THE EDITOR'S GODZILLA

by Lenard R. Roach

FANS VS. CRITICS

If you have read a few of my Commodore computer books, most of you know that I also write the occasional compilation of skits and plays designated to be performed in churches and Christian youth groups, especially puppet ministries. Together I have written several books that have been published over the years. I started my serious book-writing career way back in 2010 when I was in a deep depression. My wife of 26 years had left me for a younger man and wanted a divorce, and my son had left me to try his hand at starting a living in Ohio. I got myself super deep in debt with several credit cards and payday loan companies. One night during that despair I got the idea to re-publish my very first self-published book but this time to use a professional publisher complete with marketing. I didn't know what I was doing at the time, so I searched the Internet and went with the first publisher that showed up in the search results. After several uploads, phone calls, emails, and an extra three thousand dollars in debt, I got "Run/Stop-Restore: 10th Anniversary Edition" to the market.

The publisher did nothing more than take my money and print the book. There was no editing, no refining, and the only marketing they did for me was to place the book on the list of major booksellers, like Barnes & Noble and Amazon.

They also transposed the text into a readable Kindle format for e-books. I needed help in making the book a success, and they would do alL that for me... for a extra fee on top of the three thousand dollars I had already spent. Yes, I was published. Yes, people in the Commodore universe could buy a copy of my book, but I was not prepared for what was really about to happen...

I expected accolades and praises from the world saying how wonderful my book was. I expected the world to be grateful to have a new Commodore book out on the market. I expected the fan e-mail and snail mail to start coming in by the truck load. I expected offers to speak all over the country. I would be put up in nice hotels, and I, wearing a three-piece suit, would be the guest of honor at banquets and get-togethers. For such is the thinking of a bipolar mind driven into the depths of despair, looking for a way to get out other than suicide. What I got was no fan mail but requests from the publisher to do this great thing for me… for a fee... or do that great marketing strategy... for a fee. For any speaking engagements, I had to invite myself, then pick up my own tab for travel, stay in semi-run down motels, and pray I had enough in my meager budget to buy a meal at a cheap, fast-food restaurant. The only fan mail I got in my mailbox was letters from the utility companies notifying me of missed payments and shut-off notices. Sadly, when you're sick, the world doesn't stop but keeps on going and keeps on spinning. Desperate to have someone think of me as something special and give me some sort of praise for my efforts, I got nothing.

As a listener to Christian lecture radio that broadcasts locally in my area, I so happened to catch a lecture from Chuck Swindol, a famous speaker and author, who didn't focus his attentions on multi-platforms but stayed only with writing commentaries and expositions on the Bible. He told of one instance where he was

bombarded with criticism from several organizations about one of his books that he published. He was contacted mainly by email and snail mail. It went on for months. He took the time to answer these critics with a gentle and polite tone to his words, but that only seemed to exasperate his critics even more, spawning new hate mail and criticism. Again, he answered these new messages with the same finesse and patience that became a person of his position. Again, even more hate mail came in over his email, in his mailbox, and now his telephone. He finally had had enough. He started putting aside all the hate and animosity that was coming from disgruntled sources and started reading only his mail and answering phone calls that thanked him for his work and let him know that he was doing a good job and to keep it up. Soon, he was only reading a few lines of a hateful letter or e-mail before throwing the entire document into the trash bin, but he kept the grateful mail on his desk, reading them from time to time to keep his spirits up and using their good words to prompt him to write even more books and commentaries. He developed what he called the "thick hide."

I was listening to this lecture in my car and had to pull over to the side of the road, because I was concentrating more on his words and less on where I was driving. His lecture hit home with me, and from then on out I decided that I would start to develop my own "thick hide." I got off work that afternoon, went home, and started on my second book by sitting down at my Commodore computer and, using Big Blue Reader, I started transposing the text out of GEOWrite and into something my laptop would understand. The results were the composition of my second ever book, "Skits For Second Hand Puppets: The Ten Commandments."

After the manuscript was completed, I knew it was time to start looking for a different publisher. I wasn't going to spend another three thousand dollars for absolutely shoddy workmanship,

empty promises, and tacked-on fees. At my part-time job at the convenience store, I met Paul R.M. Howell, a very successful man who was a transplant from the United Kingdom to the United States, and he was nice enough to share with me a publisher who published his books for free and only asked for forty percent of any sales made on the material. The publisher was Create Space. I had to come up with my own cover design, my own Internet advertising, (Create Space would upload my advertising to its website), and do my own editing and formatting of the manuscript to a pre-packaged layout provided on the website.

