

The Interface

"Taking 8-Bits Into The 21st Century"

Volume 41 Number 3
March/April 2022



Happy St. Patrick's Day! Spring Is Finally Here!

In This Issue:

The Editor's Godzilla (That darn cat!)

Monthly Meeting Reports (Those who attend tell those who didn't.)

The Commodore 65 (It almost came true.)

Bill Mensch (An interview with the developer of the 6502.)

The Aller's C= Computer Story (Wayne & Sonia share their C= episodes.)

Commodore's First Joystick (Somehow it looks vaguely familiar ...)

Searching For The Roots of FCUG (A history search w/o Ancestry.com.)

Newsletter of the Fresno Commodore User Group – Fresno, California

www.dickestel.com/fcug.htm



THE EDITOR'S GODZILLA

by Lenard R. Roach

THE CURSE OF THE BLACK CAT

(Part 1 of 2 starring the Commodore brand of computers.)

Saturday. For most people, this is the day for fun and relaxation – visiting family and friends, grilling food outdoors, and the like. A day that almost everyone is looking forward, and by almost I mean those twenty percent of people who have to work the weekend shift to make sure the remaining eighty percent can enjoy the time off. I am one of those who has to put in his time to make sure that hot pizza, calzones, and pastas are delivered in a quick and timely manner.

This is a hard task with myself being 58, and as my Baptist friends might say, “overcome with a multitude of symptoms,” – a touch of arthritis in both knees and a car rapidly falling apart due to my hard driving to make sure those pizzas are delivered in that so-called timely manner.

That time was not until 6 p.m. on this particular Saturday, however. As it has been every Saturday ever since I got married and moved out of mom's house in 1983, my morning chore for this day was to sit down and make out the bills that had accumulated for the past week. This chore usually saddened me as I get to watch the numbers in my checkbook slowly dwindle down from their high mark to much lower numbers. Instead of hitting the grocery store and getting all the Ding Dongs

and Pit Patties that I could want, I'd have to walk by the snack aisle and go for only the necessary essentials needed to make it through the week. This was my “scorched earth” grocery list.

Not my cats, though. If I don't get all the foods that they like to eat and plenty of them, they will wander around my feet, or interrupt me while I'm working on a story, or clean out the house until they get what they want, or “die trying,” as I'm sure they are thinking. No skimping on the budget there. I can buy the smaller bag of Friskies Indoor Blend dry cat food, but I'd better make sure I buy enough of the product to make it to the next grocery day or else I will know about it, sometimes for days on end. The cats will not let me forget. Lucky for me, one bag of dry cat food will last about five days, provided that I put the entire contents of the 3.5 pound bag in the self-feeding cat food hopper. As for water, the cats get a water dish that has a slightly cascading waterfall which comes out of a filter, giving them a clean drink with every drop.

Gabe had rescued the two brother cats from certain death, because they were abandoned by their mother who decided to flee for her life from an oncoming lawn mower and sacrifice her children to its deadly blades. Lucky for both kittens involved, my son was quick enough to stop mowing and investigate the large clump from where mom fled and found the kittens nestled in the tall grass. He brought them inside and babied them until they were old enough to take care of themselves. By then, the cats had become a part of our family, and therefore, we could not return them to the wild. My son named the gray striped tabby, “Lee,” after Charlie Chan's number one son, and he named the India Ink tabby, “Tot,” after his favorite potato treat.

On this particular Saturday, our beloved country was celebrating a three-day Labor Day weekend in which a Monday is added to the weekend so most Americans can rest up from what they do for a living and spend an extra time with family or play in one of the many American waterways,

A load of brushes has been stolen Police are combing the area.

among other fun activities. However, I decided to not participate in the three-days' fun and frivolity and stick with my regularly scheduled routine; I'd hang out with the family cats and just watch movies or listen to music over the Internet. To accomplish this meant that I would be sitting in the Commodore room, booting my "Bills and Budget Workdisk" from my trusty 1541 disk drive, and going through all the programs on the disk. I'd be making out checks and printing them off on my MPS-802 printer, printing up envelopes in which to mail the checks, adding the totals of some of those checks into The Ledger (which is smart enough to tell me how much is left before I reach the payoff total of some debts), and finally entering the totals in my Commodore electronic checkbook, only to watch the amounts on the screen slowly go down... and down... and down some more, down to bare survival levels.

As I sat in my black, high-backed chair in front of the Commodore, Lee and Tot began to rub themselves against my legs, wanting some sort of attention. Taking a second or two to pet them sometimes was not enough. On this occasion, they thought it was the right thing to do by jumping onto my Commodore desk and walking all over the keyboard to see if I would either pet them and put them back down on the floor, or just shoo them away in a bit of frustration (sometimes I think they live to irritate me). For the moment, my job was to pay the bills that had come in and then take what is left to buy my meager supplies at the local Save A Lot food co-op on 81st Street and State Avenue.

As I went through the bills, making them out one at a time on my check-printing program, I came across the Mastercard bill. It was the first bill due, since it needed to hit the Capital One accounts' receivable department by September 11th. Today was the 5th, and with the post office taking Monday the 6th off, I didn't see it possible that the postal carrier would be able to get the check to the bill's proper destination and have it posted to my account by the 11th. For this particular bill, it was

time to abandon the Commodore way of doing bills, leave the Commodore room, sit down with my PC laptop, and pay the Mastercard bill online, forgetting that two mischievous cats were milling around totally unattended in the Commodore room.

It wasn't long after I had begun to place the finishing touches on paying the Mastercard bill that I heard a loud crash come from the Commodore room, causing Lee to scurry out like his butt was on fire. Being so close to completing my job on the PC, I quickly finished my work in paying the Mastercard bill, put my laptop on the end table next to my lounge chair, and ran as fast as my arthritic knees would let me go to get to the Commodore room, thinking that something terrible happened to the Commodore 128 that resided on the computer desk.

I was right. Tot and his brother had succeeded in knocking the artificial flowers that my sister-in-law Wynn had made to decorate the house. I had placed these flowers on top of my Commodore 1902A monitor to keep them away from the cats who had a tendency to try and "eat" every plant, artificial or not, that came into the house. These flowers were now lying on top of the vents of the Commodore 128, and every bill that needed to be paid had disappeared from where I placed them on the C128. The bills were not scattered on the floor; they were flat out gone! I looked high and low for those bills, even checking under the desk and the C128, just in case they were tucked under there by some crazy, miscreant cat. Nothing. Whatever these cats did, they managed to hide the bills in a place where they would never be found, and since Tot was usually the cat that tried to eat flowers first, the blame fell instantly on him. Also, it did help for me to see him standing on top of the C128 when I came into the room.

