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## **Neil Harris Remembers the VIC-20**

- from an interview conducted by Rick Melick on January 3, 1997

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**** CBM BASIC V2 ****
3583 BYTES FREE
READY.
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>Describe your position at Commodore and your role in the VIC-20

I was hired as a member of the VIC-20 product launch team in January, 1981. I reported to Mike Tomczyk, the product manager.

I had learned to program in BASIC during high school in the early 1970's. In the mid-70's, after dropping out of Cornell University, I was earning a living as a programmer, writing accounting software in BASIC. It was very dull

work.

Then in 1978, Commodore opened a computer store in Philadelphia. I was hired there, and worked in several other retailers. I wrote several programs and articles for PET User Notes, and worked in several stores. Then one day I heard of a job fair that Commodore held soon after moving their offices from California to the Philadelphia suburbs. When I described my background to the human resources lady, including programming a PET, writing, and sales, she immediately steered me to Mike Tomczyk.

Mike was a huge influence on me and on the Vic-20. He was really the main man. On the org chart I don't know where he reported, but like most important people at Commodore he reported right to Jack Tramiel when it counted. Mike taught me a lot about marketing. After working for Mike, it was hard not to make that my career path.

On my first day on the job, Mike showed me a manuscript for the VIC-20 user manual, which had been written by an outside company. The book needed a lot of work. The Vic-20 group was so small that we could not get our hands on computers, so the very next day I brought in my old Smith Corona portable typewriter and rewrote the manual from the ground up.

About a month later I heard from an old friend- Andy Finkel, who I knew from my high school days -- we learned on the same computer system, worked at Star Trek conventions, and both went to Cornell. Andy was looking for work. I told Mike to interview him the next day and to hire him right away! Andy was a wizard, and he also knew the PET computer. The VIC was very much like a PET. And we needed the help.

I spent the first six months writing and programming. Then I was promoted to assistant product manager. Six months after that I was promoted to a sales support position, working for the sales team that got the VIC into K-Mart, Sears, and the other big accounts. A year later and I became manager of the publications group, including Commodore's magazines and the online area that opened on CompuServe. I left Commodore in late 1984, to join Atari along with many expatriated Commodorians.

>Describe the corporate climate and work environment at Commodore?

When I joined Commodore, it was about a \$50 million a year company, most of the business coming from Europe. The US presence was virtually nonexistent.

The US company was mainly interested in selling PET and CBM computers into business. One of the PET software managers used to joke that the VIC was something that would be given away free when someone bought a PET.

We knew better. Mike was careful to forge us into an independent team. We called ourselves the VIC Commandos. We did everything together, including taking long lunches at the local video arcades -- for R&D, of course.

Often we couldn't get supplies, or even office space. In the early months we crashed in the office of the service manager, who let three of us work on a table in half his office. Since we could rarely requisition equipment, we would stay late and swipe what we needed from the PET guys. They could get their requisitions filled for those missing pieces, and we got our work done.

>How did your work on the Commodore VIC-20 help you with your career today?

At Commodore I made the transition from techie to business. I became more confident in my abilities, seeing them applied to a huge industry instead of mom-and-pop computer stores. I became absolutely hooked on online services.

>What are you doing these days?

I'm executive vice president of Simutronics Corp., the leader in creating multi-player computer games for the online services. I joined the company in 1993 after five years as GENie's marketing director. While at GENie I also went back to school, finally, and got a degree in business.

I'm part owner of the company, responsible for the money side of the business -- sales, finance, and marketing. We offer games

One of the first programs I wrote on a PET, back in 1978, was a video game called *Deflection*. The program was based on a game first described in an issue of *Kilobaud* magazine (now called *Microcomputing*), and written in 8080 assembly language. I had seen the game working on a PET, but it was slow and full of bugs, so I wrote my own from scratch.

Recently, I was re-organizing my old diskettes, and I stumbled across this game once again. It had always been fun to play, but was written for the 40-column PET. My programming instincts got the better of me, and I decided to change the program so it would work on any of our machines.

The modifications only took 15 minutes. The program works by POKEing to the screen, and the main difference between Commodore computers is the location and size of the screen. The PET's screen has 25 lines of 40 characters each, with screen memory beginning at 32768. The CBM (and SuperPet) has 80 characters per line, starting in the same place. VIC 20's screen is 23 lines of 22 characters each, beginning (in an unexpanded VIC) at 7680. The Commodore 64 has 25 lines of 40, beginning at 1024.

Lines 1050 through 1053 set the factors for your machine. Omit the words REM and the machine name on the correct line. In other words, for a PET just erase the words REM PET from line 1051. For a Commodore 64, omit the REM 64 from line 1053.

Those of you with computers that can make sounds may want to add sound effects to this program. You should use different sounds for bouncing the ball off walls, deflectors, and blocks. Put sound effects on line 3400 for hitting a block, line 5200 for a wall, 2400 for one deflector, and 2500 for the other.

When youngsters play, you might want to change the messages in line 5600 to some a little less nasty.

