THE HUGgers
HOOSIER USERS GROUP
People Helping People

APRIL 1992 | The HUGgers Newsletter | Volume 11, Number 4

As I understand the story, Gary Jones, owner of Cyclone International Business Machines, where we bought our copier, was one of those who got caught up in Operation Desert Shield/Desert Storm as part of the National Guard and almost lost his business in the bargain. Right now he's putting his business back together. In addition to giving us a really good deal on the copier as well as super service during the warrantee period, he's making us a heck of an offer: If we can send enough business his way, he'll replace our current copier with the next larger model in a one-for-one swap. Now that's a real incentive. Not only do we help our troopies (one of them, anyway), but we help ourselves as well.

His Trader ad is reproduced here for your reference. Gary tells me his business is sales, service, parts and supplies for ALL brands of copiers and fax machines and says he has the lowest prices in town. Gary said that he had to do a lot of running around in the past to make sure he had the lowest prices, but now Office Depot does a lot of it for him. He tells me all he has to do is beat their price because they've already checked out the competition. So, here's someone who not only has given us a good deal, but wants to give a good deal to others too. So let's try to send some people his way (and help ourselves in the process).

OFFICERS' CORNER

Change of Meeting Date!

OOPS! -- Several members noticed that our usual meeting date (third Sunday of the month) happened to be Easter Sunday and we sure can't meet then, so I thought we could move our meeting to the 4th Sunday in April.

OOPS, AGAIN! -- Now everyone noticed that we would conflict with the Dayton Hamvention (the world's largest hamfest). Grumble. So now I had to think about it. I finally decided to stick with the 4th sunday (April 26) for the following reasons: As those of us who have attended the Hamvention for the past few years know, they have made it into a three day affair. At first they were only open for part of Friday, but now Friday is bigger than Sunday. In fact, a lot of venders don't even bother to set up on Sunday. It used to be that venders would start packing up about noon on Sunday, but now they do it with more of a vengence. I was honestly surprised at the size of the crowds on Friday and how much business was done that day. Unless you are one who has to go for all three days, our meeting won't conflict. My suggestion is to avoid going to the Hamvention on Sunday anyway.

THIS MONTH'S MEETING

I'm afraid I didn't do that great of a job running the meeting last month. Hopefully, I'll be getting better at it. This month's meeting will actually have a program. Bryant Pedigo will be demonstrating Gary Bowser's 80 column video add-on, which installs in the console. Bryant has more information on it elsewhere in this issue.

LAST MONTH'S MEETING

Last month's meeting mainly covered two items: the report from Fest West, and whether to go with a maintenance agreement for our copier.

After discussing the options and costs, the members voted to get a 10,000 copy full maintenance agreement for $200 per year. This covers all expenses except paper. This price is guaranteed on renewals for the next two years.

Delbert and Darla Wright and Dan Eicher attended Fest West in Phoenix, AZ. As far as I know, this is the first time any HUGgers have been to this fair. Delbert and Darla drove out with a load of stuff for the club to sell (as well as making all the arrangements for a table and what-not — hats off to Darla for that). Unfortunately for Delbert, all he could report on was the view from behind the HUG table. It turned out that most of the crowd was different than at Chicago or Lima, so sales were quite good. The hammers did well and we sold out of Monty Schmidt's Tech Drive book.

LIMA FAIR

The next big event for both us and the TI community as a whole is the get-together at Lima, Ohio; more formally called the "Multi User Group Conference." The fair will be held on Friday and Saturday, May 15 and 16, at the Ohio State University Lima Campus, although I believe Friday is only for set-up and a get-acquainted party in the evening. As usual, most of us will try to car-pool up there. If you have never been to the Lima Fair, it's really worth the effort to go if for no other reason than to have access to the venders, individuals, and user groups (like us!) who have items for sale. Although the mail-order business may be showing signs of getting better, many in our group use the "what you get is what you see" approach these days - they only buy what they can see physically sitting in front of them. We'll have more information at the meeting and (hopefully) on the bulletin board. For those who wish to contact the conference hosts directly, here is their address:

Lima 99/4A Users Group
P. O. Box 647
Venedocia, OH 45894

You can reach Charles Good, the contact person, at (419) 667-3131 (evenings). Also, don't forget that Ohio is now 1 hour LATER than we are due to Daylight Savings Time! Our May newsletter will be out before the 15th; so for those who can't make it to the meeting, we will have the complete scoop in it (including directions, which I can't seem to find right now).