After a strong scolding to Tot for being the culprit in this caper, I turned again to try and find the elusive stack of bills, hoping that a second search would turn them up. Nothing. I even dug into my trash can thinking that the bills somehow found

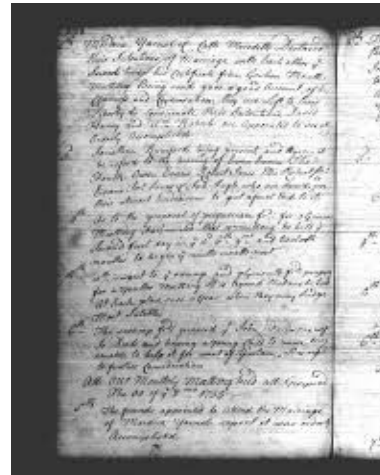
A load of brushes has been stolen Police are combing the area.

their way into it. Nothing. I had to face it. Somehow the cats conjured up a black hole in my room, and the bills were sucked into it. I know... it's an exaggeration, but what else was I to think? The stack of bills was gone! The checks that I wrote on the MPS-802 were still there thankfully, but without statements and addresses, I couldn't finish paying them. What was I to do? I sat there in the chair, staring at the empty spot on the C128 after I had picked up the bouquet of flowers and put them back on top of the monitor. After a few minutes of contemplating, heaven above must have given me inspiration. Would it be possible that on its disk, The Envelope Addressor might have all the bills' addresses that I had printed onto checks? I'd been adding addresses to this disk, one at a time, over the years (since the program's creation in 2007), and it might have what I needed. I turned my attention to the Commodore and began the search on the disk for the files I needed to print on the envelopes. Using the Envelope Addressor, I was able to find the addresses of the bills that I needed, and I started the process of printing off the addresses onto some envelopes, using the checks as a guide to let me know which file I was to print next.

It took an hour to get every bill done. Each bill had its own check and its own envelope. I logged each of them into The Ledger's registry and into the electronic checkbook, except one recent bill from the hospital for my emergency visit. As for that stray hospital bill, I found a copy of the original bill in my receipt files, copied the address off of there, and logged that into the envelope addressing program. In spite of everything, what started out as a disaster actually ended up as a victory, because all bills were mailed on Saturday before I began work at the pizza place at 6 p.m..

I am thankful that even though I went crazy for a moment, I discovered that I had saved all those addresses onto disk through the passing years. I'll never have to worry about cats destroying my work, messing up the lamentable task of paying bills. I have all the information stored on disk,

and I'm prepared for more to come in the future. All in all, a good Labor Day weekend.



MONTHLY MEETING REPORTS

by Robert Bernardo & Dick Estel

March 2022

With four members present - Robert Bernardo, Roger Van Pelt, Bruce Nieman, and Dick Estel – the meeting started with the announcement that the April meeting will be on the 10th, since our regular date is Easter.

Robert brought us up to date on two events coming up in southern California. Sponsored by FCUG and the Southern California Commodore & Amiga Network, the Commodore LA Super Show (CLASS) will take place June 25 and 26 at the Burbank VFW Hall. Red Martian, a Commodore musician from Seattle, will perform at the event. The official website of the event is <http://www.portcommodore.com/class>.

Robert will have two Commodore/Amiga tables at City of STEM festival in Downey, CA, April 2. STEM is Science, Technology, Engineering and Mathematics. (More information at <https://www.cityofstem.org/>)

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Also in April Robert will travel to New Jersey for the Vintage Computer Festival East. He had not attended this event for a number of years, but the 2022 event would mark the 40th anniversary of the C64. How could he resist?

<https://vcfed.org/events/vintage-computer-festival-east/>

At the end of May, Robert will attend the Hollywood Charity Horse Show (<http://horseshow.org>) which is hosted by Commodore advertising veteran, William Shatner. When Robert asked for suggestions on what C= items Shatner should autograph (if there is time at this year's abbreviated event), Roger thought of a Commodore calculator – small and easy to carry.

It seems that our presence at Panera Bread nearly always attracts the attention of a few other patrons. Most of those who ask us about our activities turn out to have used a Commodore or other computer from that era. In March we had three “visitors” who stopped by briefly.

With old and new business done, we went into the main hardware topic of the meeting, fixing Bruce's Amiga 2000. At first glance, it seemed that everything was all right with the machine; it booted correctly into the desktop screen, OS 3.1 running correctly. However, on closer inspection, all was not well. The mouse was half-functional with the right button not working, a detriment when you have to activate certain menu items with that button. The graphics card external port was loose in its mount. The worst was that there were about two dozen games that seemed installed but really weren't. When you clicked on a game icon, the computer asked for the game disk. All game disks had been lost; thus there was no way to start the games.

At first, Robert thought that the games could be made playable with the use of a Gotek card drive, i.e., run a disk image (.ADF, Amiga Disk File) of

each game off the Gotek. That would entail the purchase of a Gotek from amigastore.eu located in Spain. Bruce didn't want to go through that; he just wanted to run the games directly off the hard drive. For that, WHDload would have to be installed on the drive. WHDload is an application which takes formerly disk-based programs and runs modified versions of those programs to work off a hard drive.

Robert didn't know the process of installing WHDload, but Duncan MacDougall, member of San Jose's The Other Group of Amigoids and visitor to FCUG a few years ago, knew how to do it. Offering to transport the A2000 to Duncan, Robert asked Bruce to bring back the computer another time.

Diagnosing the A2000 took up most of the meeting, but after that was finished, it was time to move on to lighter fare. Robert ran various new games off the Ultimate 64, the games being U-Type (a shooter with the title playing off the well-known game, R-Type), Lane Crazy (the balls looked more like slugs), Bagman 2 (collect moneybags in this platformer), Space Planters (strategy/puzzle), and Tutankham (a maze game). To end the meeting, the members viewed the Commodore novies, CVGL 15 Convention, HomeCon66, HomeCon 67 (all three were composed of video and still shots taken at gaming shows), and Miami Vice Nuvie 20 (the opening titles to the classic Miami Vice t.v. show).

April 2022

On a cool Sunday morning, five faithful FCUG members gathered at the Panera Bread restaurant. On hand were Robert Bernardo, Roger Van Pelt, Dave Smith, Bruce Nieman, and Dick Estel.

Dick brought in a Canon EOS 10D camera body he wanted to sell, having recently acquired a new Canon EOS Rebel T7. The old lenses fit the new camera, so Dick kept them, and gave Dave a good

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price on a venerable 10D. This triggered a discussion of cameras, lenses, and prices, which continued over lunch.

As usual, our computer set-ups attracted the attention of a few other patrons. One told us that a C64 was his first computer, and he was eager to tell his 14-year old daughter about the sighting. A teenage boy was especially interested, and we gave him a phone number and our website for further exploration.

Moving to official business, Robert and Roger were planning a video session in which Roger will record a presentation on converting C64 Giga-CAD objects to Blender, the presentation to be shown at the Commodore LA Super Show (CLASS) in Burbank in June. More information is available at <https://www.portcommodore.com/class>.

Showing us some of his photos and video, Robert reported on his attendance at the April 2 City of STEM festival in Downey. He had set up three systems – a SX-64, an Amiga 1200, and an Ultimate 64. Murphy's Law reared its ugly head about three hours into the day when the SX64 stopped working. The Amiga lasted another three and a half hours and also gave up the ghost. Happily, the Ultimate worked perfectly all day. On Robert's to-do list for future such events – bring back-up computers!