The object of the game is to bounce a

including Gemstone, Dragonrealms, CyberStrike, and ArchMage on America Online and other services.

>Does the VIC-20 hold a special place for you, or was it no more/less significant than the machine on your desk right now?

The VIC-20 was a special system at a special time for me. Despite the many obstacles, we succeeded as well as we expected, much more than anyone else might have expected. We were up against fierce competition and won.

On the other hand, don't try to get this Pentium system away from me. We've come a long way since 1981.

>The VIC-20 Programmer's reference Guide was an excellent publication. How long did it take to compose, and what were some of the unique challenges in writing it?

As PET hackers, we knew what information people needed, especially since so much of it had never been documented by Commodore. We jumped at the chance to write a definitive Programmers Reference Guide. We enlisted the aid of a young British programmer Paul Higginbottom and split up the technical work among the three of us (myself and Andy). I wrote the outline and the sections on BASIC. Mike Tomczyk wrote the introduction and some of the examples, and Andy and Paul tackled the memory maps and assembly language. The team was by-god-determined to open up everything inside the machine in order to make life as easy as possible for software developers.

speeding ball into blocks placed at random on the screen. You bounce the ball by placing deflectors in its path. You must time the placement just right, and placing too many deflectors will make the ball bounce on a crazy path all around the screen.

On the PET and CBM, deflectors are created using the two slashes. On the VIC and Commodore 64, the backward slash was replaced by the English pound sign.

There is one subtle special feature in this program. The variable Z holds what I call the "fudge factor". Any time the person using the program types an inappropriate answer, like in line 1100, the fudge factor is increased. It also increases if the person uses the QUIT option to end a game. This factor is deducted from the score at the end of the game. If someone is good and types legitimate answers, they get a small bonus. If they were bad, their score goes down.

C=Power/Play, 1982

```
1000 REM--DEFLECTION BY NEIL HARRIS
1050 REM  CEN  SS=32768:ND=60:HT=25:SE=SS+ND*HT-1:POKE59468,12
1051 REM  PET  SS=32768:ND=40:HT=25:SE=SS+ND*HT-1:POKE59468,12
1052 REM  VIC  SS=7680:ND=22:HT=23:SE=SS+ND*HT-1:POKE36979,8
1053 REM  64  SS=1624:ND=40:HT=25:SE=SS+ND*HT-1:POKE50381,6
1100 Z=-10:INPUT"ENTER INSTRUCTIONS":AF:
IFLEFT#(AF,1)"N"THEN1400
1200 IFLEFT#(AF,1)"V"THEN4300
1300 Z=Z+10:GOTO4300
1400 INPUT"TARGETS":AF:R=VAL(R#):IFAC10R0,
S*ND*HTTHENZ=Z+10:GOTO5000
1450 INPUT"SPEED (0-9)":J4:IF04<0THENZ=Z+10:GOTO1450
1500 PRINT"Q":IF0FL=0T0MD-1:POKESS+L,96:POKESE-L,96:NEXTL
1510 FORL=ND0:HT-2:MDSTEPMD:POKESS+L,96:
POKESS+ND+L-1,96:NEXTL
1530 IFR=440THEN5700
1550 FORL=1T0R
1600 N=INT(RND(1)*ND*HT)+SS:IFPEEK(N)<0:32THEN1600
1700 POKEW,100:NE:TL
1750 FORL=SST0SE:IFPEEK(L)<0:32THENNEXTL
1800 F=0:T=R:P0=L:100:L=D=70N(RND(2)-.5):T1#="000000"
:IFRND(3)>.5THENL=ND40
1900 NP=F0+0
2200 T=PEEK(NP):GETA#:IFJ=30THEN3100
2225 IFJ=96THEN5200
2250 IFJ=91THEN5250
2300 IFJ=102THEN3400
2350 GETA#:IFAJ="Q"THEN5100
2400 IFJ=77THEN2900
2500 IFABS(D)=1THEN2700
2600 D=-D:ND:GOTO5250
2700 D=-ND+0:GOTO5250
2800 IFABS(D)=1THEN3000
2900 D=0:ND:GOTO5250
3000 D=D*ND:GOTO5250
3100 IFAJ="Q"THEN5100
3150 IFAJ="#"THENF=F+1:POKENP,78:GOTO1900
3200 IFAJ="."THENF=F+1:POKENF,77:GOTO1900
3300 P0=NP:POKE00,32:F0R05=1T004*5:NEXT:POKER0,91:100=F0:GOTO1900
3400 T=T-1:IFTD>0THEN3100
```

We worried that people would get wind of what we were doing and forbid us from publishing the schematics. So we never, ever asked for permission.

>What do you think of the VIC-20 emulators, and the effort to preserve the history of the VIC-20 for future generations of computer enthusiasts?

It was a very strange feeling to boot up a VIC-20 emulator on my PC and see the old VIC BASIC prompt after all these years. My old demo tape still ran! (I can prove it's mine -- the screen with the mailing list puts my name in the blank.)