FRED'S NEWS

Our intrepid treasurer has picked up a few interesting tidbits of news. The 9T9 newsletter from Toronto, Canada, says that ESD, the hard drive controller people from Washington, DC, have yet another prototype for their IDE controller. (For those not into hard drives, an IDE hard drive is one of the newer types where the controller is built into the drive itself and the card you put into your computer is basically just an interface to the drive. These are the most cost-effective drives available right now.) They further state that Barry Boone will write the DSR (Device Service Routine - the software that controls the board), and prices will range from $160 to $300 depending on floppy and hard drive configuration. The board with a 40 meg drive is priced at $220. Their release date is April 15, 1992.

Also from 9T9 is news that it costs them $2.00 per exchange newsletter. I wonder how much of that is postage, expecially if going to the US. Right now the HUG newsletter costs about 51 cents to get to our members. Of course, as the Clarks found out on their trek north to Alaska, everything is MUCH more expensive in Canada.

Fred also reports that Linda Semler is giving him some much appreciated assistance with the books.

OTHER BBS's

We have two other bulletin boards supporting the TI in town now. Both use settings of 8 data bits, no parity, and 1 stop bit.

PALNET (861-4498), runs on a VAX, use VT-100 or ANSI emulations, SYSOP: Steve Brant. Travis Brant (a former HUG member) runs the TI section. This is the trickier of the two to get into. As soon as you are connected press the ENTER key. At the next prompt, type in "palnet" and follow the prompts from there. The TI section is found as part of the FILES section. This board has a very short time-out when first getting on-line. You might have to try more than once before you get the hang of it.

BRICE'S LIBRARY (353-0410) has limited hours. The sysop is Brice Fleckenstein, proprietor of Brice's Library - both a BBS and a used book and CD store seen at all the area hamfests. The BBS is located at his store, hence the limited hours. The downtimes are as follows: Tu, Fr, Sa, 11am - 6pm; We, Th, 11am - 8pm. These times are subject to change, so try voice first. Brice is FidoNet node 231/190 and has picked up the national TI FORUM echo. FidoNet is second only to the UNIX networks in size, and is by far the largest on microcomputers. It looks as though I'll have to write up something on FidoNet in a future newsletter. In the meantime, we should all try to log-on to his board as sysops won't keep an echo going if there's no interest.

LIBRARY NOTES & OTHER NEWS

Its been quite a while since this column has made an appearance, but since there have been several interesting programs and text files acquired recently, it seemed like a good time to resurrect this column. Among the new items that will be in the library and added to the BBs are the following:

PFC - A new program from the Netherlands called "Program File Compressor." This program compresses program files - i.e. E/A option 5 programs - by approximately 25%. As the file is loaded it decompresses. Compressed files can be run from floppys, ramdisks, or hard drives. As an example Barry Boone's Archiv 3.03 is normally 36 sectors long, compressed it is 26 sectors.

PATCH16-6 - A utility program for PagePro v1.6 by Ed Johnson. This assembly language utility will allow owners of PP v1.6 to customize PP to load with the desired colors, resident small, large and line fonts, and to preset default pathnames for external files.

OPA-CAT92 - OPA's new 1992 product catalog. Gary Bowser has added several very interesting new products. Among the most interesting are the following:

HORIZON RAMDISK ROS. v.9 This version is on an EPROM. This replaces the 8K RAM chip that normally holds the ROS. This will eliminate any possibility of the operating system becoming corrupted.

MORNING STAR RAMBO For owners of the Morning Star 128k memory cards. Allows easy access to this card's additional memory in the same manner as with a Horizon RD with RAMBO modification.

A RAMBO DEVELOPER'S PACKAGE ...provides a standardized easy to learn method of easily accessing RAMBO extended memory thru Assembly language programs.

