The Interface

"Taking 8-Bits Into The 21st Century"

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We Will Always Remember

FCUG remembers and honors those who gave all so we could have all.

In This Issue:

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www.dickestel.com/fcug.htm

THE EDITOR'S GODZILLA

-by Lenard R. Roach

IN THE END, COMMODORE WINS

For many months, I attempted to get people at church to use the Commodore programs and utilities that were Bible-based, that pertained to teaching the Christian way of life to children. I coded these either out of a book or out of my own thoughts. However, I met road block after road block. The church officials didn't want the hassle of lugging around and setting up an entire Commodore system each Sunday morning. I tried to counter this by giving them a copy of the WinVICE Commodore emulation program for the PC, but they had trouble operating the software, even with step by step instructions. These stuffed shirts were so stuck in their ways that if something didn't fit into a certain mold, then it wasn't worth doing. I personally didn't mind failing an attempt once in a while but constantly being shot down started to wear on me. I was about to give up completely and to resolve to only use my Commodore Bible games privately when something happened that opened a whole new door.

As you the reader may remember, I started making word search puzzles for the local Nazarene church. Once a month the church district office emailed both a crossword and a word search along with a mini-coloring book and story pertaining to the lesson of that week. Though this was a good idea, it left three weeks where the children had neither a story to read nor a puzzle to do. Taking up the challenge to increase the frequency of puzzles, I searched the internet and found both a Commodore 64 crossword program and a word search generating program which were easy to download. I put the program images from the internet onto 5.25" disks, so I could run them on my stock Commodore. Everything was mostly self-explanatory in the programs, but I made a few trial runs of each program to make sure that the software ran correctly.

The word search generator was easy to use. All a user had to do was determine how many columns across, how many rows down, and how many words to put into the puzzle. Then the user typed those words into the computer, and the Commodore did the rest. This program worked well with my MPS 802 printer. However, the crossword generator was a different story. It came with no tutorial. Certain keys had to be pressed in order to make the program access different menus, and it took a little hunting and pecking to find those particular keys. Even with all these functions narrowed down, the effort was almost moot when I found out that my MPS 802 printer was not a graphics printer necessary to print out the puzzle. The crossword program would have to wait for another time.

Staying in contact with Pastor Barbara who headed the church children's department, I got weekly updates on which Bible verses were going to be presented to the class, and my mission was to come up with a story that would best complement the lesson. Since I was terrible at telling stories in a novel style, I chose to write my ideas down in two-page skits, usually involving two or three characters. Pastor Barbara took ahold of these skits and got the notion to have the children perform the skits by reading the lines to

the rest of the class. Not only did this give the kids a chance to stretch their acting skills but also to help them practice their reading. Sadly, these stories were written on my PC laptop and not on my Commodore computer. You'll have to stone me for blasphemy.

Prophetically, one year my youngest son Gabriel bought me a Dell All-In-One printer for Christmas. He mainly got it for printing my manuscripts whenever it was needed, but it had a few more functions as well, like a scanning function. With my laptop tied in with my PC via the wireless router, I knew I could put my Commodore into play within this setup; I printed the word search off my MPS 802 and then scanned the print on the Dell and into my PC. I then took the .pdf file on the PC and sent it via email to Pastor Barbara in time for class on Sunday.

The Nazarene church had accepted the word searches well, so I decided to spread the word searches to others. On a whim, I emailed a skit and a word search sample to Pastor Dan and his receptionist Tammy of the local Assembly of God church not to far up the street from my home. Tammy responded right away, thanking me for the puzzle and would start working with it as soon as she had free time. Pastor Dan printed off his copy and said that it was too light for him to read. With this news, I went back to the Dell printer, found the BRIGHTEN/CONTRAST command on the keypad, darkened the copy, and sent the resulting .pdf again. Pastor Dan emailed back stating that the print was too small for his wife Farris to read. Back to the printer I went and looked around for the REDUCE/ENLARGE key button. I took a quick review of the owner's manual before I could find that command which was hidden in the menu screen. After working with the printer, I finally got it to enlarge the print out to 140%. I emailed a copy to Pastor Dan, and he was pleased. The bigger and darker copy was easier to read, and Farris was able to work the word search without the use of her glasses.

One day Pastor Dan contacted me, asking if I could make a word search with the prophet Jonah (the guy who got swallowed by a whale) as the subject. Pay dirt! I responded that it would be a pleasure and asked him which one of the four chapters of Jonah he would like to focus on. He responded back that he wanted the whole book covered, since it was such a short read.