I'm all for history. Those who fail to learn from history are doomed to repeat it. The times were interesting then -- the industry was just forming and we were basically making it up as we went along. We tried to learn the right lessons even then, watching what Apple had done well.

```
3500 PRINT "DO YOU GOT":A:"TARGETS USING":P:"PADDLES"
3600 PRINT "YOUR TIME WAS " :MID$(TIME,3,2):":":
RIGHT$(TIME,2):":":
3700 R=154LOG(A*15000/(P*P+VAL(TIME)-2))-Z-2*04:PRINT
"YOUR RATING":P
3701 IF P=0 THEN P=.1
3800 RESTORE:FOR L=1 TO 10-P/10:IF READ#:NEXT L
3900 PRINT ". " :A#
3950 IF 0:GOTO 4000
4000 INPUT "ANOTHER GAME?":A#:IF LEFT$(A#,1)="#":THEN END
4100 IF LEFT$(A#,1)="#":THEN Z=Z+10:GOTO 3950
4200 GOTO 1400
4300 PRINT "THE OBJECT OF THE GAME
4400 PRINT "IS TO DEFLECT THE BALL
4450 PRINT "BALL THROUGH THE
4500 PRINT "TARGETS, ONCE THE LAST
4550 PRINT "TARGET HAS BEEN HIT
4575 PRINT "THE GAME ENDS.
4600 PRINT "DO YOU DEFLECT THE BALL
4650 PRINT "USING THE \ AND /
4700 PRINT "KEYS ONCE =
4750 PRINT "DEFLECTOR IS CREATED
4800 PRINT "IT IS IN PLACE
4825 PRINT "PERMANENTLY.
4850 PRINT "SPEED FACTOR OF ZERO
4875 PRINT "IS MAXIMUM."
4900 PRINT "HIT 0 AT ANY TIME
4950 PRINT "TO QUIT"
5000 PRINT "YOU MAY CHOOSE FROM
5050 PRINT "1 TO"INT(.8*ND*HT)"TARGETS":GOTO 1400
5100 Z=Z+20:PRINT "YOU QUIT":GOTO 4000
5200 D=-D:P0=NP:NP=P0+D:GOTO 2200
5250 P0=NP:GOTO 1900
5500 DATA MIZING,PROFESSIONAL,"VERY GOOD",FAIR,
"KEEP PRACTICING","TRY HARDER"
5600 DATA IMP,SPAZZ,"TRY A DIFFERENT GAME"
5700 FOR L=55+ND TO 5E-ND:IF PEEK(L)<=32 THEN 5900
5800 P0=L,100
5900 NEXT L
6000 FOR L=0 TO P0+ND:IF HT
6100 X=INT(RND*(1+1000))+32768:IF PEEK(X)<=100 THEN 100
6200 FOR EX 32:NEXT L
6300 GOTO 1750
```

>You worked on several programs published on cassette for the launch of the VIC-20. One was an educational title, Space math. Can you share some of your memories about the launch of the VIC-20? (Any idea where Duane Later is these days and how I can contact him?)

I haven't heard anything about Duane in years. He was really only part of the team at the beginning, for a few months.

The VIC-20 was launched only a few months after the team came together. We had lots to do. We wrote the manuals and the first software. We licensed the best titles we could find, including the text adventure games by Scott Adams.

Our sales force didn't understand why we thought people would like text games, but they ended up being our top-selling titles. We figured if they worked for Apple on a \$2000 computer, they'd work for us on a \$300 one. By the way, Andy Finkel is the hero on those games -- they were 24K of assembly code, but only 16K could fit on a cartridge. Somehow he shrunk a full third out of the games.

I also got to work on the VIC-20 box. We needed to make it look like there was lots of software. I got all the screen shots and tried to arrange them artfully, or at least so the colors were interesting.

I also worked on some ads. I personally conceptualized the ad that seemed to be the final nail in Atari and TI's coffins in the PC wars. The price of the computers was virtually identical, but we also kept the peripherals cheap. I wrote an ad that added up the whole systems and clearly showed the difference. From then on, the vast majority of sales were ours.

>Did programmers often work in teams at Commodore?

Our group worked as a team, and we pitched in to help each other a lot. In terms of BASIC, I had the most experience, so I ended up helping there. I was hopeless at assembly language, so people like Andy Finkel took the load.



>I also liked VIC21 Blackjack... Were there any other software titles you created? What about prototypes?

In the original cassette six-packs, I worked on Slither/Super Slither and VIC-21 myself. Duane Later was having trouble debugging Space math and he was busy with cartridge games, so I polished that one up, did the same for the personal finance tape that Lee Ancier created.

I was very proud of that blackjack game. Getting it to fit in 3.5K of available took dedication, especially since I wanted to include all the casino rules (splitting, doubling down) and also make it support 2 players.

Some of the tricks included stacking multiple statements on a line Since the : only took one byte and a new line number took 5. If you try to read that code, it's a big mess. I was a very clean structured programmer and it took a lot to avoid good habits and write spaghetti that would fit. I even jumped in and out of FOR-NEXT loops to save bytes.

Those were the days. You had to be a man to write code in 3.5K.

--Neil

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