(continued from last month)

PROGRAMMING MUSIC THE EASY WAY

PART 2

by Jim Peterson

In Part 1 I showed you how to set up a musical scale to create notes, and how to merge in various little routines to create a variety of musical effects, but I didn't tell you how to figure out what numbers to put in between those GOSUBs. So, here is the little program that makes it all easy.

```
100 CALL CHAR(127,"000F080F0
868F870000F08080868F87000080
8080868F8700008080808689870"
):: CALL CHAR(131,"000000000
0609070")
110 CALL CHAR(132,"0000120C4
8302040000221C0810200000201
0201030200000003CFF");: CALL
 CHAR(136,"000000FF3C")
120 CALL CLEAR :: S$="GFEDCB
A" :: CALL CHAR(45,"00000000
FF"):: A$=RPT$(S$,3):: FOR R
=2 TO 22 STEP 2 :: IF R=12 T
HEN 130 :: DISPLAY AT(R,1):R
PT$("-",28)
130 NEXT R :: CALL CHAR(98,"
00202028342428 30")
140 FOR R=1 TO 21 :: DISPLAY
 AT(R,1):SEG$(A$,R,1);:: NEX
T R
150 DATA 127,127,128,128,129
,129,130,130,131,131
160 DATA 1/16,1/8,1/4,1/2,1/
1
170 FOR R=1 TO 20 STEP 2 ::
READ N :: DISPLAY AT(R,15):C
HR$(N);:: NEXT R :: FOR R=3
TO 19 STEP 4 :: DISPLAY AT(R
,16):".";:: NEXT R
180 C=132 :: FOR R=1 TO 17 S
TEP 4 :: DISPLAY AT(R,17):CH
R$(C);:: C=C+1 :: NEXT R
190 FOR R=1 TO 17 STEP 4 ::
READ M$ :: DISPLAY AT(R,20):
M$;:: NEXT R
200 DATA 35,33,32,30,28,27,2
5,23,21,20,18,16,15,13,11,9,
8,6,4,3,1
210 FOR R=1 TO 21 :: READ N
.: N$=N$CHR$(N):: DISPLAY A
T(R,6):STR$(N);:: NEXT R
220 G$="b" :: Z=-1 :: GOSUB
320 :: IF F=0 THEN 230 ELSE
GOSUB 330 :: GOTO 240
230 G$="#" :: Z=1 :: GOSUB 3
20 :: IF F<>0 THEN GOSUB 330
240 DISPLAY AT(24,1):"Shorte
st note? 1/" :: ACCEPT AT(24
,18)VALIDATE("12468")SIZE(2)
BEEP:L :: T$="1/"STR$(L)::
RESTORE 160 :: FOR J=1 TO 5
:: READ L$ :: IF L$=T$ THEN
260
250 NEXT J :: GOTO 240
260 DISPLAY AT(24,1):"Is it
dotted? Y/N" :: ACCEPT AT(24
,19)VALIDATE("YN")SIZE(1):D$
 :: D=1-(D$="Y")
270 T=-3+J*4
280 FOR R=T TO 19 STEP 4 ::
DISPLAY AT(R,11):STR$(D);::
DISPLAY AT(R+2,11):STR$(D*1.
5);:: D=D*2 :: NEXT R
290 GOTO 360
300 FOR R=1 TO 20 STEP 2 ::
READ N :: DISPLAY AT(R,15):C
HR$(N);:: NEXT N
310 GOTO 310
320 DISPLAY AT(24,1):"How ma
ny "G$" on upper scale?" :
: ACCEPT AT(24,28)VALIDATE("
01234567")SIZE(1)BEEP:F :: R
ETURN
330 Y$="" :: FOR J=1 TO F ::
 DISPLAY AT(24,1):"On which
letter?"
340 ACCEPT AT(24,18)VALIDATE
(S$)SIZE(1)BEEP:L$ :: IF POS
(Y$,L$,1)<>0 THEN 340 ELSE Y
$=Y$L$
350 S=1 :: FOR K=1 TO 3 :: P
=POS(A$,L$,S):: DISPLAY AT(P
,2):G$;:: DISPLAY AT(P,6):ST
R$(ASC(SEG$(N$,P,1))+Z);:: S
=P+1 :: NEXT K :: NEXT J ::
RETURN
360 OPEN #1:"PIO" :: FOR R=1
 TO 22 :: FOR C=3 TO 30 :: C
ALL GCHAR(R,C,G):: CALL HCHA
R(R,C,30):: R$=R$CHR$(G)::
NEXT C :: PRINT #1:R$ :: R$=
"" :: NEXT R :: STOP
```

Get yourself a piece of sheet music and compare it to the screen display from that program. You will see that music is written on two sets of 5 lines. The upper set is marked at the left end with something like a fancy script capital S; it is used to write the higher notes, including the melody,

GENEVE EPROM UPGRADE Replaces the Geneve eprom adding the following features :

Ability to boot ANY version of MDos from any valid device or path.

