

WORDPLAY

The PUNN Newsletter - Portland, Oregon
March 1988

036
8503

From the President

What's Inside

From the President	Page 1
News and Views	1
Word Scramble	2
Treasurers Report	2
Easter	3
Spread Sheets	3
Late News	3
Floppy Disk Maintenance	4
Hex-Decimal-Binary Conversion	5
"Evolution of a Failure"	6
"Rebuttal"	7

What! Already!? It's almost Springtime, here in Oregon. I can tell by the longer days, and even longer rain storms. There's plenty of time to start and finish some excellent projects for your TI, however, before the onset of summer. As an example, earlier this month, a group of us, led by Inspector 12 (Mike "It ain't done 'till I say so" King), met at OMSI to perform "Open Console Surgery" on our '4As. Now, we have TI-99/4Bs (or something), with 32Kb of memory sitting on the 16 bit bus! Nice performance enhancement (15-20%, depending on the operation) and one less card required in the P-Box. Next up (for me, anyway) is a nifty little set of Idiot Lights that work to show you which segment of memory is being accessed. Totally useless, but fun!

That brings me to my next subject..FUN! I recently urged everyone to dig deeper into their pockets to support the TI merchants that are left. But, even if that isn't in the cards, right now, there are plenty of things you can do to enjoy your computer without massive cash infusions (Try that with certain OTHER brands!) There are lots of folks around with cartridges that are never used, myself included. Have you ever wanted to try this cartridge or that, but just couldn't see investing in the darned thing? Fine! Bring your want list to the meeting <key point here, for the test that follows..COME TO THE MEETING!>, and let's see if we can start a list to match up some of your needs. Who knows, you might have what I'm looking for.

If you've been trying to detect a theme here, it's simple. We are a GREAT group! If you want some help, or would like to learn something, just ask. There are always some who are able and willing to share their knowledge. If you aren't sure where you need to go from where you are now, that's okay, too. Just give us some ideas, and we'll get things rolling.

Finally, thanks to our Renewing and New members! We appreciate your support.

-Al Kinney

Club Officers

President	Al Kinney	640-5860
Vice-President	Dale Kirkwood	646-4354
Secretary	Don Barker	223-1749
Treasurer	Chuck Neal	642-7292

PUNN Staff

Librarians	Ron Mayer	232-7363
	Walt Morey	239-5105
	Jim Thomas	284-2425
Hardcopy	Mike Calkins	636-1839
Program Chairman	Ted Peterson	244-1587
Workshop Chairman	(open)	
Membership Chairman	Terry Priest	649-9583
Newsletter Editor	Charles Ball	536-0466
16576 SW Matador Lane-King City, OR 97224		

BBS Committee

Chairman:	Al Kinney	640-5860
	Ron Mayer	232-7363
	Mike King	357-4413

BBS Phone Number 503/233-6804

News and Views

Another fine meeting was held on February 2nd.-If you were not there you missed Ted Peterson's fine program on "Banner Programs"--President Al Kinney reported on more improvements for the BBS that will be coming soon-among others an additional memory card will be installed that will speed up many of the transfer functions--Several members travelled to Vancouver late last month for the meeting of the Vancouver Users Group-They report TI is alive across the river too--Our club year is off to a good start-programs planned for the next few months are: Sector Editors, File I/O, Programming Techniques, PR Base-if you have suggestion for a program let Ted Peterson know--A number of our members, including your Editor have purchased the new Star NX-1000 printer-you'll have to see it to believe what a great printer it is for the money-This newsletter will eventually be entirely prepared with the NX-1000, in the meantime work had already been done beforehand on the older printer-you will see the difference--You are all reminded that the Board

(continued on page 4

Murphys Rule:

"It is morally wrong
to allow suckers
to keep their money"

Word Scramble

Many people scarsely read the headlines in the morning newspapers before turning to the puzzel section. They like the crossword puzzels and the array of other brain teasers that are offered.

My wife, for instance likes the word scramble where they take a word and mix up the order of the letters.

Sometimes this can prove to be a very trying time and a person will have a tough time figuring out just what the word is. If you are one of those persons who has at times been confronted with a particularly tough word, then this program is for you.

Here is how it works: It runs in Basic and when the first screen is presented you are asked, "how many letters in the word?" After your response, it tells you the number of combinations in that particular group of letters and will list all the possibilities. You can start and stop the listing at any time by pressing the space bar.