Robert estimated attendance at about 3,000, dozens of whom stopped by his tables to see and play with the old and new classics, like Oregon Trail, Donkey Kong, Ms. PacMan, Super Mario Bros., Sonic the Hedgehog, Star Wars, the Empire Strikes Back, and Return of the Jedi.

In addition to the Vintage Computer Festival East in New Jersey later this month, Robert is planning to attend the Vintage West Festival at the Computer History Museum in Mountain View in August. More info at

<https://vcfed.org/events/vintage-computer-festival-west/>

Robert also gave an update on the psychology experiments conducted by Dr. Nancy Dess of Occidental College in Los Angeles. She used Commodore computers and other equipment to control and log her work with rats subjected to various types of stimuli. The equipment had been in use until 2020. She was retiring and was donating all her Commodore items to Robert. The day after the City of STEM festival, Robert went to the college to talk to the doctor, pick up the items, and take more photos. He showed us those photos but forgot to bring the Dess disks which had the specialized programs on them. FCUG has a page of Robert's photos from his original visit with Dr. Dess at <http://www.dickestel.com/commlab.htm>. Eventually, the new photos of Robert's latest visit to the college will be posted.

Roger gave Bruce a GO-64! Interface cartridge for the Amiga computer. He had found it at a Clovis antique store and had bought it for \$10. The cartridge would connect to the external disk drive port of an Amiga computer and then with a serial cable, you would connect a Commodore 1541/1571/1581 disk drive to the Amiga. Then you would run the GO-64! disk which would start a C64 emulator on the Amiga. With the emulator running, you could then load disk programs from the above drives into the emulator and run them. Robert said that he had the same interface and would look for the disk(s) and instructions for Bruce.

Moving on to computer games, Robert loaded Cloneimals, the first and possibly only 80-column scrolling game for the C128. Robert bought the program in 2008, but developer John Brown had provided him with a new and improved version (better scrolling and collision detection). The program used software-created sprites (not hardware sprites) to create the shooter and targets.

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Robert had downloaded an archive of about 500 Commodore 128 text adventure games. He showed the first two to us. The first one was Ten Little Indians. At the start of the game, you find yourself in a railway carriage and only have a limited number of responses before the train crashes. Roger tried the game twice, but no matter what text command he used, the game didn't understand. The second was the 7 Doctors, which seemed based on Dr. Who. This text adventure was more sophisticated and understood more commands than Ten Little Indians. You start the game by being in the phone booth (Tardis), and Roger figured that you have to find your way out of it to continue the adventure. Through much trial-and-error, Roger finally used the command, "pull lever," and the door to the booth opened. That's how far we got into the game before going on to the next program.

Cloneimals and 500 C128 text adventures were not the only surprises at the meeting. Robert showed off the new Flight Simulator II XL, a bug-fixed version of the original 1984 program. The XL version was just a couple of weeks old. Both Robert and Roger took turns trying to fly the plane off the runway, but they didn't know where the throttle was to accelerate. They both crashed into the water near the runway. They would have to study of the FSII flight manual in order to pilot successfully. Robert didn't know how the XL version compared with the SuperCPU version of FSII. Roger mentioned that his brother would be very interested in this program since he flew model airplanes.

Robert had some games that would not load, but he finally loaded Sever the Wicked, a game in which you only had 24 seconds to shoot as many skull sprites on the screen, and there were dozens of them to shoot. Roger was able to get to 76 shot in 24 seconds.

Then Robert loaded a game that FCUG newsletter editor Lenard Roach had been developing, the

Bible Trivia Game. Lenard said that it was a Wheel of Fortune-type game, but Robert and Roger thought it was more a multiple-choice type of game. You were presented with a question and had to pick answer A, B, or C. If you picked the correct answer, you had some music and a flashing screen. If you picked the wrong answer, you got a strange-sounding beep. Robert thought the program needed some color graphics to break up the boring text, and both Robert and Roger thought the rapidly-flashing screen was too irritating. However, there was a flaw which Robert and Roger observed and about which Lenard had warned. Sometimes, after the correct answer was picked, the game would break instead of playing music – a Data Overflow error. The guys examined the offending BASIC line but could not see anything wrong with it. They examined the lines around the offending line. Still nothing. Though Robert was not a programmer with good debugging skills, he thought that running the program through the Blitz 64 compiler would reveal all the bad BASIC lines. (In the compiling process, Blitz 64 lists all the bad lines and then stops the compilation of the program.) With all the bad lines revealed, then Robert could try to debug them or give those lines over to somebody else on-line to debug.

Speaking of Wheel of Fortune, Robert ran the classic program in hopes that the phrases could be modified for Bible trivia. Except for the opening menu, he found nothing which gave access to the phrases already built into the program. He even ran a program which purported to be an editor for the Wheel of Fortune. That program came with no instructions on how to save any new phrase within WoF.

Just in case Blitz 64 wasn't good enough in making a BASIC program run faster, Robert showed off some more compilers, Laser Basic Compiler, Basic Boss Compiler, and Diablo Compiler v3.2. The first two ran, but the Diablo refused to run. Roger joked that it would have

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been contradictory to have Bible Trivia compiled with Diablo (the devil!).

As at the March meeting, Robert ended the April meeting by showing the latest C64 novies – three from gaming shows, HomeCon 57, HomeCon 68, and CVGL 16; one of the Yesterchips' Museum, and one which was a commercial for Forum64, the German on-line discussion forum for Commodore.

COMMODORE 65:

A 16-bit C64 that never was



by Guest Contributor Dave Farquhar

(With the imminent release of the commercial Mega65, a modern-day implementation of the Commodore 65, here is a piece that summarizes the history of the C65.)

The Commodore 65 was an ill-fated attempt to extend the Commodore 8-bit line one last time and release a hybrid 8/16-bit computer with some backward compatibility with the Commodore 64. The concept was similar to the Apple IIgs and the Nintendo Super NES. Commodore never released it.

Commodore 65 rumors

In the fall of 1989, rumors started spreading that Commodore was working on the Commodore 65. It was supposed to be a 16-bit Commodore 64 with a faster CPU, more memory, and improved graphics and sound, to compete with the Apple

IIgs. In theory, it could have extended the C64 family's life expectancy a couple more years.

The C65 was the subject of the lead editorial in the September and October 1989 issues of *Compute!'s Gazette* magazine, a popular magazine at the time. Rumors also circulated online. By October 1989, *Compute!* was saying the 65 was dead, but it appears Commodore may not have finalized the decision quite that early.

Why a 16-bit Commodore 65?

In the mid 1980s, 16 and 32-bit computing was the next big thing, but there were two problems. 32-bit computers were expensive, and 16/32-bit hybrids only slightly less so. They also didn't have a lot of software.