An updated TI99/4a console ROM with a built in mouse driver and improved keyboard driver.

A version of the S.O.B. (Son of a Board) for easy program loading.

This file is already in the TEXT area of the BBS.

- BCP

HUG OFFICERS

President	Gregory Larson	783-4575
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DISCLAIMER

This newsletter is brought to you through the efforts of the officers and members of the HOOSIER USERS GROUP. Every member is encouraged to submit articles.

If you have an article you would like to share with the other members mail it to:

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Indianapolis, IN 46220

Opinions expressed are those of the author and not necessarily those of the HOOSIER USERS GROUP.

MONTHLY MEETING LOCATION
LITTLE HOUSE NEXT TO THE
ST. ANN'S SCHOOL
2839 S. McCLURE
INDIANAPOLIS, IN
MEETING STARTS
AT 2:00 P.M.
MARCH 26, 1992

. LEST WE FORGET
Next month is DUES month

H. U. G. MEMBERSHIP

Annual membership is $18.00
Due in May

New membership is prorated as follows:

May -------	April	$20.00
June ------	April	$18.50
July ------	April	$17.00
August ----	April	$15.50
September -	April	$14.00
October ---	April	$12.50
November --	April	$11.00
December --	April	$10.00
January +	annual	$26.00
February +	annual	$24.50
March +	annual	$23.00
April +	annual	$21.50

the same, you don't key that in either - just another GOSUB 1000.

If you have EZ-KEYS or another "hot keys" program, you can program a control key to put in the GOSUB 1000 with just one keypress - wish I had thought of that when I was programming music by the diskfull!

So keep plugging along, keying in durations and notes. After every half dozen notes or so, type RUN to see if everything sounds OK so far - it's easier to catch errors before they are too far back in the music.

You can get up to 5 screen lines on one line number, but you might better stick to 3 lines. You will note that the sets of notes are divided by vertical bars. You might program the notes between bars on a separate line, then add a ! followed by the words of the song that go with those notes - I find that a very good way to track down sour notes.

Regarding those bars - it might help you sometime to know this. At the beginning of the music, right after the big script S and the flats and sharps, you will see something like a 3 over a 4, or a 4 over a 4, or whatever but often a symbol such as a barred C is used instead. A 3 over a 4, for instance, means that the notes between two of those bars will add up to 3/4 - might be three quarter notes, or two eighth notes and two quarter notes, or whatever, but they will add up to 3/4. Sometimes the very first notes will add up short, but in that case the very last ones will make up the difference.

The notes between those two bars make up a bar of music, and the emphasis is on the first note - for instance, that 3/4 is the 1-2-3, 1-2-3 beat of waltz time.

While you are keying in that music, you might come to one of those rests. You can just key in its T= value and then A=0 for a silent note. However, computer notes stop so abruptly that somehow a rest just doesn't sound right, so I often just use the previous note instead.

You may come across one of those flat or sharp symbols next to a note in the music. Give the note a number 1 lower if a flat, one higher if a sharp, and the same for any subsequent occurrences of that note, until you find next to it a symbol that looks like the sharp sign with half its legs knocked off; that means to go back to normal. You might also come across that symbol to tell you to play a normally flat or sharp note as if it was not.

I think that covers all that you absolutely have to know for now, and I have horrified all serious students of music just about enough. There are all kinds of other squiggles on the sheet music but usually they are not essential in programming music.

There is one other time-saving shortcut that I should tell you about right now. Most music consists at least partly of musical phrases, of a series of notes, which are repeated two or more times within a melody. So, the first thing you should do before you start programming a song is to search through the music for such phrases.

If you find one, of more than a few notes, that is repeated elsewhere - and make sure it is repeated exactly the same - mark it off each place it occurs and label it 500. If you find a second repeating phrase, label it 600, and so on.