The program comes to us from the Bluegrass '99 Computer Society of Lexington, KY.

```

100 REM MIX
110 REM TI-99/4A BASIC
120 REM WENDEY R RICHARDSON
130 REM BLUE GRASS 99COMPUTE
R SOCIETY, INC.
140 CALL CLEAR
150 PRINT TAB(12);"MIX": :
: :
: :
160 DIM L$(8)
170 PRINT "THIS PROGRAM WILL
MIX THE LETTERS IN SCRAMB
LED WORDS AND PRESENT ALL
POSSIBLE"
180 PRINT "COMBINATIONS UP
TO 8 LETTERS. LETTER WORDS MAY
BE USED"
190 PRINT "NUMBER OF LETTERS
(1 TO 8)?"
200 CALL KEY(0,K,S)
210 IF (K<40)+(K>56) THEN 200
220 CALL SOUND(100,880,2)
230 PRINT "PRESS 1 FOR NEW L
ETTERS"
240 N=K-48
250 C=1
260 FOR M=N TO 1 STEP -1
270 C=C*M
280 NEXT M
290 PRINT : :C;"COMBINATIONS"
: :
300 FOR M=1 TO N
310 PRINT : : "LETTER";M;"? "
: :
320 CALL KEY(0,K,S)
330 IF S(1) THEN 320
340 CALL SOUND(100,880,2)
350 L$(M)=CHR$(R)
360 PRINT L$(M);
370 NEXT M
380 PRINT "PRESS SPACEBAR TO
START AND "STOP THE LISTIN
G"
: :
390 CALL KEY(0,K,S)
400 IF K<>32 THEN 390
410 CALL SOUND(100,880,2)
420 T=0
430 GOSUB 770
440 L$(0)=L$(2)
450 L$(2)=L$(7)
460 L$(7)=L$(0)
470 GOSUB 770
480 L$(0)=L$(4)
490 L$(4)=L$(7)
500 L$(7)=L$(0)
510 L$(7)=L$(0)
520 L$(0)=L$(6)
530 L$(6)=L$(7)
540 L$(7)=L$(0)
550 GOSUB 770
560 L$(0)=L$(2)
570 L$(2)=L$(7)
580 L$(7)=L$(0)
590 GOSUB 770
600 L$(0)=L$(4)
610 L$(4)=L$(7)
620 L$(7)=L$(0)
630 GOSUB 770
640 L$(0)=L$(6)
650 L$(6)=L$(7)
660 L$(7)=L$(0)
670 GOSUB 770
680 PRINT : :TAB(9);"COMPLET
ED": :
690 CALL SOUND(100,660,2)
700 PRINT "PRESS 1 FOR NEW L
ETTERS"
710 PRINT "PRESS 2 TO END":
: :
720 CALL SOUND(100,880,2)
730 CALL KEY(0,K,S)
740 IF K=49 THEN 190
750 IF K<>50 THEN 730
760 STOP
770 GOSUB 990
780 L$(0)=L$(3)
790 L$(3)=L$(6)
800 L$(6)=L$(0)
810 GOSUB 990
820 L$(0)=L$(5)
830 L$(5)=L$(6)
840 L$(6)=L$(0)
850 GOSUB 990
860 L$(0)=L$(1)
870 L$(1)=L$(6)
880 L$(6)=L$(0)
890 GOSUB 990
900 L$(0)=L$(5)
910 L$(5)=L$(6)
920 L$(6)=L$(0)
930 GOSUB 990
940 L$(0)=L$(4)
950 L$(4)=L$(6)
960 L$(6)=L$(0)
970 GOSUB 990
980 RETURN
990 PRINT "TAB 1170
    
```

Patterns

One way to spice up Extended BASIC games is to produce animated effects with Sprites. In order to do this you just create a set of patterns which show successive frames of the thing you want to animate - like the frames of a motion picture. After placing the Sprite on the screen you just quickly change the sprite patterns with a CALL PATTERN statement.

This short routine below produces an explosion on the screen.

```

100 CALL CLEAR :: CALL SCREE
N(2)
110 CALL MAGNIFY(2)
120 CALL CHAR(96,"0000000000
08020002000000000000000000
0000400080008")
130 CALL CHAR(104,"000001020
0021002000411000800000000000
0004000100040000104")
140 CALL CHAR(100,"000000000
4000000010800020000000000000
0008000040004000080")
150 CALL CHAR(108,"000000021
0010420000200011400000000401
004401400E320044002008")
155 CALL MAGNIFY(2)
160 CALL SPRITE(#1,65,16,100
,100)
170 FOR A=1 TO 200 :: NEXT A
180 FOR I=96 TO 108 STEP 4
190 CALL PATTERN(#1,I)
200 CALL MAGNIFY(4)
210 CALL SOUND(100,-500,-7,1)
220 FOR A=1 TO 40 :: NEXT A
230 NEXT I
240 CALL SPRITE(#1)
250 CALL KEY(0,K,S):: IF S=0
THEN 250 ELSE 155
    
```

Treasurers Report

Treasurer Chuck Neal reports the following in regards to the financial status of PUNN:

Beginning Balance	\$1388.27
(Error discovered)	2.00
(Corrected Balance)	1390.00
(Income January 1988)	355.00
(Expenses January 1988)	211.51
(Balance February 1988)	1533.76
(Check written-not cashed)	307.50

Bank Balance 1841.26

We are a non profit making organization and these funds are for the benefit of the members and will be used to further the use of the TI-994/A.

```

1000 L$(0)=L$(2)
1010 L$(2)=L$(5)
1020 L$(5)=L$(0)
1030 GOSUB 1170
1040 L$(0)=L$(4)
1050 L$(4)=L$(5)
1060 L$(5)=L$(0)
1070 GOSUB 1170
1080 L$(0)=L$(2)
1090 L$(2)=L$(5)
1100 L$(5)=L$(0)
1110 GOSUB 1170
1120 L$(0)=L$(4)
1130 L$(4)=L$(5)
1140 L$(5)=L$(0)
1150 GOSUB 1170
1160 RETURN
1170 PRINT "B 1310
1180 L$(0)=L$(1)
1190 L$(1)=L$(4)
1200 L$(4)=L$(0)
1210 GOSUB 1310
1220 L$(0)=L$(2)
1230 L$(2)=L$(4)
1240 L$(4)=L$(0)
1250 GOSUB 1310
1260 L$(0)=L$(2)
1270 L$(2)=L$(4)
1280 L$(4)=L$(0)
1290 GOSUB 1310
1300 RETURN
1310 GOSUB 1410
1320 L$(0)=L$(2)
1330 L$(2)=L$(3)
1340 L$(3)=L$(0)
1350 GOSUB 1410
1360 L$(0)=L$(2)
1370 L$(2)=L$(3)
1380 L$(3)=L$(0)
1390 GOSUB 1410
1400 RETURN
1410 GOSUB 1470
1420 L$(0)=L$(1)
1430 L$(1)=L$(2)
1440 L$(2)=L$(0)
1450 GOSUB 1470
1460 RETURN
1470 T=T+1
1480 IF (T>C)+(T>5040) THEN 6
80
1490 W$=""
1500 FOR M=1 TO N
1510 W$=W$+L$(M)
1520 NEXT M
1530 PRINT TAB(8);W$;TAB(18)
:T: :
1540 CALL KEY(0,K,S)
1550 IF K=32 THEN 1570
1560 RETURN
1570 CALL SOUND(100,880,2)
1580 PRINT "PRESS SPACEBAR T
O CONTINUE": : "PRESS ENTER
TO EXIT": : :
1590 CALL KEY(0,K,S)
1600 IF K=13 THEN 700
1610 IF K<>32 THEN 1590
1620 RETURN
    
```