Tim, my great friend in middle Missouri, who so happened to be in the photography and computer graphics business as a hobby, was chosen to help with the cover design. He had in his collection thousands of graphics and photos that he created over the years since his move from Los Angeles to middle Missouri. As a friend, he did my second book cover layout, design, and upload for free.

Next was editing. I didn't know where to look for that. On the Internet, people would be glad to "professionally" edit your manuscript for a fee ranging anywhere from three hundred to fifteen hundred dollars. I was already deep in dutch debt so that was out. Then providence stepped up again. My oldest brother's wife, Wynn, spent her entire adult career as a cookbook editor before she retired. This is something I never knew about her. I asked her if she wouldn't mind looking at my manuscript, to which she obliged. It took her several weeks to go through the text with a fine-toothed comb, but she cleaned up my manuscript and made it pristine and ready for the publisher. With this small team on my side, I felt like I was ready for anything.

Next were the critics. There was only one website that I knew of who was flaming my first Commodore book, and I was spending time answering their poodoo. I quickly logged off

from their server, never to log in again, and started to only hang out with people who thought that my writing was top dog and encouraged me to continue writing. My head cheerleader was my other sister-in-law, Tammy Lynn, who couldn't find the bad in anything. She and soon others were being put on the list of fans that really appreciated my books and wanted me to keep writing more.

One day as part of my job for Auto Zone, I stopped at one of stores in southwest Missouri. The employees at the store heard that I was a book writer and wanted samples of my last book. I found some at discount prices on the Internet (even the book sellers were turning into critics by keeping my book on the percent-off rack), bought them, and gave them to these employees. They ate it up! They called my writing "refreshing, a change from the norm, delightful, hilarious, inspiring, kick ***, he writes like the common man speaks," and other choice accolades that really sent me onto my word processor to create more writings. One employee read "Run/Stop-Restore" several times, got his wife to read it, and even got his youngest daughter to read it. Down in that little town in southwest Missouri, word-of-mouth was making me into a household name.

Though significantly small due to poor royalty negotiations, for awhile my bank account was increasing, and so was my fan base. Though I wasn't a success in the way where I could make a living at being a writer (I still had to work two jobs to make ends meet), I was no longer fighting my bipolarism, and I was enjoying life as a Commodore book writer and a skit book writer. The first skit book was launched, then right behind it a second skit book, then a double book release of my second Commodore compilation book, "Shift-Clr/Home," and my third skit book, "Twisted Parables." My editor asked me to never do another double release again. Too much work on her. That's okay. I was having fun, and my

readers were being entertained and were waiting for the next release.

To this day, I owe Chuck Swindol, that radio lecturer, a serious debt of gratitude. He took a depressed, down-on-his-luck person and lifted him up out of the miry clay and into the heavens of living his dream. What do I do with critics? I let them rant. The last time I checked the U.S. Constitution, we all have the freedom of speech to speak the way we want. Some people just don't have common sense to watch what they say. What do I do with hateful e-mails? Delete. What do I do with hateful snail mail? Trash. What do I do with grateful e-mails? I save them either on my laptop or in a folder on my computer. What do I do with grateful snail mail? I put them in a manila folder on my desk and pull them out from time to time and read them. Verbal accolades seem to stick best with me for some reason. I even get to talk to a few people who want to get their own books published someday. I encourage them the same way my fans encouraged me and tell them what my writing teacher told me many years ago, "Everything is publishable." You just have to find a genre to fit it in.

(Note from Robert Bernardo, Commodore Vegas Expo organizer: At the 2019 CommVEx, several attendees hovered around Lenard's table, wanting to buy his book(s) and wanting those books autographed by Lenard. In fact, he sold out the books he had brought. Lenard was indeed famous!)

The PETSCII files:
Commodore Character Graphics
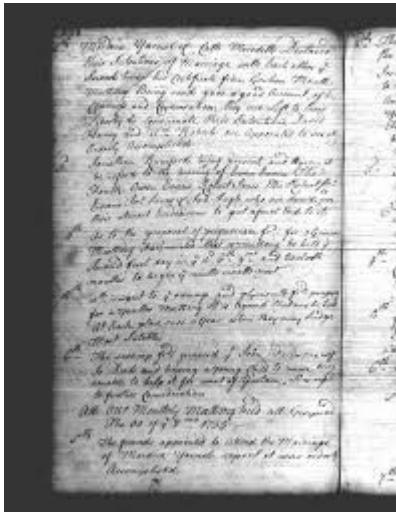
MONTHLY MEETING REPORTS

by Robert Bernardo & Dick Estel

July and August 2021

We're still looking for that moment when pandemic restrictions are partially lifted and we can start having some sort of meetings again. Keep your eye close to this paper and the club website for any upcoming details.