Then, when you start programming, start with line 500, key in that series of notes first, and end it with RETURN. If you have another phrase, put it in lines starting with 600, again ending with RETURN.

Now, start programming from the beginning of the song in line 120, but when you come to one of those phrases, just put in GOSUB 500 - the program will jump to that line number, play those notes, and come right back to where it was.

In Part 3, we will get into programming in 3-part harmony, bass notes, auto-chording, and all kinds of things.

which a pianist plays with the right hand. The lower set, marked with a sort of a backward C, contains the low notes played with the left hand. Your sheet music probably has a wide space between the sets, to make room for the lyrics, but there are really only three notes between them.

The screen display shows letters at the left, which are not on the sheet music. Those are the names of the notes, which we will have to refer to a couple of times to get started; observe that the notes are named A through G and then repeated.

The numbers along the left side are the numbers you will key in to play those notes. However, the screen display is set up in the key of C, which is played entirely on the piano white keys. The sheet music you want to program from may be in a different key, so -

The computer is asking you how many there are of something that looks like a squashed lower case b - I guess that's why they call it a flat? It means that the note will be played a bit lower, on the black key just left of the white key - and we will program it one number lower. So, look next to that capital S and see how many flats there are. If none, type 0. Otherwise, the computer will ask which letters they are next to. Type them in, one at a time, and presto - the computer will put them on the staff and adjust the numbers accordingly.

If there were no flats, the computer will want to know if there are any sharps - those are what you get by typing a shift 3 on the keyboard, and they mean that the note is played on the black key above the white key, and is programmed one number higher.

Now, the computer needs some information in order to help you set up the length of your notes - how long they are sounded. The various notes are depicted at the right. A 1/16 note is a little black egg with a stem (it may go up or down, makes no difference) and two flags on the stem. A 1/8 has only one flag and a 1/4 note has none. A 1/2 note is a hollow egg with a stem and a whole note has no stem.

Those little doodads to the right of the notes are rests, used to indicate a silent pause of the same length as that note - more on that later.

Look through your sheet music and find the shortest note. Tell the computer. It will want to know if any of those shortest notes are dotted - have a little dot to their right, as the screen display shows. A dotted note is played half again as long as normal.

Presto again, the computer will show you the duration number to key in for each note. Then, if you have a printer attached, it will print out an XBasic screen dump of that screen - you will have to squash your own b's and sketch in the notes and rests.

If your software library contains an assembly screen dump, delete that last program line and put in a CALL INIT, CALL LOAD and CALL LINK to get a better printout - or ask me for it. If you don't have a printer, why not copy those numbers right onto the corresponding lines and spaces on your sheet music, and number some of the notes.

Now we're ready to make music! Let's keep it simple at first, just a single note melody - and I hope you picked a simple piece of music. Clear the TI's brain with NEW, then merge in that line 100 scale from part 1 by MERGE DSK1.SCALE . In the same way, merge in one of those line 1000 CALL SOUND routines. Put in a temporary stopper line 999 STOP, and a line 110 D=200 to set the duration.

The melody is almost always on the upper set of 5 lines. If a note has 2 or 3 eggs on its stem, as they usually do, the upper one is the melody note - we will get into harmony later.

Start with line 110. Check your chart to see what number denotes the length of the first note - maybe 2, if so key in T=2 :: Then check to see what number applies to the position of the upper egg of that note. Maybe 22, so key in A=22 :: GOSUB 1000 Enter RUN, and if you've done everything correctly, you will hear the note. You might decide already that you want to change that 200 in line 110.

Now for the second note. If it is of the same length as the first, you don't have to type anything - that's what makes this shorthand method so quick and easy. If the note position is also

(Reprinted from March 1992 MICROpendium)

The TI and the IBM

Some BASIC comparisons

By BARRY TRAVER

This is the first of a series of three articles comparing the TI-99/4A and the IBM in general, and TI Extended BASIC and IBM QuickBASIC in particular. No, this is not an article to persuade you to give up your TI. If anything, it is the reverse! Each machine has advantages and disadvantages, and TI'ers should recognize that there are many things you can do on your standard TI that cannot be done on a standard PC. (If anyone thinks I'm overstating things, please withhold judgment until you have read the rest of this article.)