Easter

There was a time when a Holiday fell on a certain date and that was it. Then because of commercialism, it was decided to change some holidays so they always fell on a Monday and thus did not break up a week. For instance George Washington's birthday is February 22, but this year it was celebrated on February 15th (Presidents Day).

Easter is another Holiday that many people keep asking, "when's Easter this year"? Well the date of Easter can be determined by a process that was set forth by the first Nicene Council in A.D. 325. Its date varies each year but it falls on the first Sunday, after the first full moon, after March 21st. Thus it cannot come before March 22 or after April 25.

This little program will let you know when Easter will occur for any year between 1583-2099.

(The parentheses around numbers following an asterisk can be omitted. They are there only to get around a "feature" of TI-Writer formatter.)

```

100 CALL CLEAR
110 INPUT "ENTER YEAR: ";Y
120 IF Y<1583 THEN PRINT "YEAR MUST BE > 1582"; : : : GOTO 110
130 Y1=Y/19
140 A=INT((Y1-INT(Y1))*19)+.001)
150 B1=Y/100 : : B=INT(B1)
160 C=INT((B1-INT(B1))*100)+.001)
170 D1=B/4 : : D=INT(D1)
180 E=INT((D1-INT(D1))*4)+.001)
190 F=INT(((B+8)/25)+.001)
200 G=INT((B-F+1)/3)
210 H1=(19*A+B-D-G+15)/30
220 H=INT((H1-INT(H1))*30)+.001)
230 C1=C/4 : : I=INT(C1)
240 K=INT((C1-I)*4)+.001)
250 L1=(32+2*I+2*I-H-K)/7
260 L=INT((L1-INT(L1))*7)+.001)
270 M=INT((A+11*H+22*L)/451)
280 N1=(H+L-7*M+114)/31 : : N=INT(N1)
290 P=INT((N1-N)*31)+.001)
300 N$="APRIL"
310 IF N=3 THEN N$="MARCH"
320 PRINT "EASTER IS ";N$:P+1 : : PRINT "WANT ANOTHER YEAR? (Y/N)"
330 CALL KEY(3,K,S) : : IF S=0 THEN 330 ELSE IF K=89 THEN 100

```

Spread Sheets

One way to keep track of your income and expenses is to use a personal-finance software program. There are a number of these programs available for the TI-994A Computer. They will do a wide variety of financial chores depending upon the program that you choose.

But if tracking your budget is your main goal, consider using Multiplan or a similar spreadsheet. Setting up a spread sheet takes more time and thought than using one of the finance programs, but once you have done it you'll find it worth the trouble and time. When you have things all set up, it will be relatively easy to change things and keep your files up-dated.

A spreadsheet lets you devise your own system of budgeting, using the methods you prefer. It allows plenty of flexibility without the boredom and errors that accompany pencil-and-paper budgeting. If you already use a spreadsheet for a business or other purpose, adapting it to your personal financial affairs will save a lot of time than starting one from scratch.

Multiplan or one of the other spreadsheets available for the TI-994A will let you set up a grid of columns and rows, enter numbers and text, and feed in simple or complex formulas for calculating the totals you need. By following the instructions in the manual, you can set up a formula to calculate cumulative monthly totals, for example, or to keep track of the portion of monthly household costs that are tax deductible for a home or business.

You can keep track of just about any financial task that you want to. For instance if you had a certificate of deposit that was drawing compounded interest, you could enter those values in a cell of your spreadsheet and it would track the growing value of that deposit.

Multiplan and the other spreadsheets are real tools that let your computer do the hard work and also provide you with good records over the years.

Late News: Read this-

The DOM this month will contain four programs, all on one disk. The four programs are all games and will run with assembly language speed, but they will load automatically with Extended Basic.

The price for the DOM will be \$3.00 including the price of the disk. They will be made up ahead of time and available at the library desk.

The program this month will be on Archiving including packing and unpacking. Some long programs today are featured on many EES's. In order to shorten the transmittal time of such programs, archiver programs have been developed that shorten the actual data transmitted for speed and efficiency. However the programs as received by your computer will not run as sent.

This is where "packing" and "unpacking" have come into use. Come to the March meeting and learn all about these interesting programs.

Each month before the meeting and during the intermission you will find a variety of used equipment for sale in front, outside the meeting hall. You might find just what you want, so plan to look over what is displayed.

Also you are welcome to bring any of your own surplus hardware or software for sale. The only restriction is that you do not take the articles inside the meeting hall to sell.

If any member has a program that isn't working right for him or one that he doesn't quite understand, he is invited to bring that program along on meeting night. There is always a complete set-up available and usually someone there that may be able to explain the details of such a program.

There will be a free raffle again this month. Attending the meetings is the only way you have a chance to win!