Rowan Lipkovits discusses Commodore text art.

(Robert Bernardo has been adding PETSCII graphics to the 1984 programs, Bible Games and Bible Scramble. This article reviews this art of keyboard graphics.)

Any computer that was going to use a command line interface desperately needed a character set, and despite their ultimate monstrous graphical capabilities, Commodore's machines were no exception.

As was usually the case (cf. SHARPSCII, ATASCII) they adopted a flavour of the venerable ASCII character set standard (oddly choosing this time around a 1963 version rather than the updated 1967 revision most other platforms ran with) and added a few tweaks particular to their anticipated needs – much as Intellivision baked a set of "running man" sprites into ROM for general use by its developers, Commodore's instructions for the PET designer Chuck Peddle and the son of its CEO Leonard Tramiel were to include shapes for card suits so as to facilitate easy BASIC production of conversions of card-based parlour games.

But even after this spec was fulfilled, they still had a few extra spots left open in the character set

(especially in its unshifted mode), and opted for reasons unknown to enrich it with a wealth of line-drawing characters and a handful of various shaded and unshaded boxes and fragments broken up at 90 and 45 degree angles, which yielded fertile ground down the line for such text-mode artists as would opt not to take advantage of the C64's renowned simplified hardware sprite-handling, instead drawing pictures using not vectors or bitmaps, but mosaic-like pointillism using individual fixed-width text mode characters as picture elements.

But not for a while yet. The character set debuted on the Commodore PET in 1977 (hence the label; lacking an official title, it has also been described variously as CBM ASCII or PETASCII) where it could be put to work in glorious green monochrome.

The Commodore PET 2001, demonstrated at the Winter Consumer Electronics Show in 1977 and released later that year, was the first computer to feature an extended graphical character set. It needed it – it was the only graphics the PET had, not possessing any dedicated graphics modes. But that didn't stop programmers from writing clones of Space Invaders and Lunar Lander only using graphics characters!

While the PET was the first home computer with graphical characters, later machines such as the Atari 400/800 and the Sinclair ZX81 also had them, as well as Commodore's later models. It didn't take long for people to realise they could make static art images out of them, and even "movies" that were character-by-character recordings of artists manipulating the text-screen "canvas" to create rudimentary animation. Several parodies of classic movies were produced, including notable B-movies like King Kong.

It was not until four years down the line when PETSCII was inherited by the VIC-20 (with the same characters but a slightly altered aspect ratio

to account for a different quantity of columns per screen) that you could finally set those wonderful characters alight in glorious colour! That machine was a respectable splash, followed shortly by its successor the Commodore 64 busting down the door over the next couple of years and introducing the PETSCII text mode to well over seventeen million users. (This achievement just about wound up the wild ride for the PETSCII standard, petering out with the C128 machine but not making the leap to Commodore's later Amiga line… But disregarding the C64's long lifespan on top of the heap, it continued to live on in the hearts and nostalgic memories of a generation of breadbox enthusiasts.)

Beyond its use in text mode BASIC programs run locally (got any twos? Go fish!) and floppy diskette file listing art, PETSCII found use on C64 bulletin board services, enhancing welcome splash screens, menus and interface elements (and even providing the backbone of primitive animations, chunky cartoons you could watch through your modem!) but failed to catch on quite like the PC's later analogues of ANSI art and ANSImation due to the relatively slow transfer speeds (a leisurely 1200 baud for all but the most daredevil test-pilot users) of consumer-level modems during the Commodore 64's period of market dominance in the home computer market.

Enter the demoscene. In their single-minded drive of one-upmanship to milk surprising performance out of hardware from prehistoric times, any underexplored (undocumented ideally) hardware or software quirk represents a rich vein of mad props just waiting to be discovered…just sometimes you need to bottle the hardware up and allow it to ferment for a couple of decades before new modes of thought reveal the miracles that were hiding there in the silicon in plain sight the whole time. And what they have found (really, what they have always known, but really started taking to heart around 2011, after it had been steeping for some 34 years) is that PETSCII,

divorced of its original context (slow modem speeds with a hard upper limit imposed by the floppy diskette controller the modem attached to), can prove to be a perfectly serviceable alternative to its younger sibling ANSI art where single-screen text mode art is concerned.