As I've said elsewhere, moving from the TI to the PC is not "moving up," but merely "moving over." True, you may gain a lot (e.g., access to powerful business programs like Lotus 1-2-3), but you lose a lot as well (more about that in a moment). In my opinion, getting an IBM (or, more likely, an IBM clone) makes the most sense IF it is a supplement to, and not a replacement for, your TI.

A TEACHING TOOL

Let me digress a minute to do a little parental boasting (although I'm not sure whether I'm boasting more about my son or more about my TI). When John Calvin was entering second grade, he already knew his times tables and how to multiply a three-digit number by a two-digit number (as well as do long division by a single-digit number) at a time when his classmates were just learning their addition tables. A gifted child, you say? Perhaps ... but that's not the point.

The point is that no matter how "gifted" you are, you don't automatically know how to perform mathematical operations like multiplication and division! You have to be specifically taught how to do those things. Well then, who taught John Calvin? It was "someone" who had more patience than his Dad ("Don't you know how to do that yet? I've shown you several times!") and "someone" who was able to keep his interest with lively music, colorful graphics, engaging animation, and clever speech. Yep, you got it: the "someone" was the TI-99/4A.

John Calvin learned his math on the TI, receiving instruction in the concepts from Scott, Foresman and getting appropriate drill from Milliken, an unbeatable combination in my opinion. (Has John Calvin, now in ninth grade, kept up in mathematics? I'll let you know at the end of this article.) The TI kept his attention with full-color graphics, "spritely" animation, realistic speech, and harmonious music. What the TI offered our family, it continues to offer anyone who has a basic TI-99/4A system (console, speech synthesizer, and appropriate cartridges).

The special features in the Scott, Foresman modules are also available to anyone who can program in TI Extended BASIC. The TI allows you to have 16 colors on the screen at the same time (not true, by the way, for the more commonly used IBM screen modes), and - more importantly - the TI makes animated sprites (graphical figures that you can make move across the screen) easy to do. In addition, if "a pretty girl is like a melody," the TI allows you to have music that is more than pretty, because you can add harmony to the melody. (Or, if you prefer noise and sound effects, TI Extended BASIC allows you that as well.) TI XB also lets your computer talk (with hundreds of words built-in, and an unlimited vocabulary available if you use TI's text-to-speech package).

GRAPHIC DIFFERENCES

Now, those exciting features that we take for granted on any basic TI system - colorful animated graphics, speech, multi-voice music - cannot be taken for granted on the IBM. You can spend $1,750 or more on a PC system, and end up with monochrome graphics. (Check the ads in PC Magazine if you don't believe me.) Although many IBM's now have color, there is a variety of add-on color cards that are in use: CGA, EGA, and VGA, just to name the most popular. On the TI, you can ordinarily assume that the standard TI'er will have color on his system. On the IBM, you not only cannot assume color capabilities, but there is no standard, common color configuration for those who do have color.

One thing is "standard" for graphics on the IBM, however. Regardless of what color card an IBM'er may have, it will not support the sprites we take for granted on the TI. It's not just that you don't have sprites with automotion (the ability to have figures keep moving across the screen once they're put in motion, without having to do anything "extra" to keep them moving): on the IBM, you don't have "true" sprites at all (regardless of whether you have CGA, EGA, VGA, or super-VGA!). You won't find any counterpart to the CALL SPRITE of TI Extended BASIC in QuickBASIC for the IBM. It's not just a language deficiency; the hardware simply doesn't support sprites.

Let me see if I can provide an analogy to illustrate the situation. On the TI, working with graphics is something like working with a background plus 28 overlays (actually 32, if you program in assembly). On the IBM, working with graphics essentially means working with a background. Period. Yes, you can "emulate" sprites to a certain degree, but what is really going on is more or less just a matter of continually re-drawing the background.

As some of you know from my CONEYGAMES, I like to program games for the TI in TI Extended BASIC. Some of them (e.g., NIMROW and SHUTOUT) are board games. It's not difficult on a TI to set up, for example, a red-and-black checkerboard with white and green checkers on it, and to move a checker from one square to another without messing up the background. In TI XB, CALL SPRITE and related statements make this rather easy to do. Well, it is not easy to do on a PC.