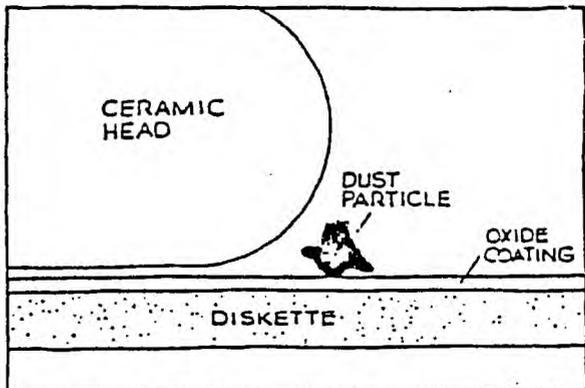
The program for April will be on setting up files, using one of the popular programs written for this important use of your computer. If you're not into files you're not making full use of your computer.

Tired of all those Cokes, 7-Ups, Sprites and the like? This month there is going to be a special treat. Hot Coffee! The price is special too—Donated by the club. Come and enjoy.

Floppy Disk Maintenance

As everyone is aware, all computers using external storage systems rely on magnetically created electrical impulses for their memory. Whether using cassette tapes, cartridges, floppy disks, hard disks, or other storage systems, these impulses are what make computers function. The physical devices that accept and hold the magnetic code are called the media. And all media require periodic attention.

If you've ever tried playing a "wrinkled" cassette tape on a cassette recorder, you know there is a problem. Besides producing a skip at the wrinkle, the tape will be weakened in that spot and will eventually break.



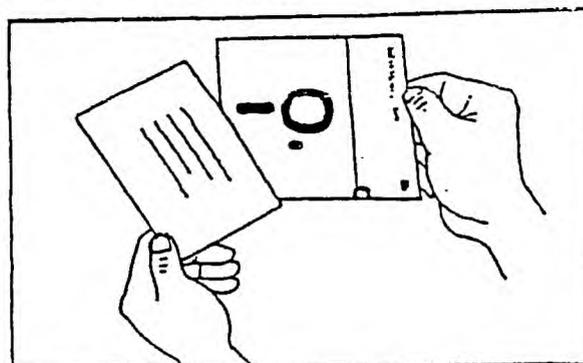
The same holds true with magnetic media used for computer storage. Both the media and the programs and data they contain may be damaged or destroyed by such things as heat, static, magnetism, polluted air, chemicals, dirty drive heads, grease or oil from fingertips, excessive humidity, excessive dryness, etc. Even brand new media is not exempt from these problems. Older media is subject to more problems, such as the base material holding the oxide may turn brittle and become useless with age. The adhesive holding the oxide to the base may deteriorate. Or possibly the software may just wear out with use.

The magnetic media can easily be damaged through abuse or negligence. Therefore, it

is important that you be as careful as possible in your handling of it. This means running regular maintenance checks to keep your media in shape and doing such things as cleaning the heads of the disk drive and keeping your computer work area as clean as possible. And most important, get in the habit of making back-up disks for all of your software.

The following are some rules that you should follow to give your disks and cassette tapes the longest life span as possible.

1. Always store your media in dust-proof, non-metallic containers.
2. Avoid touching the magnetic surfaces of the disks or tapes.



3. When labeling a disk, write on the label before putting it on the disk. Use a soft-tipped marker, and make sure the ink is dry before putting it into the drive.

4. Store all media away from sources of heat, as well as from humidity. (This means that the basement is not a good home for your computer!)

5. If you just walked across the room dragging your feet on the carpet, first discharge the static electricity by touching a grounded metallic object before you pick up a disk.

By Fred and Amy Mackey,
Tacoma Users Group.

(continued from page 1)

meetings are open to all—the March Board was held at the home of Mike Caulkins—thanks Mike— —The board appreciates those that offer their homes for these important meetings— —At the board meeting Al Kinney and Mike King reported on important improvements to the BES that will make it much more efficient— —It was also noted that new users are now using the board, among them Ted Peterson and Mike Calkins—Welcome aboard!— —Terry Priest reported that the club treasury is now \$57.00 richer because of the paper drive—you see it did pay to bring in all those papers—Thanks Terry— —You could see your name in print—send in some news, a program or other things of interest to the members.



"—Fall in Love if you must—
but don't get
emotionally involved"

THE ENTIRE SYSTEM IS DOWN. THE COMPUTER PEOPLE BLAME THE MODEM PEOPLE WHO BLAME THE PHONE PEOPLE WHO BLAME IT ON OUR MOON BEING IN THE FIFTH HOUSE WITH VENUS ASCENDING."

Hex-Decimal-Binary Conversion

After we have worked with our computers for a few years, some of us have a tendency to forget some of the basic foundations of how computers compute.

If computers had to rely on our decimal system they would be much more complex indeed. We have all grown up with the decimal system firmly entrenched in our brains and sometimes it is hard to think the way a computer does. In fact the numbers 1,2,3,4,5,-6,7,8,9,0, are important in our daily lives.

Even our computer keyboards work with these numbers. But something happens between the regular numbers that we input and the translation that takes place so that computer understands what it is supposed to do. The change that occurs of course is that Decimal is translated into machine language (Binary).

The reason the Binary System works well in computers is that it is to the base 2 and thus has only two states, On-Off, Yes-No, 0-1. This can translate into a simpler circuitry than if the computer had to deal with

a number system with 10 characters. But the Binary System is hard for the human to grasp quickly. For instance the number 1234 would be represented in Binary as 0100 1101 0010.

Thus the Hexidecimal system that compressed Binary was developed. In this system four Binary digits are represented in one Hexidecimal character. The main problem was that Hexidecimal is to the base 16 and since there are only 10 numbers, the letters A thru F were borrowed to represent the additional 6 characters. The same 1234 Decimal figure that was 0100 1101 0010 in Binary would be 4D2 in Hexidecimal.