So here are some vital statistics about the features and limitations of the PETSCII visual art medium, and how it may be at variance from Other Text mode art formats you have experienced:

One screen is all you get. No epic ANSI art "scrollers" or "screeners" winding down the display like a tapestry. (Of course, if you are sufficiently clever, you can of course use PETSCII characters in a program of your own devising with beefier scrolling capabilities.)

The overall canvas, at 40×25 characters, has a lower text mode resolution than the 80×25 you might have come to expect from MS-DOS, and while it shares a palette of 16 possible foreground colours, you have to choose a single colour for the background of the entire screen. (ANSI art, by contrast, offers 8 background colours by default on a character by character basis, plus 8 flashing ones.)

Speaking of colours, PETSCII does experience the bane of the 8-bit display – colour clash if too many different foreground colours are used too near to each other, which needs to be carefully managed, tiptoed around or brazenly ignored.

While PETSCII does offer two character sets – shifted and unshifted – artists must choose to use to sample exclusively from one or the other in their compositions, and never have the complete range of PETSCII character-combination possibilities at their disposal.

Belgian text mode artist Otium of Galza straddles both worlds, equally fluent in ASCII and PETSCII, and notes that while there is a burden of

additional constraints imposed while drawing text mode art on the C64, handcrafted text mode art is already a delicate exercise in elegantly working around constraints… so drawing in PETSCII can be understood to be in a sense a purer, more condensed version of the ANSI drawing experience, where further minimalism yields greater virtuosity!

Marq of Fit happily coincided with wider demoscene casual interest in the medium in 2013 resulting from the CSDb forum's plain PETSCII graphics compo, releasing in that year his C64-native PETSCII editor (confusingly also named "PETSCII"); there are a number of other editing tools for that machine offering various feature sets, each with their own pros and cons (most notably varying output formats, each optimised for specific use cases)…

If you are both interested in PETSCII and a devotee of vintage hardware, you probably already have strong opinions about which flavour is best suited for your particular needs.

PETSCII has a compelling and distinct look, as can be testified to by the imitation of PETSCII limitations in C64 hi-rez graphics for purely aesthetic reasons, but for fans uninterested in committing to the constraints of emulation or vintage hardware use, operators of contemporary computers can take the PETSCII character set far with Vectorpoem's PLAYSCII drawing program and Grid Sage Games' REXPaint, regularly driven to its limits by UK text mode artist Polyducks – but beware that what these programs output merely looks like PETSCII, and will not be intelligible back on the mothership!

In addition to the PETSCII artists mentioned above, there are a number of further renowned and award-winning artists working in this medium. From within the demoscene, the curators of the Masters of Pixel Art books endorse the virtuous Scandinavians ilesj of Finland,

Mermaid of Norway, and Redcrab and AcidT* of Sweden, plus the masterful Balkan strains of iLKke of Serbia and Rexbeng of Greece.

But lest you mistake it for a purely European phenomenon, you can also find PETSCII art practiced in very different ways from out of the demoscene's shadow by PetsciiCola in Argentina and Ailadi in Shanghai, making for a truly global medium.

Contributor **Rowan Lipkovits** heads Vancouver computer arts group MiSTiGRis. Founded in 1994, MiST released art packs until 1998, then went on hiatus until returning with a 20th anniversary pack in 2014. After anniversary packs in 2015 and 2016, MiST returned to releasing monthly – 15 consecutive packs and counting.

You can browse Mistgris packs and download them from mistigris.org

If you would like to contribute to a pack, join the Mistgris group on Facebook by searching for "Mistigris Computer Arts".

It looks like, either the pandemic is letting up, or the pandemic is no longer slowing us down. The next issue of The Interface should be going to print by sometime around **November 15th, 2021**.

Lemmings Video Game Turns 30!

Legendary Dundee computer game Lemmings has celebrated its 30th birthday.

By Guest Coutributor Amy Hall

From a humble beginning, Lemmings, the game by DMA Design, would go on to to sell around 20 million copies worldwide and helped launch Dundee, Scotland's now-famous computer games industry.

Creators, gamers, and Lemmings lovers have shared their favourite memories of the iconic platform adventure as it celebrated its 30th birthday.

Originally developed by DMA Design, which was originally based near Seabraes on Dundee's Perth Road, Lemmings was published by Psygnosis for the Amiga computer in 1991 and later developed for a number of other platforms.

The game was programmed by Mike Dailly, Dave Jones and Russell Kay and was inspired by a simple animation that Dailly created while experimenting.

Speaking on the 30th anniversary he said: "One of my many favourite Lemmings moments was seeing a Lemming walk across a level for the first time in Russell Kay's demo. That's when I thought we all had something.

Commodore Prices Going Up! Check The Internet For The Best Deals.