In the PC world, the two main companies that offer support packages for QuickBASIC are Crescent Software and MicroHelp Inc. These packages offer hundreds of routines to extend the powers of QuickBASIC (sort of like Jim Peterson's Nuts 'n Bolts disks for the TI). I talked with representatives from both companies (I even talked directly with Ethan Winder at Crescent), and I was told that they didn't have what I was looking for in ANY of their add-on

packages. Working with sprites on the TI is simple, because of the abilities of the 9918A video chip, but what is simple for us is difficult or impossible on the IBM PC.

SPEAK UP

Well, so much for programming colorful, animated graphics on the PC. (I didn't even mention the problems involved in doing un-animated graphics on the PC, such as having to deal with pixels that are rectangular rather than square!) Let's move on to speech. Even though it is an "extra," I suspect that almost all TI'ers have a speech synthesizer. (If they don't, they can ordinarily pick one up for $25 or less.) In the PC world, on the other hand, computers that can talk are in the minority. It involves purchasing a special card (e.g., AdLib or SoundBlaster), and not many people have made that investment. Just as TI XB's CALL SPRITE is missing from QuickBASIC for the PC, the same is true for CALL SAY. That is to say, QuickBASIC does not support speech.

Finally, let's take a look at music. Yes, QuickBASIC does support CALL SOUND, but it is rather pathetic in comparison to the CALL SOUND we have in TI XB. As I said earlier, all you get on the IBM is melody, no harmony, but the situation is even worse than that. In QuickBASIC, there is no provision for varying the volume of the sounds produced. (I suppose in some respects that doesn't make much difference, since most PC's just have a cheap internal speaker that isn't capable of much variation anyway. On a TI, in contrast, not only can you vary individual sound volumes with CALL SOUND, but the sound is output either through a TV set which also has its own volume control or through a high-fidelity sound system where you have an even greater control over the resulting sound.)

It is my opinion that the "bells and whistles" (and harmonious music and color and animation and speech) on the standard TI is not "frivolous frills," but essential for many of the uses to which a home computer is often put (e.g., education). Take away those things from the Scott, Foresman cartridges, for example, and I don't think my son's interest would have been enough to sustain his motivation to work through all the cartridges. No, true, such things may not be very important on a "business computer," but they are important if you want to make learning "fun" for children (and adults too, for that matter!). We have those features not only in the TI modules, but also in TI Extended BASIC, so that we can include them in our own programming.

I don't mean to "knock" the IBM (we have a PC clone ourselves in our house, and find it useful for certain purposes, and there are some areas - e.g., speed - where it may have an edge over the TI), but I think it is important for TI'ers to realize that the TI-99/4A in 1992 still has some advantages over the IBM. To summarize what has been said so far by way of comparison, in TI XB you have CALL SAY, CALL SPRITE, and CALL SOUND, whereas in QuickBASIC for the PC you have no CALL SAY, no CALL SPRITE, and only an impoverished CALL SOUND (unless you happen to have a Tandy, which uses exactly the same sound chip that is on the TI-99/4A). If these features are important to you (as they are to me), then I recommend that you keep your TI!

MATHEMATICAL ACCURACY

Now let's move on to something more serious than "fun and games," the matter of mathematical accuracy. Let's take a simple BASIC program and run it on both machines:

```
100 J=1
110 FOR I=1 TO 10
120 J=J + .1
130 PRINT J;
140 NEXT I
```

Running the program on the TI in TI Extended BASIC, here is the output:

.1 .2 .3 .4 .5 .6 .7 .8 .9 1

Running the program on the IBM in QuickBASIC, here is the output:

.1 .2 .3 .4 .5 .6 .7 .8000001 .9000001 1

That makes life interesting, doesn't it?!

A number of years back Creative Computing magazine ran some benchmark programs and concluded (surprisingly for that magazine) that the TI-99/4A was more mathematically precise than a standard IBM. The preceding BASIC program certainly seems to confirm that verdict. Maybe that is why the United States used the same 9900 CPU chip that is in our TI in one of the missiles that was used in (and responsible for) our victory in the "Desert Storm" Iraqi conflict this past year. QuickBASIC programming books warn you that instead of testing for an "equals" test, you should test to see whether your numbers are within a certain range of one another. This makes sense, because .1 + .1 + .1 + .1 + .1 + .1 + .1 + .1 does NOT equal .8 on the PC!