To explain these systems in detail is beyond the scope of this article, but you are encouraged to seek out more information if you do not have this knowledge. What this program does is to translate between Binary, Decimal and Hexidecimal. Studying the concepts of these mathematical systems and checking the results with this program will make you more computer wise.

Charles Ball, editor

```

100 REM THIS PROGRAM COMPUTE
S THE
110 REM HEX, BINARY, AND DEC
CONV
120 REM VALUES OF ANY NUMBER
ENTERED.
130 REM
140 DIM BINVAL$(15),HEXVAL$(
255)
150 CALL CLEAR
160 PRINT "DEC, HEX/BINARY CO
NVERSIONS":
170 PRINT "ENTER DECIMAL NUM
BERS IN THE LEFT HAND:"
OR EXAMPLE, 10745"
180 PRINT "ENTER HEXADECI
MAL NUMBERS:"
BY ENDING THE
NUMBER WITH:"
AN H,"
190 PRINT "FOR EXAMPLE, FE45
H"
200 PRINT "ENTER BINARY N
UMBERS BY:"
ENDING THE NUMBE
R WITH B."
210 PRINT "FOR EXAMPLE, 1101
00"
220 REM
230 REM LOAD THE LOOKUP TABL
ES
240 PRINT "LOADING TABLES
...":
250 FOR I=0 TO 15
260 READ BINVAL$(I)
270 NEXT I
280 FOR I=0 TO 255
290 READ HEXVAL$(I)
300 NEXT I
310 PRINT "ENTER THE VALU
E"
320 INPUT " (X TO END)->":A
$
330 IF A$="X" THEN 410
340 BAD=0
350 GOTO 420
360 IF BAD THEN 370
370 PRINT "DECIMAL=";DEC
380 PRINT "HEXADECIIMAL=";HE
X$
390 PRINT "BINARY=";BIN$
400 GOTO 310
410 STOP
420 REM CHECK THE DATA TYPE
430 REM THEN GOSUB THE RIGHT
440 REM ROUTINES
450 LAST$=SEG$(A$,LEN(A$),1)
460 IF LAST$="B" THEN 550
470 IF LAST$="H" THEN 600

```

```

480 GOSUB 770
490 IF BAD THEN 540
500 DEC=VAL(A$)
510 GOTO 650
520 IF BAD THEN 540
530 DEC=840
540 RETURN
550 BIN$=SEG$(A$,1,LEN(A$)-1)
)
560 GOSUB 1140
570 IF BAD THEN 590
580 GOTO 650
590 RETURN
600 HEX$=SEG$(A$,1,LEN(A$)-1)
)
610 GOSUB 980
620 IF BAD THEN 640
630 GOSUB 840
640 RETURN
650 REM DECIMAL TO HEX CONVE
RSION
660 V=DEC
670 HEX$=""
680 X=INT(V/256)
690 B=V-X*256
700 HEX$=HEXVAL$(B)&HEX$
710 IF X=0 THEN 740
720 V=X
730 GOTO 680
740 IF SEG$(HEX$,1,1)<"0" T
HEN 760
750 HEX$=SEG$(HEX$,2,255)
760 RETURN
770 FOR I=1 TO LEN $)
780 IF POS("0123456789",SEG$
(A$,I,1),1)=0 THEN 810
790 NEXT I
800 RETURN
810 PRINT "ILLEGAL CHAR ("
";SEG$(A$,I,1);" IN:"
DECIM
AL VALUE ";A$
820 BAD=-1
830 RETURN
840 REM HEX TO BINARY CONVE
RSION
850 BIN$=""
860 FOR I=1 TO LEN(HEX$)
870 C=ASC(SEG$(HEX$,I,1))
880 C=C-48
890 IF C<10 THEN 910
900 IF C<(10)+(C>15) THEN 950
910 BIN$=BIN$&BINVAL$(C)
920 NEXT I
930 RETURN
940 PRINT "ILLEGAL CHAR ("
";SEG$(HEX$,I,1);" IN:"
HEX

```

```

VALUE ";HEX$
950 BAD=-1
960 RETURN
970 REM
980 REM HEX TO DECIMAL CONVE
RSION
990 DEC=0
1000 L=LEN(HEX$)-1
1010 FOR I=1 TO LEN(HEX$)
1020 C=ASC(SEG$(HEX$,I,1))
1030 C=C-48
1040 IF C<10 THEN 1060
1050 C=C-7
1060 IF (C<0)+(C>15) THEN 111
0
1070 DEC=DEC+C*(16^L)
1080 L=L-1
1090 NEXT I
1100 RETURN
1110 PRINT "ILLEGAL CHAR
(";SEG$(HEX$,I,1);" IN:"
HE
X VALUE ";HEX$
1120 BAD=-1
1130 RETURN
1140 REM BIN TO DECIMAL CONV
ERSION
1150 DEC=0
1160 L=LEN(BIN$)-1
1170 FOR I=1 TO LEN(BIN$)
1180 C=ASC(SEG$(BIN$,I,1))
1190 C=C-48
1200 IF (C<0)+(C>1) THEN 1260
1210 IF C=0 THEN 1230
1220 DEC=DEC+2^L
1230 L=L-1
1240 NEXT I
1250 RETURN
1260 PRINT "ILLEGAL CHAR
(";SEG$(BIN$,I,1);" IN:"
BI
N=";VALUE ";BIN$
1270 BAD=-1
1280 RETURN
1290 DATA 0000,0001,0010,001
1
1300 DATA 0100,0101,0110,011
1
1310 DATA 1000,1001,1010,101
1
1320 DATA 1100,1101,1110,111
1
1330 DATA 00,01,02,03,04,05,
06,07
1340 DATA 08,09,0A,0B,0C,0D,
0E,0F
1350 DATA 10,11,12,13,14,15,
16,17
1360 DATA 18,19,1A,1B,1C,1D,
1E,1F