In 1986, Apple built a machine with one foot in each world. The IIgs could run older 8-bit software but had new 16-bit graphics and sound capabilities and met consumers halfway on cost, too. It was reasonably successful, selling around 1.5 million units. That was a lot of computers for Apple at the time. And with Apple's profit margins, they didn't need to sell as many units as Commodore did.

It made sense for Commodore to consider trying to replicate that success. The debate is how long they should have considered it.

Development

Based on the date codes on the chips, development on the Commodore 65 started no later than 1989 and extended into 1991, if only briefly. There is some conflicting information whether Commodore shelved the C65 sometime in 1990 or 1991.

The original C64 hardware team was long gone by 1989, so the C65 sported custom chips designed by Victor Andrade, Bill Gardei, and Paul Lassa. Veteran software engineer Fred Bowen worked to adapt and extend the existing Kernal (sic) and Basic to the new hardware. The chipset was mostly new, to allow new capability as well

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as a new, more cost-efficient design. Since SID designer Bob Yannes had long since left Commodore for Ensoniq, the C65 was to use two SID chips to permit it to exceed the 64's sound capability while remaining compatible.

The result was a computer with a 16-bit 6502 derivative, Commodore's own 4510, running at 3.54 MHz, similar to the 65816 CPU in the Apple IIgs. It also had 6-voice stereo sound and capability of displaying up to 256 colors. It had a built in 3.5-inch disk drive similar to a 1581, but not identical. Rumor had it 5.25-inch drives wouldn't work with it, but in practice, the older drives do work with the prototypes that surfaced. It had 128 KB of RAM, expandable to 1 MB.

Problems with the Commodore 65

The biggest problem with the Commodore 65 was that it came about too late. By 1989, the Amiga had a following and was near the peak of its success as a home computer. The Amiga wasn't as popular as Commodore wanted it to be and it took a lot longer to become successful, but the C65 wasn't going to do anything to help that. The Amiga's biggest problem in 1989 was figuring out how to convince people they wanted multitasking.

Price competition with Amiga

And there wasn't a tremendous price differential between a Commodore 64 and an Amiga 500. A 64, disk drive and monitor would set you back about \$450 while a comparable Amiga 500 setup would set you back about \$800. Apple had a lot more room in between its Apple II machines and its Macs to position the IIgs. The Commodore 65 would have had to sell for around \$600 with a monitor, and it likely would have been difficult for Commodore to hit that price point.

Compatibility

There was another elephant in the room as well – compatibility. The C65 wasn't going to be 100% compatible with the 64. It just wasn't possible,

due to the changes in the CPU and video chip. Well-behaved software would have been fine, but there was no way to know in 1989 how much software fell into the well-behaved category and how much didn't. Given the compatibility situation with after-market disk drives, it's a safe bet a good number of popular 64 titles wouldn't have worked on the 65. The undocumented machine-code instructions in the 6510 that were missing from the 4510 would have been problematic, and the VIC-II chip had a number of unintentional quirks and features that would have made 100% backward compatibility difficult with the VIC-III as well.

Publisher support

Commitment from software publishers also might have been difficult to come by. Most of the major games publishers were committed to the Amiga line, partly because they used Amigas to develop their titles for other platforms as well. The same publishers created versions of their new titles for the 64 as best they could. But the big movement in the games industry in 1989 was the PC market. Publishers weren't going to waver in that commitment. The C65 had a lot of competition for publishers' attention, and it's likely there wouldn't have been a large number of titles that took advantage of its capabilities. You'd have whatever C64 titles would run plus a handful of Amiga-like titles, but the PC and Amiga would have had larger numbers of new, exciting titles.

How the Commodore 65

could have succeeded

If Commodore had begun work on the C65 in the 1984-85 time frame and released it around the time of the 128, so it hit the market around the same time as the Apple IIgs, it might have done well. At that point in time, Amiga setups started at \$1395, so Commodore could have priced the machine much higher and still had a market.

The problem was that Commodore couldn't develop the 65 that quickly. The 128 was a rush

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job as it was, and any non-Amiga computer coming onto the market in 1985 or later was a stand-in anyway, something more expensive than a 64 to sell until the Amiga could hit the market, and was affordable enough to be a mass-market machine. The 128 was an oddball, but Commodore developed it in a hurry using leftover parts over the course of five months. Commodore didn't get the 65 beyond prototype stage after a year of development.

As much as people knock the 128 for not being 100% compatible with the 64, problematic titles are exceptionally rare. Calling it compatible with 99.9% of C-64 software is being very conservative, and the 65 would have never hit that level of compatibility.

In a perfect world, Commodore would have sold a consumer a 64 in the early 1980s, then a 65 in the mid-1980s followed by an Amiga in the late 1980s and beyond.

The Commodore 65's value today

Commodore discontinued the 65 quietly, but the prototypes leaked out when Commodore started selling off anything it could in late 1993 to try to hold off bankruptcy. A few hundred units slipped out. The mail-order dealer Grapevine Group sold a few hundred units at prices ranging from \$95 to \$149. Once they realized the machines had some demand, they seemed to raise prices.

Today the Commodore 65 is the most valuable Commodore computer. There are rarer Commodore prototypes, but none capture the imagination of hobbyists like the 65. When they turn up on eBay, they tend to sell for thousands of dollars. But from time to time other odd 65-related paraphernalia turns up, so if you can't afford a full system, you may be able to own part of one. C-65 artifacts do tend to turn up more often than Apple I artifacts at least.

Emulation and replicas

There are a couple of efforts to emulate the C65. It's tricky since the existing machines aren't all

100% compatible with each other. There is also a modern effort to build a compatible machine, called the Mega65. Since they replicate a machine that was never officially released, it's merely a curiosity. But it's a lot cheaper and easier than trying to get your hands on a real C65.



BILL MENSCH:

Co-creator of the 6502

Bill Mensch on the microprocessor of the Atari 2600 and Commodore 64

by Guest Contributor Stephen Cass

Few people have seen their handiwork influence the world more than Bill Mensch. He helped create the legendary 8-bit 6502 microprocessor, launched in 1975, which was the heart of groundbreaking systems including the Atari 2600, Apple II, and the Commodore 64. Mensch also created the VIA 65C22 input/output chip—noted for its rich features and which was crucial to the 6502's overall popularity—and the second-generation 65C816, a 16-bit processor that powered machines, such as the Apple IIGS and the Super Nintendo console.

Many of the 65x series of chips are still in production. The processors and their variants are used as microcontrollers in commercial products, and they remain popular among hobbyists who build home-brewed computers. The surge of interest in retrocomputing has led to folks once

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again swapping tips on how to write polished games using the 6502 assembly code, with new titles being released for the Atari, BBC Micro, and other machines.

Mensch, an IEEE senior life member, splits his time between Arizona and Colorado, but folks in the Northeast of the United States will have the opportunity to see him as a keynote speaker at the Vintage Computer Festival in Wall, NJ., on the weekend of 8 October. In advance of Mensch's appearance, *The Institute* caught up with him via Zoom to talk about his career.

