemini 10X) then this buffer is all the more important since this model has only a limited amount of buffer built in.

If you are down loading information and messages on the BBS and would rather not have the noise and chatter of the printer while in session, you can turn off the printer. Then when you have concluded your time on the BBS, you can activate the switch on the Triple Tech Card and everything that came over the line will be printed out.

Elsewhere in this issue are two short programs for the Card. The first one merely repeats what the original instructions said. It allows you to set the clock to the accurate time. The second routine will allow you to call up the time and display it on your screen and also your printer if desired. You could also use this routine in your programs as a sub-routine if you wanted to.

- + -

ANSWERING MACHINE

Do you have a telephone answering machine? Are you tired of using your or your partner's banana split voice? Want to create something distinctive? Using console BASIC and the TERMINAL EMULATOR II, you can do just that!

This program creates a unique announcing message. Before using, replace the name DENNIS with your own or whatever name you choose in line 130 unless of course your name happens to be DENNIS. You can delete or change lines 170-190 if the repeat feature is not wanted.

Changing the parameters in line 105 will change the pitch and slope. For more information on doing this, see page 34 of the TERMINAL EMULATOR II instruction manual. Also see the manual for information on inflection, stress points, pause and break characters.

- + -

SAMPLE MENU

Here is a sample menu program that you can use after typing in your own program names in the DATA line. Use the space bar to change the selection arrow and ENTER when the choice is made.

You will need to find the END or STOP in your program that will be included in the menu. Replace those commands with "RUN DSK1.MENU" and the menu will be redisplayed at the end of the current program.

- + -

CLEAN DISK DRIVES

Here is a little program that will turn on your disk drive and it will continue to run until you stop it with FCTN 4(clear). Many disk drive cleaning kits require the drive to run for 30 seconds. Use this program and stop when cleaning time has been reached.

TIPS ON TRIPLE TECH

```

10 CALL CLEAR
20 INPUT "DATE OF WEEK (0-6)":A$
30 INPUT "DATE (MM/DD/YY)":B$
40 INPUT "TIME (HH:MM:SS)":C$
50 D$=A$&" "&B$&" "&C$
60 OPEN #1:"CLOCK"
70 PRINT #1:D$
90 CLOSE #1
    
```

```

10 OPEN #1:"CLOCK"
20 INPUT #1:A$,B$,C$
30 PRINT A$,B$,C$
32 OPEN #2:"PIO"
34 PRINT #2:A$,B$,C$
35 CLOSE #2
36 GOTO 20
    
```

SAMPLE MENU

```

MENU
100 ! THE 'END' OR 'STOP' IN
    PROGRAM ONE...ETC. SHOULD BE
    REPLACED WITH 'RUN DSK1.
    MENU'
110 ! SO THAT THE MENU IS RE
    DISPLAYED FOR ANOTHER CHOICE
120 CALL CLEAR
130 DISPLAY AT(3,3):"SAMPLE
    MENU PLEASE"
140 REPEAT : IF X>1 THEN DI
    SPLAY AT(2*X+4,1)SIZE(4):"
150 IF X>7 THEN X=1 :: DISPL
    AY AT(20,1)SIZE(4):"
160 DISPLAY AT(2*X+6,1)SIZE(
    4):A$
170 IF X>1 THEN DISPLAY AT(2
    *X+4,1)SIZE(4):"
180 IF X>1 THEN 240
    
```

```

190 FOR I=1 TO 7
200 READ B$
210 DISPLAY AT(2*I+6,5):B$
220 NEXT I
230 DISPLAY AT(27,1):"PRESS
    SPACE BAR TO CHANGE ; PRESS
    <ENTER> TO SELECT"
240 CALL KEY(0,K,S)
250 IF S=0 THEN 240
260 IF K=32 THEN X=X+1 ELSE
    IF K=13 THEN 290
270 GOTO 140
280 DATA 1 ONE,2 TWO,3 THREE
    ,4 FOUR,5 FIVE,6 SIX,7 SEVEN
290 CALL CLEAR :: DISPLAY AT
    (B,B):"RUN PROGRAM #":X
300 INPUT "PRESS <ENTER> TO
    CONTINUE Q TO QUIT ":P$ ::
    IF P$=AA$ THEN X=1 :: CALL C
    LEAR :: GOTO 130 ELSE STOP
    
```