```

```

1370 DATA 20,21,22,23,24,25,
26,27
1380 DATA 28,29,2A,2B,2C,2D,
2E,2F
1390 DATA 30,31,32,33,34,35,
36,37
1400 DATA 38,39,3A,3B,3C,3D,
3E,3F
1410 DATA 40,41,42,43,44,45,
46,47
1420 DATA 48,49,4A,4B,4C,4D,
4E,4F
1430 DATA 50,51,52,53,54,55,
56,57
1440 DATA 58,59,5A,5B,5C,5D,
5E,5F
1450 DATA 60,61,62,63,64,65,
66,67
1460 DATA 68,69,6A,6B,6C,6D,
6E,6F
1470 DATA 70,71,72,73,74,75,
76,77
1480 DATA 78,79,7A,7B,7C,7D,
7E,7F
1490 DATA 80,81,82,83,84,85,
86,87
1500 DATA 88,89,8A,8B,8C,8D,
8E,8F
1510 DATA 90,91,92,93,94,95,
96,97
1520 DATA 98,99,9A,9B,9C,9D,
9E,9F
1530 DATA A0,A1,A2,A3,A4,A5,
A6,A7
1540 DATA A8,A9,AA,AB,AC,AD,
AE,AF
1550 DATA B0,B1,B2,B3,B4,B5,
B6,B7
1560 DATA B8,B9,BA,BB,BC,BD,
BE,BF
1570 DATA C0,C1,C2,C3,C4,C5,
C6,C7
1580 DATA C8,C9,CA,CB,CC,CD,
CE,CF
1590 DATA D0,D1,D2,D3,D4,D5,
D6,D7
1600 DATA D8,D9,DA,DB,DC,DD,
DE,DF
1610 DATA E0,E1,E2,E3,E4,E5,
E6,E7
1620 DATA E8,E9,EA,EB,EC,ED,
EE,EF
1630 DATA F0,F1,F2,F3,F4,F5,
F6,F7
1640 DATA F8,F9,FA,FB,FC,FD,
FE,FF

```

"Evolution of a Failure" by Chris Bobbitt

The story of IBM's efforts in the microcomputer industry is a story of a company's inability to adapt to a marketplace. In short, IBM has ultimately been a failure in imposing its will on the computer industry. This story is a parable of the dangers of corporate gigantism, and an illustration yet again, of how a properly motivated David can knock off a Goliath any time and anywhere.

In 1982 IBM placed its seal of approval on the microcomputer industry with the introduction of the IBM PC. Micros had been in constant use, particularly in small businesses and by professionals and farmers since the introduction of CP/M in 1977 by DRI. The microcomputers, by the standards of today (which have in no part been set by IBM, but I'm getting ahead of myself now), were clunky and slow. They used little graphics or sound (this was reserved for "home computers" like the Apple II, Atari 400, Commodore 64 and TI-99/4A). However, they were very functional. Visicalc, the forerunner of all spreadsheets (now considered an indispensable tool by all businesses), was invented and propagated on such machines. Word processors, databases, and telecommunications flourished years before IBM ever sold a single computer for less than \$25,000.00. Until 1979 basically, the computer industry was IBM and everyone else. By 1982, it was IBM, everyone else and Apple, Atari, Texas Instruments, Radio Shack, etc.

It was at this point that IBM decided to make their own entry into the micro world. Like a dinosaur sensing its own extinction unless moved to action, IBM set up an "entrepreneurial corporate unit", basically a company within a company, to design and build a computer aimed at small businesses and individuals. This machine, by corporate dictum, was to "break no new ground". The designers succeeded with flying colors, later to the ultimate dismay of the very corporation that sponsored it. They basically designed a machine that was obsolete 3 years before it was introduced. Most aspects of the machine were basically a retrogression to an earlier era.

IBM used strictly off-the-shelf components that they could purchase cheaply (the better the profit margin, my friend), and an obsolete design based on a horrible misfit of a chip manufactured by Intel. The only saving grace of the chip was that it had "16-bits". This made the IBM PC, as it was dubbed, the second widely available 16-bit machine, the other was based on a strange chip called the 9900, by TI, which was so off the wall and unique in its design approach that normally conservative computer system designers couldn't make head or tails of it, even though it was the most innovative chip ever released at that time. It was a chip that only a hard boiled techie could love, and has since been relegated to same. The 9900 later became a commercial failure, due to TI's inability to sell to anyone but the

government, but that's a different story.

When it came time to find an operating system for this machine, IBM went to a small company called Microsoft, whose major claim to fame at the time was its Microsoft-Basic the standard for basic languages now and then. Microsoft was told to get an operating system fast, but to tell no one what it was doing. Bill Gates, president of Microsoft, approached DRI (then second largest software company in the world after Visicorp-maker of Visicalc), and asked them to do a custom operating system for an unspecified manufacturer within 3 months. Dr. Kildall of DRI basically told him to take a number since he was busy porting CP/M to 20 or so machines at the time. Gates' response was to dust off a CP/M clone that had been lying on a back shelf since 1978, purchased for \$4000 from 2 brothers in Oregon, rename it MS-DOS, and offered it to IBM. IBM's response was "we don't care what it is as long as it works". Thus was born MS-DOS, and source of Microsoft's fortune since.