"My biggest surprise with the game is how loved the music has been. To me it's always been functional, and slightly annoying. But to many, it's the sound of their childhood. Never thought that would have happened…

"This game helped change my life, and brought me more joy over the many years than I could have possibly imagined."

Despite the games success of the past three decades fellow original programmer Russell Kay still sometimes thinks it's amazing the Lemmings game saw light at all.

"It was actually rejected by almost everyone we showed it to, to start off with," said Russell, 51, a former pupil of Craigie High School who is now chief technology officer at Yo Yo Games in Dundee.

"It was 1990. I did the demo in 1989. But I was at my final year of university and I said 'I'm not doing this until I'm finished university and I can spend enough time on this'."

"I can also remember going to the bank manager and saying 'I make computer games I need a loan to buy an Amiga so I can actually write games for it'. He laughed me out. 'You are going to play games all day not do anything with it!'"

"Little did he know that's exactly what I wanted it for – to make games…"

Since its release Lemmings has often been celebrated both in Dundee and further afield. In 2013 artist Alison Conway created bronze statues of three cute Lemmings which were erected just behind the old DMA Design offices on Perth Road.

Earlier this year Royal Mail U.K. also announced 12 new stamps celebrating British-designed

gaming icons with Lemmings being transformed in to a first class stamp.

ATTACK OF THE MOUSE CLONES

by Guest Contributor Bo Zimmerman

In 1985 Commodore brought the Amiga into the world, with its amazing GUI interface, which required a mouse. Also at this time, the GEOS GUI operating system was becoming quite popular for the Commodore 8-bit line of computers, such as the C64 and the brand new Commodore 128, and it also could benefit from a mouse.

The control ports that mice plugged into were not identical between the Amiga and C64/C128 line, so necessarily their mice would not be compatible with each other. However, since both the Commodore 128 and the Amiga (1000) had identical case colors, it was reasonable to produce mice that matched each other in color at least. What was NOT reasonable, however, was to produce mice that were completely IDENTICAL from the outside, while remaining incompatible with each other.

Oh, and also, there weren't just two of them, but three functionally different mice in the exact same case:

Let me introduce you to the Commodore 1350, Commodore 1351, and the Commodore 1352, also known as the Amiga "Tank" Mouse.

Released around Sept of 1985, the 1350 is the most odd of the three mice, as it's really a directional (non-proportional) Joystick stuck in a mouse case. It works with both the C64/C128 and the Amiga, but only as a joystick, and not as a very good one, since a mouse is a terrible way to persist directional movement.

In March/April of 1987, the 1351 mouse was released. This is a true proportional mouse for the Commodore 64 and 128, and it works very well for that purpose. GEOS was greatly enhanced by this product, and its design earned Commodore some sort of patent! The 1351 is also special in the fact that it can emulate the 1350 as a joystick by holding down the right button on boot.

In November of 1985, the Amiga became available for purchase, and that's when we first saw the Amiga "Tank" mouse in its original form. It wasn't until 1988, however, that it was marketed to Commodore PC users as the 1352. Like the 1351, it is a good and proper proportional mouse for Amigas and Commodore brand PCs. It is not compatible with PC "serial" mice, however. The big question: If you get handed one of these things, how do you tell them apart?

Well, let's start with the easiest thing to check: as you can tell by the picture above, they are absolutely identical from the top, so that's not the answer.

What about the cable ends? Since all three have different pinouts, perhaps the connector is different

Here you can see two kinds of connectors pictured: A pair of fat-but-shorter connectors on the right, and a longer-thinner connector on the left. All three of those are from Commodore 1351 mice. So-- not entirely helpful. Amiga mice tended to have the long-thin connectors, and the 1350 tended to have the short-fat connector, but as you can see, the 1351 could have either.

While the above is disappointing, there is ONE connector that is a dead giveaway:

The original Amiga 1000 mouse had a large angled connector designed to fit snugly into the side connector of the Amiga case. When you see one of these connectors, you can be sure you are looking at an Amiga mouse.

OK, so what about the bottom labels? Surely Commodore put the model information on the bottom! Heck, we should have looked there first, so let's take a look:

Except for the odd 1351, and the giant AMIGA letters on a few A1000 mice (not pictured), there is no model information. Believe it or not, however, there are at least some patterns. You see, the top row are all 1350s, the middle are 1351s, and the bottom are Amiga mice.

Amiga mice seem to usually have similar looking bottom labels, even if there isn't any model information. They have those dark bold black letterings, the C= commodore lowercase logo, and a serial number beginning either with an A or B. However, there are exceptions to this as well. Pictured above is an Amiga 1000 mouse, with a lighter colored labeled and serial beginning with TM. Such labels have also been seen on non A-1000 mice.