This interview had been condensed and edited for clarity.

The Institute: What drew you into engineering?

Bill Mensch: I went to Temple University [in Philadelphia] on the recommendation of a guidance counselor. When I got there I found they only had an associate degree in engineering technology. But I didn't know what I was doing, so I thought: Let's finish up that associate degree. Then I got a job [in 1967] as a technician at [Pennsylvania TV maker] Philco-Ford and noticed that the engineers were making about twice as much money. I also noticed I was helping the engineers figure out what Motorola was doing in high-voltage circuits—which meant that Motorola was the leader and Philco was the follower. So I went to the University of Arizona, close to where Motorola was, got my engineering degree [in 1971] and went to work for Motorola.

TI: How did you end up developing the 6502?

BM: Chuck Peddle approached me. He arrived at Motorola two years after I started. Now, this has not been written up anywhere that I'm aware of, but I think his intention was to raid Motorola for engineers. He worked with me on the peripheral interface chip (PIA) and got to see me in action. He decided I was a young, egotistical engineer who was just the right kind to go with his ego. So Chuck and I formed a partnership of sorts. He was the system engineer, and I was the semiconductor engineer. We tried to start our own company [with

some other Motorola engineers] and when that didn't happen, we joined an existing [semiconductor design] company, called MOS Technology, in Pennsylvania in 1974. That's where we created the 6501 and 6502 [in 1975], and I designed the input/output chips that went with it. The intention was to [develop a US \$20 microprocessor to] compete with the Intel 4040 microcontroller chipset, which sold for about \$29 at the time. We weren't trying to compete with the 6800 or the 8080 [chips designed for more complex microcomputer systems].

TI: The 6502 did become the basis of a lot of microcomputer systems, and if you look at contemporary programmer books, they often talk about the quirks of the 6502's architecture and instruction set compared with other processors. What drove those design decisions?

BM: Rod Orgill and I had completed the designs of a few microprocessors before the 6501/6502. In other words, Rod and I already knew what was successful in an instruction set. And lower cost was key. So we looked at what instructions we really needed. And we figured out how to have addressable registers by using zero page [the first 256 bytes in RAM]. So you can have one byte for the op code and one byte for the address, and [the code is compact and fast]. There are limitations, but compared to other processors, zero page was a big deal.

TI: A lot of pages in those programming books are devoted to explaining how to use the versatile interface adapter (VIA) chip and its two I/O ports, on-board timers, a serial shift register, and so on. Why so many features?

BM: I had worked on the earlier PIA chip at Motorola. That meant I understood the needs of real systems in real-world implementations. [While working at MOS] Chuck, Wil Mathis, our applications guy, and I were eating at an Arby's one day, and we talked about doing something beyond the PIA. And they were saying, "We'd like to put a couple of timers on it. We'd like a serial

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port," and I said, "Okay, we're going to need more register select lines." And our notes are on an Arby's napkin. And I went off and designed it. Then I had to redesign it to make it more compatible with the PIA. I also made a few changes at Apple's request. What's interesting about the VIA is that it's the most popular chip we sell today. I'm finding out more and more about how it was used in different applications.

TI: After MOS Technology, in 1978 you founded The Western Design Center, where you created the 65C816 CPU. The creators of the ARM processor credit a visit to WDC as giving them the confidence to design their own chip. Do you remember that visit?

BM: Vividly! Sophie Wilson and Steve Furber visited me and talked to me about developing a 32-bit chip. They wanted to leapfrog what Apple was rumored to be up to. But I was just finishing up the '816, and I didn't want to change horses. So when they [had success with the ARM] I was cheering them on because it wasn't something I wanted to do. But I did leave them with the idea of, "Look, if I can do it here ... there are two of you; there's one of me."

TI: The 6502 and '816 are often found today in other forms, either as the physical core of a system-on-a-chip, or running on a FPGA. What are some of the latest developments?

BM: I'm excited about what's going on right now. It's more exciting than ever. I was just given these flexible 6502s printed with thin films by PragmatIC! Our chips are in IoT devices, and we have new educational boards coming out.

TI: Why do you think the original 65x series is still popular, especially among people building their own personal computers?

BM: There is a love for this little processor that's undeniable. And the reason is we packed it with love while we were designing it. We knew what we were doing. Rod and I knew from our previous experience with the Olivetti CPU and other chips. And from my work with I/O chips, I

knew [how computers were used] in the real world. People want to work with the 65x chips because they are accessible. You can trust the technology.



THE ALLER'S C= COMPUTING STORY

(The Allers came to the Commodore Los Angeles Super Show 2021 on Nov. 7. They distributed the following paper which describes their history, spoke to the CLASS attendees, and sold their hardware and software left over from their educational center.)

Wayne and Sonia founded CompuLearn, in a leased office on Ventura Place in Studio City, CA, in 1983.

Wayne had been active in an Apple Byter's club in Terre Haute, IN, but realized that the Commodore 64 was a better machine than the Apple II. He and Sonia had some experience with programming in Fortran, and he taught himself Commodore Basic, as well as Apple Basic and Sinclair Basic (differing slightly from Commodore Basic, mainly in string functions). He also learned LOGO, a language written by three members of Bolt, Beranek & Newman Corporation: Wally Feurzeit, Seymour Papert, and

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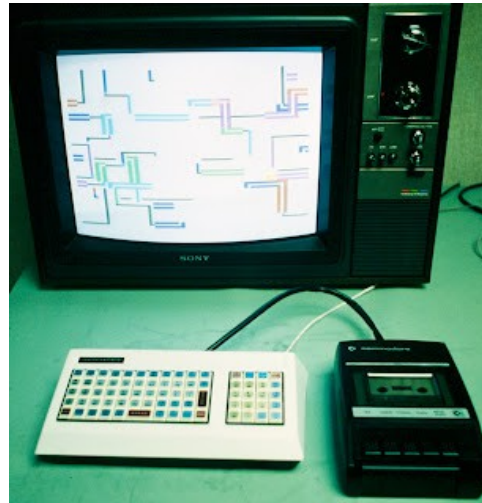
Cynthia Solomon. They designed LOGO specifically for children, basing it on Jean Piaget's constructivism and MIT's Erwin Minsky's artificial intelligence principles. He used it for 3- & 4 yr. olds.

Wayne advertised CompuLearn primarily to children in L.A. Parent Magazine, etc.. There were a couple of adults who took his class also (no, not Elon Musk who began his journey into IT with a Commodore). The children he taught included Mort Sahl, Jr., Colin Hanks (Tom's son), a couple of Frank Zappa's kids, Ahmet and Moon. He built seven tables, using solid-core 28" [wide] x 78" long doors (with 26" legs) painted Commodore colors, making a 28" x 30" table for himself and mounting a monitor on a wall for instruction. He bought 12 deeply padded swivel chairs with easy height adjustment. He built a wall parallel with the street, creating an 8-foot deep "office" for meeting/greeting students/customers and selling Commodore stuff. A door in this wall led to the room with the ten Commodore stations.