The IBM PC was released in the early part of 1982 to generally bad reviews. Most of the computer magazines of the time were run by people who had a good knowledge of computers, and they recognized the PC for what it was - a real piece of garbage (or at least nothing compared to your average S-100 system). Despite the efforts of a number of anti-establishment heroes of the early computer revolution, this was to become the standard, at least until recently.

While the computer press wrote the machine off, the big business press went wild over it. Companies who had never dreamed previously of purchasing a computer for less than \$300,000.00 were now given the green light to buy a machine for, individual users, for about \$3,000.00. A popular phrase at the time, "No one was ever fired for buying IBM", took on a new significance as suddenly the Fortune 500 set woke up and realized that micros could do things - useful, productive things. A small company, called "Lotus Development Corp.", sensed an opportunity and introduced a Visicalc knock-off called "Lotus 1-2-3" for the PC, and the machine took off. Soon every big accounting company in New York had hundreds of the things, and were widely recommending their usefulness to their big clients. Within 2 years, all the early critics of the machine were either out of business, or sold out to the new faith. A standard was born!

The seeds of the PC's rise were later its doom. While the PC itself was a machine of marginal, even poor capability, it had what is known as an "open architecture". Since all the components for the machine were easy to find as well as technical information for it, by 1984 there were hundreds of devices on the market to correct the many shortcomings of the machine. With an infusion of cash, Intel took-off and produced the 8086, (thus was born the IBM PC XT) and then the 80286 (introducing the IBM PC AT). While the other chips corrected the

many problems with the 8088 (which reportedly was so ill-designed that it had bugs in the built-in controlling software that sometimes made a program never run the same each time), they basically expanded upon a design ideology that was reaching its physical limit of expansion.

Another difficulty was rising in the east - the far east actually. Because the components of the IBM PC family were low-technology items in the scale of things, the "clone" was born. This is a machine that is basically a copy of the IBM PC. Because many of the makers of the clones included things as standard that were optional with the PC series (such as faster memory and processors) it soon became apparent that the IBM PC family was technically inferior to its imitators (not too difficult a thing to be actually). Because components were standardized so much and the construction process downright simple, the only real basis of comparison between machines became price, not quality, features or technology. As a result, within a 2 year period most computer component production in the United States fled overseas where it was cheaper to build the machines. The IBM standard had a stranglehold on 70% of the market, and the only way to compete for this 70% was if you were cheaper than the other guy. Hence was born the "competitiveness" issue so popular recently in political circles. IBM basically stabbed the American high-tech industry in the back. Production shifted almost completely overseas in response to a more price sensitive situation. (Early computers were almost always completely constructed in the U.S. As a matter of fact the last micro to be completely made over here was the TI-99/4A in Lubbock). Between the years of 1982 and 1985, more than 50,000 jobs in the high-tech industry fled over-seas because of the "IBM standard."

So, a number of simultaneous events were happening. The IBM standard was approaching the limits of its inherent expandability, production was rapidly shifting off-shore as a basis of competition became price, and the number of clone manufacturers jumped from 10 to 500. At the same time, IBM's market dropped from 50% of the micro market to 25%, and their profit margin fell in half due to competition. If this wasn't enough, the Fortune 500 crown soon became familiar enough with micros so that they were now not afraid to buy clones that were technically superior - so much so that the catchphrase today is "You may be fired for buying IBM!". Even the U.S. government was purchasing Zeniths, Compaq and WP clones! The last nail in the coffin was struck by a small competitor of IBM, Apple.

In 1982 Apple had 40% of the computer market. By 1984 it had dropped to 12%. However through this period Apple's profitability trebled, and it introduced a machine that was so obviously technologically superior that it has become a legend - The Macintosh. While never having

(continued on page 7)

"Evolution"- -A Rebuttal by Al Kinney

TECHNOBABBLE: A psuedo language, wherein the person using it strings together a group of half-truths, lies, innuendoes, jargon and semi-technical phrases. This is usually foisted off on an unsuspecting audience, represented as the gospel in such matters as are being discussed.

I've recently come across one of the most inane, ill-thought out harangues of Technobabble against IBM, Intel and anyone who ever uttered their names that I've ever had the misfortune to read. It is called "The Evolution of a Failure", by Chris Bobbitt. Ordinarily, I would just let it go, but unhappily, it comes from one of the TI community's more "well known" individuals. It is unhappy, because there is more than enough truth to make his indictment of certain things very factual and irrefutable. However, he either totally doesn't understand what he was expounding on, or he chooses to ignore the facts. Whatever the case, it is abundantly clear he didn't do his homework.

The author makes reference to IBM's choice of the Intel 8088 for the CPU of their new desktop Personal Computer. First, however, he characterizes Intel as a "half bankrupt microprocessor house." Since Intel's beginnings it has posted continuous growth and profitability, with the single exception of 1987. During the period when IBM was considering chips (1981), Intel's revenues were in the \$789,000,000 annual range. Not bad, for being "half bankrupt." Also, at the time, Intel's bread and butter products were dynamic memory chips, which it had invented. The next obvious inaccuracy is in the assertion that "With the infusion of cash, the failing Intel took off and produced the 8086, (thus was born the IBM PC XT)..." This shows the author's blissful ignorance of the subject he is attempting to expound on. The PC/XT is ALSO based on the 8088, running at 4.77 Mhz, not the 8086, as he asserts. In fact, IBM never marketed a system based on the 8086. Worse, in my opinion, is the blissful ignorance of the fact that the 8088 was developed AFTER the 8086. The 8086 was already on the shelf as a finished product, long

before IBM chose the 8088. IBM decided it would be too expensive to create a 16 bit bus, especially since there was no software support to take advantage of such a structure. Yes, the decision was a compromise. When you grow up and get into the REAL world, you'll come to learn life is FULL of compromises.