The 1351s, when you are lucky, actually say 1351 on them. When you aren't lucky, you get the lighter colored C= Commodore logo and lettering with a simple numeric serial number. But mine is a small sample size, so who knows what variations are out there.

The 1350s are the only ones that say Commodore Business Machines on the bottom, again with lighter colored lettering than the Amigas, and a serial number beginning with X. Although, again, that's just my small sample size. But..... maybe you aren't comfortable with this method. After all, there's no way I can survey every single Commodore mouse. Suppose I made a mistake above, and some 1351s have labels that look like the Amiga, or some Amiga mice have labels like the 1350 or 1351s? Surely we can just pop the top off and look inside to tell the difference:

Now we are getting somewhere. This picture is the 1350, and it has a separate button board above

the main board. So, that's how we can tell those from the 1351 and Amiga mice below, right? Wrong. The raise "button board" seems to be more a sign of when the mouse was made than the model. Since the 1350 and the Amiga mice were made earlier than the 1351, the early revisions will often have this raised button board. Meanwhile, later versions of the 1351 and the Amiga mouse will all be single-boards, as shown below. As far as I know, the limited run 1350s do all have that raised board, but I could be surprised.
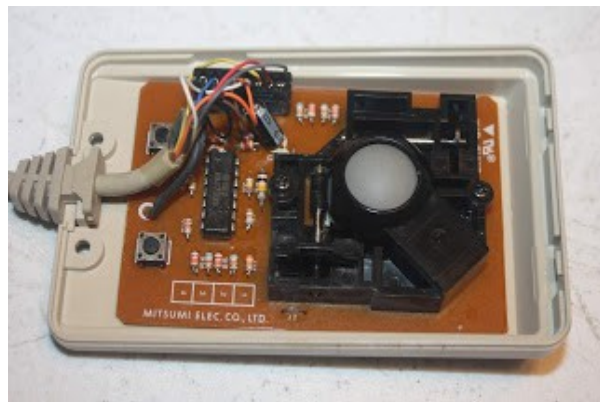
The later boards on the 1351 and Amiga mouse respectively, pictured above, have their components consolidated to a single board. The later 1351s don't seem to have any resisters along the left-hand-side of the board, while the later Amiga mice always do -- either three or five, depending on revision.

The biggest difference, however, and the one

certain SURE-FIRE way to tell the difference between these three mice is the chip inside.

So that's the answer!

Except that it's a little complicated.
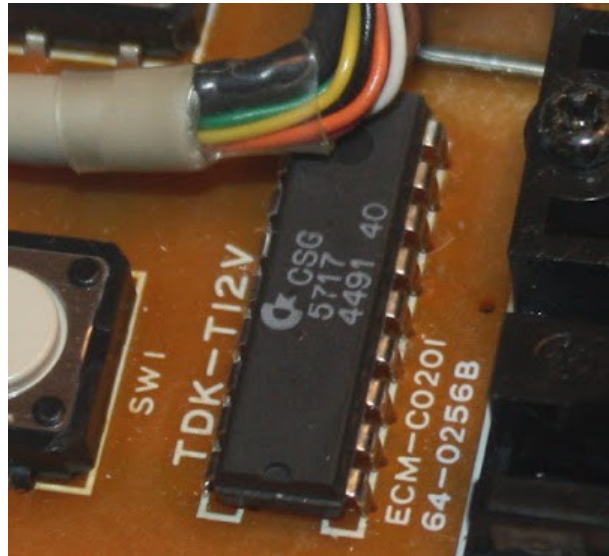
The Commodore 1351 mouse is easy. It almost always has a C= CSG 5717 chip in it. In fact, that same chip also appears in several 1351 clones I ran across, such as the CMD SmartMouse. So, if you see the CSG 5717 inside, you know you are looking at a 1351, period. Although, I found a 1351 online with a chip labeled "390209-01" -- so I guess that one too?
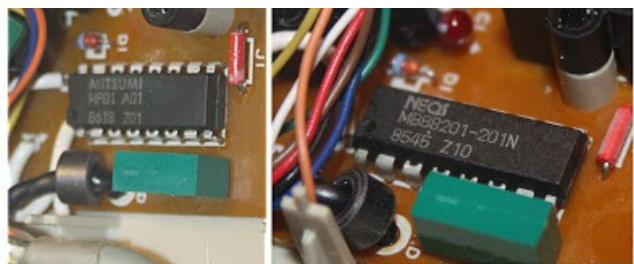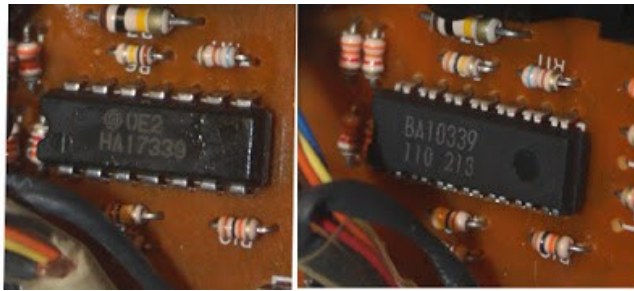