Wayne started all of this before he went back to Indiana State University, where he had been on sabbatical. He taught one CompuLearn class before ISU's 1983 fall semester, and others over Christmas and spring breaks. While he taught at ISU, Sonia was left to try to find teachers, a tough task with limited success. After a year of this operation, Wayne resigned his full professorship and psychology department chairmanship of ISU's PsyD granting program [in order] to move to Los Angeles [and teach] more at CompuLearn. But he soon started teaching full-time at California State University, Northridge, and Sonia became Director of Clinical Training in Communication Disorders at Children's Hospital, Los Angeles. With only weekends available to teach at CompuLearn, he and Sonia shut it down after about a year. End of CompuLearn story. They sold their C64/VIC-20 machines, many trackballs, disk drives, and much software.

MY INTRODUCTION TO VIC

by Guest Contributor Leonard Tramiel



VIC concept computer at Chicago summer CES 1980. Photo by John Feagans.

As mentioned in another one of these posts, I was asked by my dad [Jack Tramiel, head of Commodore Business Machines] to give him my opinion of going along with Chuck Peddle's idea for a computer. Shortly after working in the team that developed that machine from idea to fully working prototype, I left Commodore to further my education. While in my apartment in New York City, I got a call from Dad asking me to do the same thing again. One of the engineers at MOS Technologies had made a demo to show what could be done with one of their chips. It was going to be displayed at CES in Chicago, and Dad wanted me there to see it and tell him my thought I went to Chicago, to the all too familiar environment of a trade show. I had been regularly going to these shows since I was about 12, often giving demos of Commodore's calculators to the throngs of people in attendance. The show was like all the others, but instead of spending my time in the public areas of the Commodore booth as I normally would, I was usually in one of the

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interior meeting “rooms.” On a table was a small box, it had a original PET “chiclet” keyboard on top that largely determined its size, and it was connected to a TV. Using the character set that I had developed, it was drawing mazes or showing animations of spacecraft flying across the screen, like I had programmed a PET to do. But this was different in two very important ways. First, the images were not being displayed on a built-in monitor. They were on a standard TV. Next, and far more important, they were in color! That difference was so dramatic that it took a while before I noticed that the aspect ratio of the characters was quite different than on a PET. This was due to the significantly lower resolution that this system had for its display. The original PET was 40x25 character blocks. This machine was 22x23 characters in about the same screen ratio so the characters were almost twice as wide as they were tall.

I don’t remember most of the people that were in that room or the more impromptu meetings at a nearby café. But one of the things about this meeting “room” is that the walls [that] separated it from the public areas of the booth were made of darkly colored transparent plastic. The interior of the rooms was a bit darker than the show floor, so from the inside, you could easily see people out in the public parts of the booth. From the outside, the rooms were too dark to see into unless you used your hands the shield your eyes from the bright lights and peered in, pressing your face close to the wall. There was one gentleman [who] was staring intently at the TV showing these graphics. The way he was dressed and the way he carried himself and his umbrella left me with the impression that he was British. At the time I wondered, “Who is this guy?” It was Clive Sinclair.

The discussions about the machine were unstructured and diverse. The machine had been constructed to show off the abilities of the Video Interface Chip (VIC), partly in an attempt to drive

sales of the chip in non-computer applications. Using the chip in a Commodore computer could have that same effect, so it was agreed by those present... that the machine would be called “VIC”. Since my dad wasn’t at these meetings, any decisions made were understood to be preliminary.

One of the other people in these meetings was Michael Tomczyk. I think this was the first time I had met him, and I knew essentially nothing about him at the time. It was clear from the questions he was asking and [the] suggestions he made that the technical aspects of computers were not his area of expertise. Advertising and promotion looked to be where his strengths were to be found. His familiarity with computers seemed to be at the level of a user that was able to program at just past the beginner stage but knew essentially nothing about hardware. When we were introduced, he reacted to hearing my last name, and for reasons that are very obvious in hindsight, he sat next me in virtually every meeting for the rest of the visit. He repeatedly asked what VIC stood for and seemed completely lost whenever the conversation got into any of the specifics of the system like signal timings. It was obvious that, like me, this was his first introduction to this machine.

As I headed back to New York, it was obvious to me that I had witnessed the birth of something special. Even more than the discussion that led to the PET, this felt like something that could have far wider appeal. It goes without saying that I gave my dad a positive report.

I have no such connection to the C64. That machine was created without me knowing anything about it. The only contribution I made to that machine is an example program, showing an easy way to create a sprite in BASIC, that I wrote for the Programmer’s Reference Guide.

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(Note: Lenard Tramiel openly disputes Michael Tomczyk's many claims of having a greater part in CBM hardware development.)

In fact, it was an even more accurate clone than the one Atari made for the Atari Flashback decades later.

COMMODORE'S FIRST JOYSTICK

by Guest Contributors Xenomachina



It was called simply the "VIC-20 Joy Stick", and looked kind of... familiar.

Really familiar. It was, in fact, an almost exact clone of Atari's iconic "CX40" joystick. Externally, the only changes were the addition of the Commodore name and logo and a VIC-20-like color scheme — off white with chrome accents, and dark brown in place of all black. (Even the cable and plug are dark brown!)



From the New York Times –

Atari wins joystick battle

Atari, Inc., recently won a preliminary injunction against Commodore Business Machines, Inc., in a case involving Commodore's manufacture and sale of an "imitation" Atari joystick controller for its VIC 20 home computer.

Atari had filed a lawsuit October 11, 1982, in which it claimed that Commodore infringed on Atari's patents covering the joystick that Atari sells for its video-computer system and home-computer products.

"Commodore had tried to copy the Atari controller exactly, changing only the color to white and adding the Commodore name," stated Michael Sherrard, patent counsel for Atari. Commodore allegedly missed a few "important design features" that the Commodore joystick "was most likely to break prematurely," according to Sherrard.

A spokesperson for Commodore declined to comment on the case while it is still in litigation.

But the *Wall Street Journal* quotes Irving Gould, Commodore's chairman as saying, "We sold a very small quantity of the joystick controller and discounted its sale four months ago because it wasn't profitable."

Commodore has appealed the ruling, made by U.S. District Court Judge Richard Owen in the Southern District Court of New York. The ruling prohibits Commodore from further manufacture or distribution of the joystick pending further rulings in the "joystick" case.

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“[We will] pursue our legal rights against anyone who attempts to ride the coattails of Atari’s success and creativity,” commented Raymond E. Kasser, chairman and chief executive officer of Atari. Atari is also seeking monetary damages, although an amount has yet to be determined.