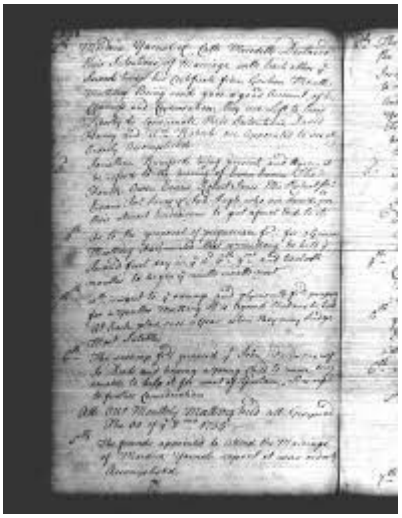
We bantered back and forth via email, trying to get all of the details worked out. How big did he want the word search? How many columns? How many rows? How many words? We decided that this word search would be thirty columns across by thirty rows down using only twelve total words. Pastor Dan figured that with more letters to choose from and fewer words, the word search would be easy for young children to solve. My logic was different. The way I saw it, the fewer letters a person had to choose from, the better chances there were in finding the words. However, this was his word search (or really his wife Farris'), and he could have it anyway he desired. I was just the coder.

In about ten minutes, I came up with twelve words out of the book of Jonah and put those words into the word search generator. Using the predetermined parameters, I used the Commodore to make the word search, and I printed it on the MPS 802. To darken and enlarge the puzzle, I used the Dell E515dn printer. I then scanned the puzzle into a .pdf and sent it to my laptop. A quick check in my laptop’s .pdf reader to see if everything checked out and I emailed the document to Pastor Dan. The next day I got a response from Pastor Dan stating that this was perfect and that the word search would be used for the upcoming Sunday School class.

Now I spread the Commodore-created word

searches even farther. Knowing of friends who attended other churches, I sent copies of my skits and word searches to them. Soon I learned that the word searches were being used in those churches. As of this writing, I knew of at least four churches locally that were using the word searches from my Commodore 64. I told everybody that these puzzles were public domain and that they could share them with anyone who use them. To be honest, I didn't know how far the influence of these word searches had gone. As skits, they made for good reading material for all.

Out of all the ways I tried to get the Commodore into the church, I just had to step back when I was coding Bible-based programs and let everything work out in its own time.



MONTHLY MEETING REPORTS

-by Robert Bernardo & Dick Estel

MAY 2024

The third Sunday of May was a pleasant, breezy day. Perhaps it was too nice to want to sit inside a Panera Bread Restaurant for a few hours. In any case, only two people showed up for the meeting, Robert Bernardo and Dick Estel. We recalled having a few meetings like that years ago before the club received an infusion of new blood.

Our pre-meeting discussion covered various subjects, one sort of Commodore-related. Dick had a briefcase which he brought to every meeting, although usually the only thing he used from it was a pen and notebook. He'd been saying, "I need to clean this out" for months (years?)

Inside the briefcase, we looked in one of the folders and found, among other things, the Interface newsletter from December 2000 (Dick Estel, editor). The main article was a report by Robert on his nearly 2,000 mile, 10-day "grand tour" of the Pacific Northwest in the summer of 2000. Robert met with many Commodore users on this journey, but it was a bit sad to realize several of them are no longer with us.

Also in the briefcase was the Commodore Products Source List from August 1997, a 38-page document maintained by Roger Long of College Place, WA. Robert dryly commented, "It's out of date."

Also catching our eye was a flyer for CommVEx V5, featuring Commodore pin-up girl Jeri Ellsworth, and a 2017 membership list which included all five of our current most faithful regular members, Robert, Dick, Roger, Bruce, and Dave.

As usual, Robert had future travel plans. First up was the William Shatner Weekend in Burbank, June 1, at which Robert will ask Bill to autograph an Amiga A1000 keyboard, a VIC-20 for Duncan of Santa Clara, and a T.J. Hooker script for a friend in New Jersey. Each flourish of the Shatner pen will net a $75 donation to charity.

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The Pacific Commodore Expo Northwest (PaCommEx) is coming up June 22 and 23 at the Old Rainier Brewery building in Seattle. Admission is free, but donations are always welcome. Robert will leave home on Monday before the event and make his way slowly up the Interstate 5 corridor.

Robert has applied to have a table at the Bay Area Makers Faire in October but has not yet been approved.

The recent Commodore LA Super Show (CLASS) took in enough revenue to pay for the room for 2025, with a small amount left over.

Due to a conflict with Father's Day, the June meeting will be moved a week earlier to June 9.