IBM's decision was based purely on business, not some deep-seated desire to penalize the world; you bet, profits were a MAJOR part of the decision process. IBM has NEVER been in business for philanthropical reasons. It might be interesting to note, the 80286 was already on the drawing boards at "the failing Intel", when IBM purchased stock in Intel. One other point of interest...if the 8088 is such a disgusting piece of junk, just how would you try to account for the fact that 1987 is the first year that sales started to decline on it. And that there a now several BILLIONS of dollars worth of software and hardware designed around the little beastie. Sorry, but your "facts" stink! To paraphrase someone, "You can fool some of the people all of the time, and all of the people some of the time, but you can't fool all of the people all of the time!"

It amazes me that the author can cite a failure on IBM's part because their original design was not the ultimate product, that clone makers could copy it, without any engineering overhead, because IBM graciously published all the specifications for the bus design. And somehow he sees it as a failure that someone could actually IMPROVE on that basic design. Then, just to carry things to the height of foolishness, he declares (I'd venture to say a bit prematurely) IBM's death, all based on its ridiculous attempt to build a computer for the masses. Gee, I wish I could fail like that. I suppose the author thinks that Apple is a ROARING success, because nobody has cloned the Macintosh. I, on the other hand, think it not necessary for someone to clone the Macintosh. Apple is quite capable of meeting all the demand there is! Talk about success! There is a TOTALLY closed system. I wonder if that is the model

for success the author would choose for the rest of the world. Gosh, I'm sure glad his decisions only affect him. "By 1986 it was obvious that the IBM standard was going to fade into oblivion..." Now THERE, is an observation I REALLY like. During 1986, one particular little operation of Intel's was making add-in boards for the now defunct IBM standard, to the tune of almost \$100 million dollars, and it was still considered a 'start-up' operation. Intel wasn't even sure if it was going to keep it around. First, the author condemns the Big Blue for being so stupid to build a product that isn't state of the art and is too easy to copy. Then he turns around and berates them for going the other way and building a machine using the latest in Gate Array technology, assembled in robotic manufacturing facilities, using some new stuff the off-shore clone makers just aren't likely to have for a while. \$20-100,000 to develop a Gate Array? That's CHEAP, when it comes to the development costs associated with building a new computer. I work at Intel and we're spending more than that, just to update one board design, let alone the funds necessary to create a new one.

The bottom line of this message, if you've stuck with me this far, is not that IBM did everything, or for that matter ANYTHING, right. The bottom line is, if you are going to represent yourself as an expert on the subject you should at least have a working knowledge of the material. Opinions are like armpits. Everybody has at least two, and they all smell different. The author is more than welcome to his opinion, and so is anyone misguided enough to believe everything he says. But the least we owe our readers is fair and accurate representation of the FACTS, not line after line of TECHNOBABBLE!

If only IBM had released the 99/4A, not TI...just think of the support we would have THEN! Well then, this is MY opinion of the price of eggs in China. I'm sure it doesn't have a darned thing to do with TI-99/4A computing, but then, neither did the original article.

--alk

(continued from page 6)

the success of the PC in big business, the Mac founded an industry. Electronic publishing (the art of using a computer to combine words and text on a page in typeset quality), has become a niche in art departments, newspapers, and small businesses all over the country. While software development for the Mac never began to approach that of the IBM world, what has been produced is so obviously of high quality that John Dvorak of the newspaper industry, was moved to declare that "all innovative software being produced today is on the Mac". The Mac has a profitable niche in the market that is expanding to

other areas as users in big business have begun to realize its utility elsewhere. It also showed the possibilities of graphics, sound, and ease of use. This was the straw that broke the camels back so to speak. The basic IBM PC lacks all those things.

By 1986 it was obvious that the IBM standard was going to fade into oblivion, and the IBM with it if IBM's profits were any indicator. As a matter of fact, in late 1986 IBM posted its first loss ever, including the years of the great depression. All due to the failure of its micro standard. "SOMETHING HAD TO BE DONE!" was heard throughout the hallowed

halls of the corporate bureaucracy. IBM had stepped on its cape. It had discovered that even the largest computer company in the world cannot ignore a basically technology driven market forever. The reaction was the birth of the rumors of a "clone killer".

These rumors materialized recently with the introduction of the PS/2 series of computers. Within the next 18 months, it will become laughably obvious how much of a failure IBM is. If the PC was IBM stumbling, the PS/2 is the outright fall. The PS/2 is IBM's attempt to imitate the Mac.

P.O. Box 15037
Portland, OR 97215

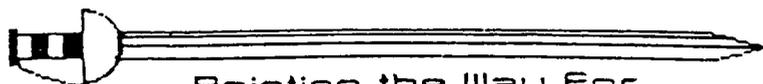


DISCLAIMERS: The PUNN User's Group is not affiliated with or sponsored by TI and has no relationship with them, implied or otherwise. Mention of a company or product is not an endorsement of that company or product. We are not a subsidiary or branch of any other User's Group and any relationship we may have with other groups is on the basis of equals.

ALL GENERAL MEETINGS ARE HELD
ON THE FIRST TUESDAY OF EACH
MONTH, AT THE PGE BUILDING
3700 SE 17TH AVENUE
PORTLAND, OREGON

!! NEXT MEETING DATE !!
MARCH 1ST, 1988

The PUNN Newsletter
WORDPLAY
P.O. Box 15037 Portland, OR 97215



Pointing the Way For Ri
Users of TI's 994/A Computer

March 1988-Volumn 7-No. 3