WIPE YOUR SCREEN

The purpose of this little routine is to show you a few screen clearing techniques which you might find useful in your programs. Line 100 is the RANDOMIZE statement which used in conjunction with RND in line 110 gives you different colors each time you run the program. In line 130 the CALL COLOR statement assigns a foreground and background color to character set 2. Each time x is encountered a different random color is selected. The subroutine at 300 fills the screen with characters so you can see how the various wipes perform. Line 150 is our familiar CALL CLEAR. Line 170 executes a vertical wipe and line 190 a horizontal wipe. Lines 210-230 provide a horizontal wipe from right to left by clearing one row at a time in a loop. Lines 250-270 show a vertical wipe by clearing one column at a time in a similar loop.

WIPE YOUR SCREEN

```

100 RANDOMIZE
110 DEF X=INT(RND*16)+1
120 DEF CH=40 TO 44
130 CALL COLOR(2,X,X)
140 GOSUB 300
150 CALL CLEAR
160 GOSUB 300
170 CALL HCHAR(1,1,32,768)
180 GOSUB 300
190 CALL VCHAR(1,1,32,768)
200 GOSUB 300
210 FOR N=24 TO 1 STEP -1
220 CALL HCHAR(N,1,32,32)
230 NEXT N
240 GOSUB 300
250 DEF N=32 TO 1 STEP -1
260 CALL VCHAR(1,N,32,24)
270 NEXT N
280 NEXT CH
290 STOP
300 CALL HCHAR(1,1,CH,768)
310 RETURN
    
```

GRAPH SHEET MAKER

```

100 REM +-----+
110 REM +GRAPHSHEET MAKER+
120 REM + BY JOHN BEHNKE +
130 REM +
140 REM +EPSON OR GEMINI +
150 REM +PRINTER REQUIRED+
160 REM +BASIC OR X-BASIC+
170 REM +-----+
180 CALL CLEAR
190 INPUT "NUMBER OF SHEETS?":A
200 CALL SCREEN(2)
210 @=CHR$(27)
220 FOR I=1 TO 228
230 A$=A$&CHR$(128)
240 NEXT I
250 B$=EG$(A$,1,7)
260 C$=LHF$(255)&SEG$(A$,1,6)
270 FOR I=1 TO 4
280 FOR J=1 TO B
290 E$=E$&C$
300 NEXT J
310 E$=E$&CHR$(255)
    
```

```

320 NEXT I
330 F$=@$&"K"&CHR$(484)&CHR$(
    0)&E$
340 G$=@$&"K"&CHR$(228)&CHR$(
    0)&A$
350 OPEN #1:"PIO.CR"
360 FOR B=1 TO A
370 FOR C=1 TO 11
380 PRINT #1:@$&CHR$(64)&@$&
    "-"&CHR$(16)
390 FOR D=1 TO B
400 PRINT #1:F$;F$;CHR$(10)
410 NEXT D
420 PRINT #1:G$;G$;@$&"3"&CH
    R$(2)
430 NEXT C
440 PRINT #1:@$&"3"&CHR$(17)
450 FOR I=1 TO 9
460 PRINT #1:CHR$(13)&CHR$(1
    0)
470 NEXT I
480 NEXT B
490 CLOSE #1
500 END
    
```

CLEAN DISK DRIVES

```

100 CALL CLEAR : "(HOLD FCTN CLEAR TO STOP"
110 CALL SCREEN(13):: FOR C=
    1 TO 12 :: CALL COLOR(C,16,1
    5):: NEXT C
120 DISPLAY AT(12,10):"CLEAN
    ING..." :: DISPLAY AT(23,2)
    
```