<https://www.nytimes.com/1982/11/09/business/atari-gains-in-patent-case.html>

Commodore was forced to discontinue the joystick. It was replaced by the Commodore 1311 Joystick. The 1311 has a similar color scheme — though it replaced the dark brown with black. Sadly, the 1311 is probably one of the worst joysticks ever made. It's fragile, uncomfortable, and just doesn't work very well. Its one "advantage" over the original VIC-20 Joy Stick is that the fire button is centered, so it's equally uncomfortable in either hand. Some other Commodore controllers can be found here:

<http://chipitos.be/main/index.php/mycollection2/commodore/joysticks-mices>

COMMODORE RAM EXPANDERS

by Guest Contributor Dave Farquhar

(Note: The article uses the term, “RAM expansion units,” but CBM engineer Bil Herd hates the term and calls them, “RAM expanders.”)

The 6502-family CPUs in Commodore 8-bit computers famously used 64K of RAM at a time. But in 1985, Commodore introduced a cartridge that added up to 512K of RAM to the 128. Commodore followed up soon after with a 256K cartridge for the 64. How did Commodore RAM expansion units work?

Blame marketing

Commodore advertised the 128 as having expandable memory, but somebody forgot to tell the engineers who designed it. So they had to

come up with a way to expand the memory after the fact.

In many ways, the Commodore RAM expansion units worked like expanded memory worked on the IBM PC. You defined a block of memory and you swapped it with the contents of the extra RAM. A special chip in the cartridge, the 8726 REC chip, did the work. The REC could move memory around at a rate of 1 megabyte per second, which was incredibly fast for anything in the Commodore 8-bit world.



The Commodore 1764 RAM expansion unit came with a replacement power supply and a demo disk.

Commodore made three models: the 128K model 1700, the 256K model 1764, and the 512K model 1750. The 1764, as the name suggests, was designed for the C-64. It came with a heavy-duty power supply big enough to power the 64 and extra RAM. The 128’s stock power supply could already handle the additional memory. Commodore intended the 1700 and 1750 for use with the 128. There was a small timing difference between the two machines, so the 1700 and 1750 had a resistor at position R4, in the upper left corner of the board, that the 1764 lacked. In practice, people used whichever expansion unit they could get with whichever computer they had.

In 1989, Andrew Mikeski published plans for expanding the units to 1 or 2 megabytes of RAM online. It was possible to download them from QuantumLink, CompuServe, and many private

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BBSs.

What was it good for?

Not enough. GEOS, the graphical user interface for Commodore computers, used them as a RAM disk. Loading your fonts to the RAM disk was a good way to make GEOS run much faster. Most post-1985 disk copy programs would use the extra RAM to reduce disk swaps if you only had a single drive.

But aside from using it as a fast disk drive, not much 1980s and 1990s software used it. Commodore wrote a spinning globe demo to show off the peripheral but these devices found themselves in a bit of a catch-22. There wasn't a lot of demand due to lack of software, and software makers didn't want to put a lot of effort into supporting them due to lack of demand. But they were pretty difficult to get, too. More on that in a minute.

Today there are some pretty impressive graphics demos that use the extra RAM for animation, but those are relatively recent developments. I had one, and I knew a few others who had one, and we just basically used them as fast disk drives.

Scarcity

The biggest problem with Commodore RAM expansion units was availability. Commodore didn't make enough of them. I can speak from experience on this one. When we ordered one in 1987, it took months to finally get one. Few suppliers advertised them, and those who did advertise them didn't actually have them in stock.

The lead editorial in the March 1989 issue of *Run* magazine addressed the issue. Commodore owners and dealers were contacting the magazine asking about availability. Yes, even Commodore's own dealers weren't getting answers from Commodore.

After speaking with some Commodore execs, *Run* technical manager Lou Wallace explained

that RAM chips were in short supply, and it was natural for Commodore to build eight C-64s instead of a single 1750 512K RAM expansion unit. Commodore's profit on eight C-64s was more than the total cost of the single RAM expansion unit.

Wallace suggested that if Commodore didn't want to make the peripherals, it ought to sell the REC chip to someone who did. It took a couple more years, but eventually Commodore did exactly that.

Enter GeoRAM

By late 1990, supplies of Commodore's RAM product were dwindling. Berkeley Softworks, maker of GEOS, introduced its own RAM expansion. Dubbed GeoRAM, it worked only with GEOS, and it wasn't as fast as Commodore's product, but it was cheaper and you could actually buy one.

Berkeley didn't use Commodore's REC chip. Commodore did sell the chip to a company called Chip Level Designs so they could produce clones of Commodore's own units. It's unclear whether Commodore was unwilling to sell the chips to Berkeley or if Berkeley even asked. The way Commodore operated, it's entirely possible they found a supply of chips in 1991 and opted to sell them to Chip Level Designs rather than use them. In the 1990s, Creative Micro Designs marketed a 1750XL, which paired up the Commodore REC chip with 2 megabytes of RAM.

RAM expansion today

The 1541 Ultimate emulates a RAM expansion unit, in addition to a lightning fast 1541. Of course the VICE emulator also emulates Commodore's RAM expansion unit. So even if you can't find an original 1700, 1750, or 1764, you can still use the software that takes advantage of one, thanks to modern alternatives.

(There are also the modern GeoRAM clones – GGLabs' GRAM, NeoRAM, and Francois

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Leveille's CleoRAM.)



BURNING DOWN THE HOUSE

By Neil Harris of CBM

By the later part of 1981, I spent much of my time on the road, helping the sales executives whose mission was to get Commodore home computers into the mass merchant channel. I was a sort of sales engineer, even though that role had not been defined in our industry just yet. My job was to demonstrate the machines and describe what they could do in terms that laypeople would understand. Along with VP of National Accounts David Harris (no relation), I showed off our systems to major chains like Kmart, Montgomery Ward, and Sears, along with regional chains.

One day this found us at the headquarters of Kiddie City, a mid-Atlantic toy seller (that was eventually wiped out by Toys'R'Us). Aside from the VIC-20 and new software, I was to demonstrate the forthcoming VICmodem.

I had learned through experience to always arrive early and test everything before the demo. In the worst case, if something was not working, we would simply not mention it; everything we talked about worked, and anything not working stayed out of sight. At least, I thought that was the worst case.

The VICmodem that I had was a prototype – a circuit board with no case. I set up the VIC and the monitor and plugged in the modem to the user port and... nothing. Worse than nothing. The power light on the VIC had gone out.

I opened up the VIC case and looked at the fuse. Blown.

We could skip demonstrating the modem, but skipping the computer demo was not an option.

I had an idea what might be wrong, but I needed to check with the engineers back at the office. You see, the user port used an edge connector, and devices had a tab on the connector to ensure that you could not plug in devices upside down. But my prototype modem had no tab.

I called Andy Finkel. "If I plugged in the modem upside down, would it blow the fuse in the VIC?"

There was a thoughtful pause and I could hear Andy conferring with others in the office. The answer came back... "Probably."

So, I removed the computer's fuse, took a few quarters out of my pocket, and put them in the fuse slot so the computer would work. Then I looked at the modem, carefully flipped it over and said a brief prayer. Either this demo was going to work, or we might just burn down the building, or at least melt the computer. I looked at David, and he gave me a look back that clearly communicated something regarding my career prospects.