The Commodore 1350 has a chip which is probably a little "CMOS 4 bit microprocessor with A/D converter". This would make sense, since the analog signal from the wheel sensors are converted into simple on-off signals for the

various directions.   In this case, I'm seeing the Mitsumi MP01 and the MB88201

So!

That's the best I could come up with. Clues in the labels and the connector, and then a final answer in the chip, if you are able to find the model number online to figure out what kind of chip it is. If you have a Commodore or Amiga mouse with a serial label different from the ones discussed above, please drop me a line.

There might also be a way to check for the right-mouse-button on pin 9 of the Amiga mouse, but I was aiming for more visual inspection methods, so I didn't investigate this. Still, if you want to pursue that, here is a pinout comparison. The 1350 is labeled here as "1351 Joystick Mode".

Pin	Amiga Joystick	Amiga Mouse	1351 Joystick Mode	1351 Proportional Mode
1	Up	V-pulse	Up	Right button
2	Down	H-pulse	Down	Unused
3	Left	VQ-pulse	Left	Unused
4	Right	HQ-pulse	Right	Unused
5	n/c	Button 3 (Middle)	Unused	Y-position
6	Button 1	Button 1 (Left)	Left button	Left button
7	+5V	+5V	+5V	+5V
8	GND	GND	GND	GND
9	Button 2	Button 2 (Right)	Right button	X-position

Clearly Commodore should have thought about the confusion that might erupt around three products that look so similar, but which are functionally so different. Hopefully this post can help anyone faced with the frustrating situation I found myself in today trying to distinguish

between a pile of tank mice from someone else's collection.

A New Forty Year Old Video Game

by Guest Contributor Jim Orlando

In the past I participated in an annual weekend game programming jam here in Toronto called TOJam. An amazing event where incredible gamers, coders, artists, etc create video games from scratch over a long-weekend. This inspired me this weekend to go 8-bit "retro" and complete a version of my favourite arcade game, Williams Defender (released in 1981) on my original Commodore PET home computer (also from 1981).

Commodore PET

I am always intrigued by the unsung behind-the-scenes technology and people. There are many famous people from that 8-bit computing era (notably Bill Gates and Steve Jobs), but many others were involved as well. Commodore was founded as a typewriter repair shop by Jack Tramiel, and over the years, branched into office furniture and calculators. Recognizing that home computers were the next calculator, Jack/Commodore bought Chuck Peddle's MOS Technology processor company, and Chuck designed the Commodore PET. The PET is one of the original home computers and was released in 1977 at the same time as the Jobs/Wozniak Apple II and Radio Shack TRS-80; people refer to the

PET, Apple II and TRS-80 machines as the 1977 Trinity. The PET featured an 8-bit 6502 processor, monochrome screen, had a fixed "PETSCII" character set, and a fully-loaded machine came with 32 kilobytes of memory.

Chuck Peddle's 6502 processor was the heart of the 8-bit computer era. Super-functional (although no multiplication/division) and dirt-cheap ($25), it became the workhorse chip inside most home computers, arcade machines and home video game machines of the late 1970s and well into the 1980s. The 6502 was used in the Apple II, Commodore 64 (and the earlier Commodore PET described above), the original Atari 2600 video game system, and the even original Nintendo NES.

Williams Defender

Defender is my favourite arcade video game, and programmer Eugene Jarvis is another one of my behind-the-scenes heroes. He was a pinball machine designer working for Williams, saw the success of Space Invaders in arcades and convinced Williams to expand into the video arcade game business. His first video game, Defender, became a fixture alongside PacMan and Donkey Kong in arcades everywhere. Released in 1981, the game was ahead of its time on many fronts: a 16-colour giant screen, and two processors controlling the graphics and sound. It was one of the first "side scrollers" (later popularized by Super Mario Brothers), had more control buttons than was typical for the day, and the graphics and sound were best-in-class.