ANSWERING MACHINE

```

100 OPEN #1:"SPEECH" OUTPUT
110 PRINT #1:"/30 96"
120 PRINT #1:"HELLO. "
130 PRINT #1:"I AM A COMPUTE
    R. "
140 PRINT #1:"DENNIS IS NOT
    AVAILABLE RIGHT NOW. "
150 PRINT #1:"IF YOU WISH HI
    M TO RETURN YOUR CALL"
160 PRINT #1:"PLEASE LEAVE Y
    OUR NAME, PHONE NUMBER, AND
    MESSAGE AFTER THE BEEP TONE. "
170 PRINT #1:" _ THANK _ YOU. "
180 FOR A=1 TO 1500
190 NEXT A
200 GOTO 120
    
```

```

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PRODUCT REVIEW - BOOK REVIEW

TI-HYPHENATOR ORPHANS SURVIVAL

"HYPHENATOR"

One of the nice features of TI-Writer is the ability to type in word-wrap mode, which speeds up typing by allowing you to concentrate on text without having to worry about exceeding the right margin.

There is a draw-back, though, to word-wrap in that longer words which would exceed the right margin are scrolled to the next line in their entirety.

The disadvantage of this system becomes obvious when text is printed out using the FORMATTER when there is a tendency for the right margin to have the "jaggies".

Using the right-margin-flush feature (.AD) of FORMATTER provides only a partial cure since now FORMATTER inserts blank spaces between words to fill up the line. The amount of white space inserted varies with the number of characters that need to be filled with the result that text can be rather blotchy in appearance.

The only way to improve the appearance is to re-edit word-wrap text and to hyphenate as much as possible where lines break.

Unfortunately, the EDITOR of TI-Writer is not quite up to that task.

At the most, the EDITOR can display 80 characters per line whereas the FORMATTER and most printers can handle Elite (up to 132 characters) or Condensed (up to 132 characters) per line. In such a case the EDITOR is of no help.

A further hindrance is that the EDITOR will display imbedded print commands which is helpful in creating text but a serious obstacle in fine tuning right margins. Typical examples are string commands to turn super-or subscript on or off or the "ampersand" or "at" commands of the TI-Writer for underlining and double strike.

Quite often for ease in typing and editing users elect to fix the right margin at 40 characters to do away with horizontal scrolling. An attempt to judge the final appearance of text by resetting tabs to final form and using the "Reformat" command can be misleading since previously entered indentations are then lost.

HYPHENATOR is an editing utility for TI-Writer that succeeds in addressing the following problems:

HYPHENATOR handle print-widths or

right margins of up to 160 characters.

HYPHENATOR properly accounts for imbedded print commands, be they the TI-Writer "at" or "ampersand" type or special character mode (CTRL U) transliterate symbols.

HYPHENATOR makes it possible to change margin settings within a document for quoted text that needs to be indented further.

HYPHENATOR recognizes a double "ampersand" or "at" symbol as a character to be printed rather than as a non-printing control character.

HYPHENATOR allows for the FORMATTER idiosyncrasy of inserting two blanks following a period even though only one space might have been typed in.

The program is a stand alone utility that can be loaded using the LOAD and RUN option of the Editor/Assembler or Mini-Memory cartridge. After loading, HYPHENATOR will prompt for the name of the input file (the name of the document created with TI-Writer) and a name for an output file which HYPHENATOR will create in TI-Writer format. The use of either a single disk or two disk drives is supported. The original text file will not be altered in any way.

Once the proper files are set up, HYPHENATOR will read in a paragraph of text which can be up to 5280 characters long (a full page, single-spaced).

According to the margin and indentation information for which HYPHENATOR has prompted, the first block of text will be displayed (five lines) with an end-of-line marker exactly on that character which would be the last character to be printed by the FORMATTER, with all non-printing characters, extra spaces, etc. already accounted for.

If the end-of-line marker points to a space or the last character of a word, no further action is necessary except for pressing <ENTER> to bring up the next line.

If the EOL marker points to the middle of a word, a decision needs to be made whether hyphenation is possible. If yes the editing cursor <FCTN S> should be moved to the last character prior to the hyphen; a hyphen symbol keyed in. HYPHENATOR will supply the necessary prompts to complete the job.