I apologize if this article seems to be somewhat heavy-handed in the basic (or BASIC) comparisons I have made, but I wanted to make the point that TI'ers should not be intimidated by the IBM nor be ignorant of features we have on the TI that are absent on the IBM. Admittedly, I have written an article in praise of the TI. To be perfectly fair, I should (and could) write an article in praise of the IBM, because there are many features I like about that machine as well (for example, QuickBASIC has a beautiful programming environment with features like full-screen editing, etc., so that I am now using QuickBASIC on the PC to help me write TI XB programs for the TI!). The ideal situation in my opinion may be to own (or at least have access to) both machines and take advantages of the unique features of each.

CONVERTING PROGRAMS

If you happen to have a TI and a PC, let me close with some encouraging words. As long as you aren't working with fancy graphics, music, or speech, it isn't difficult to convert BASIC programs between TI Extended BASIC and QuickBASIC on the PC. I've done a fair amount of converting BASIC programs (some of them fairly lengthy) between the two machines myself, and in the next two articles I'll share with you some of the tricks I've found. Next month's article will concentrate on going from TI Extended BASIC to QuickBASIC, and the following month's on the reverse.

There is a lot of overlap between the two languages (we'd naturally expect that, since Microsoft wrote TI BASIC as well as QuickBASIC, and TI XB is of course a superset of TI BASIC), but I'll be

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showing you some ways to handle the statements that are unique to one language (e.g., ACCEPT AT, CALL GHCAR, CALL HCHAR, CALL KEY, DISPLAY AT. MAX. MIN. RPT$ in TI XB, and DO...LOOP, LEFT$, LOCATE, LTRIM$, SELECT...CASE, UCASE$, WHILE...WEND in QuickBASIC). In addition, I'll note some places where the same word is used either slightly differently (e.g., STR$) or entirely differently (e.g., POS) in TI XB and in QuickBASIC.

In closing, let me say that I believe that the TI and IBM need not be competitors, but can be allies. In certain areas, the TI world has already benefitted greatly from the IBM world (for example, think of the TIPS graphics ported over by Ron Wolcott, not to mention RLE and GIF pictures brought over by others), and I believe that the relationship can be mutually productive (especially as we build a bridge between TI XB and QuickBASIC). Go ahead, buy a PC if you want; just be sure not to give up your TI (with its unique features that IBM has still not caught up with)!

Oh, you wanted to know about whether the animated color graphics, speech, and sprightly music of the Scott, Foresman modules for the TI-99/4A made any long-lasting difference in my son's mathematical progress? Well, the TI can't claim all the credit (my son insists that we give due recognition to the excellent math textbooks by John H. Saxon, Jr. that we used the past couple of years while home schooling before John Calvin entered ninth grade this past fall), but he is now taking calculus at Phil-Mont Christian Academy (all the other students are twelfth graders) and has the highest average in the class! It all started with the TI, and even today I do not know any computer programs for elementary math (even for the IBM) that can match what the TI has to offer. Likewise TI Extended BASIC itself as a language continues to have many useful, unique features that we ought not to give up. (I may be exploring some of these in a separate series in this magazine.) Hang in there, and keep on compuTIn'!

CALL A CAT

Call a Cat is the new library/modem program that allows you to access the library computer from your home computer. If you have a modem just go to the public library and get a yellow form that tells you what kind of modem set up is needed to access the catolog. It also tells you, once you have your modem set, how to proceed. If you are interested, get one of these forms at your local library.

After you find out how it is done please let us know. We have been trying and we can't get it to work on the TI-99/4A, using Telco.

By: Greg Stahlhut

PROGRAMMER'S DILEMMA

by Don Lester, Vancouver, BC

I sit before my 4A
The screen is cold and black
I push the keys I think will work
But nothing's coming back.

I know it's not the RAM or ROM
Since they were both just tested.
Maybe it's hung up
In some deep loop I'd nested?

The floppy drives sit silently
Their little lights are out.
I search the screen for any clue
To what it's all about.

Could it be a vicious virus
Deep down in the root?
All else fails, I push the button
To go for a reboot.

But nothing works!! Is there no cure?
I must seek out this bug.
That's when I look down and see
That someone's pulled the plug!

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