Defender 2020 for the Commodore PET

My challenge was to try to jam as much as possible from the original arcade game into the constrained PET hardware, and to do it as quickly as possible. While from the same 8-bit era, the PET is far more limited than the custom Defender hardware. The PET was built on 1977 hardware,

and Defender on 1981 hardware — two full Moore's Law 18-month double-the-transistor-count cycles. The PET has monochrome fixed character graphics vs. Defender's pixel-level 16-colour control, single vs. dual processors, 40x25 character display vs. 292×240 pixels and a keyboard only / no joystick.

The result? Well you have to squint a bit but it's definitely playable— my PET game uses arrows (↑) as the humans on the planet, and pi symbols (π) as the evil aliens flying around seeking to grab the humans and turn them into mutants. Q, A and Z keys on the built-in PET keyboard replace the joystick. You can try out Defender 2020 for Commodore PET in an online simulator. (Thanks to Norbert Landsteiner for hosting it on his retro PET website!)

If you want a more complete experience, you can download the Commodore VICE emulator (PC/Mac), download the Defender game [at]

https://www.masswerk.at/pet/prgs/

and drag the game into the emulator to get it going.

And of course if you want the full experience, you can try it on your own PET if you happen to have one kicking around. Thanks to members of the Toronto PET Users Group (TPUG) for testing it on a few different machines for me.

Another for the Forty Year Old Computer

by Guest Contributor Jim Orlando

In May 2020, I participated in a weekend game hackathon and created a clone of my favourite arcade game, Williams Defender, for my forty year old 8-bit Commodore PET computer. Programming the game was a tribute to Chuck Peddle, the inventor of the 6502 processor who had recently passed away. The 6502 chip essentially launched the personal computer industry and was the processor in the early Apple, Atari, Nintendo, Commodore and most other 8-bit machines (think of it as the "Intel inside" for the 8-bit era, although it was made by a different company called MOS which eventually got bought by Commodore).

I liken programming older machines in "machine code" to solving puzzles — sometimes you optimize for space since memory is limited, sometimes you optimize for performance since the processor is relatively slow, and sometimes you optimize for typing since editors are fairly primitive (no copy-and-paste, for example, so you end up creating more subroutines and loops to save typing time). But overall, those little dopamine "hits" you get from writing a good subroutine or making something move just a little bit faster probably triggers the same paths as solving a Sodoku or crossword puzzle.

On a different topic, we recently saw the "passing" of another historical computer technology — Adobe Flash. If you don't know Flash, it was the technology behind many (probably most) casual games on the internet and on Facebook (i.e,. most casual games before iPhone). Flash was used in all kinds of games — Scrabble, Bingo, Farmville, etc. In July 2017, Adobe announced that it would cease support of Flash at the end of 2020, and as we head further into 2021 it seems that most browsers will soon prevent Flash from being installed (and hence stop Flash games from being played).

My favourite Flash game? Desktop Tower Defense, a game popular in the late 2000s that involved setting up "towers" to steer and shoot "creeps" before they exit. From Wikipedia:

"In the game, the player must stop a set number of enemies, known in the genre as "creeps", from reaching a set point on the playing field. This is accomplished by building and upgrading towers that shoot at, damage and kill the enemy creeps before they are able to reach their objective. Unlike many other tower defense games, the path of the creeps themselves is not set; instead, the towers built determine the path of the creeps, who take the shortest path they can find to the exit."

Programming a new version of Desktop Tower Defense for my 40-year old Commodore PET became my new 2020 holiday project. The graphics on these old machines is challenging at best, and the amount of CPU you have to implement stuff is definitely constrained. I had to simplify the game to have only two types of towers (a sniper and a rocket launcher, the original has eight different types) and creeps have only one entrance and one exit (in the main version of the original, creeps enter from the left and top, and exit at the right and bottom).

But, despite running on a 40-year old 6502 processor clocking at 1MHz with 32K of memory,

the game plays reasonably well. All the "tricks" of the original are there :

* earn currency by killing creeps,

* spend your currency to place the cheapest towers around the playing zone to create corridors,

* eventually set up a winding maze to maximize the creep kill-zone, upgrade certain towers in key corner locations, and

* delete and add towers at key locations to force creeps to double-back where they came from, then do it again to have them return on their original path.

You can try out PET Tower Defense 2021 in an online simulator. (Thanks to Norbert Landsteiner for hosting it on his amazing retro PET website!) or download the game if you happen to use the Commodore PET Vice emulator or have your own PET kicking around.

https://www.masswerk.at/pet/prgs/

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-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.

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