Once all the lines of a particular block have been edited a screen message will prompt for writing the block out to

the disk file.

For speed and convenience, HYPHENATOR has a number of imbedded defaults. Thus empty lines or lines with only format control characters are written to the output file without user intervention.

An "oops" feature can be invoked at any time by pressing <CTRL I> to go back to the beginning of the paragraph. This comes in handy if there should be any second thoughts about a line just completed.

<CTRL 3> AND <CTRL 4> toggle the screen display color which make it possible to display many combinations of screen and text color..

<CTRL 2> invokes the margin/indentation set option to change these values at any time. <CTRL 9> writes out the remainder of an input file without further editing to the output file. This comes in handy where only a portion of text needs that final touch.

Any time a line of text is displayed on the screen, minor editing is possible. Thus "recieve" can be changed to "receive". The limitation is that the new text must have the same length as the original text.

HYPHENATOR is written in Assembler and thus is very fast. A test with a 59 sector compressed print document could be "fine-tuned" in under twenty minutes.

The use of a pocket dictionary in conjunction with HYPHENATOR is strongly recommended. Due to the memory limitations of the 99/4A system, HYPHENATOR can only show what word to hyphenate. Where to hyphenate is up to the user. That's where the dictionary comes in handy.

HYPHENATOR complete with four and one half pages of documentation on disk is available from the author:

Wayne L. Stith (Smith ??) 715
Timken Drive Richmond, VA 23229

The cost is \$10.00. Source code in addition to object code and documentation is available for \$15.00.

(EDITORS NOTE:)

I have not tried this program and only offer the comments as presented. However it seems to be a reasonable price if it lives up to its claims. -ccb-

"THE ORPHANS SURVIVAL HANDBOOK"

(The following is an advance release announcing the upcoming new book from Dr. Ron Wright, author of the "The Orphan Chronicles", published by D.O.S. - Disk Only Software).

The first issue "The Orphan Chronicles", was for you, the Texas Instruments 99/4A enthusiast. Now, there is a book BY you. The "Orphan's Survival Handbook" is the one-stop information source for the TI user.

The "Orphan's Survival Handbook" was both easier and harder to put together than was the "The Orphan Chronicles". Easier in that it was already written! It is an anthology of material gleaned from literally hundreds of user groups newsletters and hundreds of hours of downloaded files from bulletin board

systems. It is the "Best of" you - the TI user group members, hackers, programmers, and newsletter editors. Why, then, was it difficult? There was so much quality material available! The hardest thing was not finding enough material, it was deciding what I could leave out!

The "Orphan's Survival Handbook" is a 200-plus page compendium of TI material. It is filled with schematics, hardware hacks, programs, tips, and tutorials from across the country. Where to call, where and what to buy, and what to read. Moreover, it contains new, "never-before-seen" material from some of the brightest minds in the TI community (too numerous to name them all). Looseleaf, and three-hole punched, the manual can be placed conveniently in a binder for easy access. And updates

(which are planned for registered owners) can be easily incorporated into your "Handbook" as new insights and developments become available. While I can't guarantee the "Handbook" will have "everything you ever wanted to know", I can assure you that it has most everything I could think of.

The "Orphan's Survival Handbook" is published and available from Disk Only Software (DOS), P.O. Box 4170, Rockville, MD 20850; (301) 369-1339 or call our toll free number at 800/446-4462 plus 897335 at the tone (touch tone required). Projected retail price is \$16.95.

Call or write DOS for details today!
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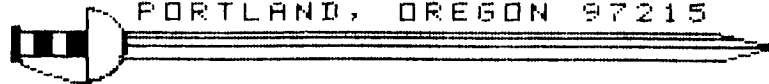
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THE PUNN NEWSLETTER

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POINTING THE WAY FOR
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