I plugged in the modem. No smoke emerged from the computer, and the red light stayed on. I attached the modem to the phone and dialed The Source. Everything worked.

The demo was great, we made the sale, and when we got back to the office, I got a new fuse for the VIC, a tab for the modem's edge connector, and my quarters back.

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IF LOOKS COULD KILL

by Leonard Tramiel of CBM

At one of the many computer trade shows over the years, I had a really funny interaction with Bill Gates. I was doing demos in the PET and answering the questions from those that walked by. I noticed a larger group of people approaching, but at first I didn't recognize anyone. As they got closer, I saw that it was Bill Gates leading a few others around. There was a translator repeating what Bill said into Japanese.

When they reached me, Bill walked up to a PET and typed WAIT 6502,10. This caused the machine to hang, and he froze. I said, quietly enough in the loud hall that only he could hear, "Bill, there's nothing at 6502, so that's just going to freeze". He turned and gave me a look that was a perfect example of a look that could kill. I knew what he was doing, so I turned to the group and said something along the lines of, "Microsoft BASIC is a valuable part of this machine." Bill relaxed and the group left the suite.

The WAIT command in Microsoft BASIC was an

unusual addition to the language that allowed very low level access to the hardware of the system. It would not go to the next step in the program until the memory location in the first parameter met certain criteria; the details don't matter here. There is no doubt that Bill knew this, so why would he type something that would hang the machine? There was a bit of special code, now known as an Easter Egg, that when the location was 6502, would print MICROSOFT! the number of times indicated in the second parameter. He was expecting this to print the name of his company on the screen to indicate that it was his BASIC in the machine. What he didn't know, until then, was that the Easter Egg had been found and removed. Microsoft gave us a fanfold printed listing of BASIC with the Easter Egg hidden by a NOLIST directive which appeared in that listing. John [Feagans] typed in the entire listing to create the source code for BASIC 4.0 and converted all the macro assembly to standard 6502 assembly language. To reveal what was hidden in the NOLIST area, the object code from Microsoft was disassembled. As soon as it became apparent what the code contained, the Easter Egg was removed as it really was a bug that could cause code not to work if a programmer really wanted to execute WAIT 6502!



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SEARCHING FOR THE ROOTS OF FCUG

by Dick Estel

In December 2019, following a discussion between Interface Editor Lenard Roach, President Robert Bernardo, and myself regarding the beginnings of the Fresno Commodore User Group, I searched on line for the name Chuck Yrulegui. His name appears as the creator/editor of our very first newsletter, then titled Tips, Pokes, Peeks and Jokes.

I knew nothing about him other than his name on the newsletter, but fortunately he was active in business, and several listings came up, including a phone number (it was also fortunate that he was not named “John Smith”).

Chuck was very happy to answer my questions, and a little surprised that the club was still in existence 38 years later. Mr. Yrulegui (pronounced roo-LEE-ghee) and two other gentlemen started the organization about October 1981. He could not recall the exact date, nor the last names of his fellow founders. They were Doug, a psychiatrist, and Kurt, a skillful programmer who operated a small computer business, Pacific Micro, on Blackstone Avenue in Fresno. Chuck said that Kurt wrote a data base

and a word processor for Commodore which were sold commercially.

(A Doug Waugh is mentioned in one of the early newsletters - # 6 page 5. Doug Gaither authored a review in the February 1984 issue page 3. Later newsletters mention Micro Pacific in Fig Garden Village, which could have been the correct name of the business.)

Chuck worked for Guarantee Savings, a major banking institution in Fresno at the time. If your memories go back to the 1980s, you may recall a tall building downtown with a rotating “G” on top. The business was eventually bought by a larger company, and over the years absorbed into various other banks. What still exists of Guarantee is now under the Citibank name.

Yrulegui was a commercial real estate appraiser, and began working on software that became the first multi-user program that could support the appraisal process from start to finish. He worked on a Televideo machine, which ran on TurboDOS.

His professional obligations soon left him with no time to devote to Commodore, and he left the club after a little over a year. That first newsletter carries the name “Commodore 64 User Group.” There were soon two groups, and it’s not clear which one grew from Yrulegui’s organization. One club was 64UM; the other the Fresno Commodore User Group.

In August of 1985 the two clubs merged, taking the name Fresno Commodore User Group/64UM, but Chuck was not around to take part in this change. We sometimes have had to explain the “forum” reference, and we usually just call it by the FCUG designation.

I believe I may have patronized Pacific Micro a few times. When I first bought my Commodore, there was a store that allowed you to rent programs for a small fee to try them out, applying

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the rental cost to the purchase price if you decided to keep it. Probably, but not for sure, this was Pacific Micro.

I also tried to reach a couple of other early members. Deb Christiansen was the BBS SYSOP when I joined in 1988. Her phone rang and an answering machine asked for a message, but she did not call back.

Calls to another long-time member, Bill Gilbert, produced a “no longer in service” message.

No doubt many of the people in the club when I joined are still alive, but I have no way to contact them, and for the most part they came in a few years after the merger.

That first newsletter has no date; the first dated issue of the newsletter is December 1983, but it has no volume # or issue #. Because of this we first assumed the date of the first newsletter to be February 1983, based on the count back of ten numbered issues prior to the one from December 1983. However, I believe that something mentioned in one of the earliest newsletters made it seem that the date was more likely November 1981. There is no way to tell if newsletters are missing, but it seems likely (our collection does not include all ten of the numbered issues). At least, Chuck pretty much confirmed the 1981 start date, meaning the organization is celebrating its 40th anniversary.



Club Officers

>--> Officers and Keypersons <--<

President	Robert Bernardo
Vice-president	Roger Van Pelt
Secretary/Treasurer	Dick Estel
The Interface Editor	Lenard Roach
Librarian	Roger Van Pelt
Club equipment	Roger Van Pelt
Meeting place reservation	Dick Estel

-The Small Print-

The Fresno Commodore User Group is a club whose members share an interest in Commodore 8-bit and Amiga computers. Our mailing address is 185 W. Pilgrim Lane, Clovis, CA 93612. We meet monthly in the meeting room of Panera Bread, 3590 West Shaw, Fresno, CA. The meetings generally include demonstrations, discussion, and individual help.

Dues are \$12 for 12 months. New members receive a “New Member Disk” containing a number of useful Commodore 8-bit utilities. Members receive a subscription to The Interface newsletter, access to the public domain disk library, technical assistance, and reduced prices on selected software/hardware.

Permission to reproduce content of The Interface is granted provided credit is given to the source, and when identified, the author. Club members are encouraged to submit articles, tips, or ideas for articles.

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Disclaimer – The club, its officers, members, and authors are not responsible for the accuracy of the contents of The Interface or the results of actions based on its contents.

Our disk library contains over 3,000 public domain programs for the C64 and C128.

Members are entitled to copies of these disks at no cost if a blank disk is provided. We do not deal with pirated, copyrighted, violent, or obscene programs. Please call our attention to any programs found in our library which may violate these standards.

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