Next, we moved over to the computer table where Robert's laptop was set up and ready to show us five TV commercials for Commodore 64 and VIC-20. These ran on November 20, 1983, during the very grim TV movie, "The Day After," about a nuclear attack on the US (https://en.wikipedia.org/wiki/The_Day_After). The commercials were very professional and interesting, focusing on the Commodore's capabilities for both productivity, programming, and games. Dick recalled the movie, but since his first Commodore computer was almost a year in the future, he had no memory of the commercials.

Next we looked at Robert's newest purchase, a computer case into which he and TOGA member Duncan of Santa Clara had installed an AmigaOne A1222+. The A1222+ came from Europe and was fairly pricey, but Robert saved some money by purchasing the case and power supply in the U.S.. Being a modern 2024 computer, the A1222+ had HDMI output onto a 1080p screen, USB ports in which you could add USB devices, and a fast Amiga operating system which made using the desktop easy.

We looked at a number of demos, games, music, videos, and emulated computers which ran on the A1222+. Some demos ran full-screen; others ran on a window within the screen. One of the demos that Robert showed was the Cow3D demo. The demo was of a computer-rendered cow that spun horizontally against a starry background. The demo ran in a window on the screen. Another window on the screen gave a text read-out of how many frames per second the demo was running its animated cow. Robert started the demo, the cow spun extremely fast, and the read-out said anywhere from 200 to 280 frames per second. But Robert was not finished! As that one demo was running in its window, Robert started another Cow3D demo in another window. Now there were two spinning cows on the desktop, the cows spinning too fast. Robert continued; he opened up another Cow3D demo in another window and then another and then another. Robert finally had six windows open with six cows spinning. When he tried to open a seventh window with a spinning cow, the A1222+ locked up, refusing to run the demo, though it did open a window. Six cows was a new record, because the previous day with Duncan, he had only gotten up to five cows.

Games had the same video limitations, i.e., some ran at full-screen while others ran within a window. Some games ran natively on the Amiga OS4.1 system; others required the A1222+ to run an emulator emulating the older OS 3.1 system. Robert found out that playing more modern games on OS 4.1 was a hit-or-miss proposition. The more modern games were coded for older AmigaOnes which had different architectures than the A1222+. For example, Wings (World War I flying game) for OS 4.1 supposedly ran smoothly on the older A1's, but on Robert's A1222+, it would run a bit through the game and then freeze when the sound effects of bullets were played. The game was unusable. However, when Robert tried the older version of Wings made in the

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1990's for OS 3.1, it was smooth and enjoyable.

Playing music was no problem; Amiga MOD's and MP3's played very nicely. An older Amiga would have had trouble playing the MP3's.

Playing hi-def videos was far less of a problem on A1222+ than on older Amigas. Though the DVPlayer on the A1222+ did not like certain video formats in hi-def (they ran slowly or had huge artifacts in the picture), MP4's encoded as H265 files and MPEG-2's played fairly smoothly and with synced sound. Robert showed a scene from the classic 1995 Babylon 5 TV episode, "Severed Dreams," and the computer-rendered spaceships (rendered on Amiga computers!) slid across the screen with very little video "stutter." (When Robert asked why certain quick-moving scenes had the hesitation, Duncan said it was due to the DVPlayer, though Robert thought it was the slow refresh rate on the video monitor.)

Robert showed that the A1222+ could emulate other, older computers. Using the VICE application, Robert was able to run a Commodore 64, a VIC-20, and a 40-column PET. Using the Hatari app, he was able to run an Atari ST.

All in all, the consensus was that the A1222+ was good, usable computer. Dick remarked that it was modern but still had some of the old quirks (which Robert took to mean that certain apps would lock up the computer and then the machine had to be switched off and then back on).

JUNE 2024

Robert arrived from Stockton at about 10:30 a.m. and started setting up the equipment. By 11, he had an Amiga 1000 ready to exhibit with a Commodore 64C and a VIC-20 ready to be demonstrated after the Amiga. From the A1000 hard drive and the hundreds of games within the drive, he had trouble trying to find an appropriate Amiga game in which to test the capabilities of the used Sega controllers in he had bought off of eBay; he kept finding games which used a mouse.

That's when member David walked in. For awhile, it seemed that only Robert and David would be at the meeting. They ordered their food from the Panera Bread counter, and then member Bruce dropped in to join the festivities.

Lunch discussion consisted of old cameras (Robert had brought a 1955-56 Neoca rangefinder film camera), the price of fast food (Panera was cutting back choices, and other places were too high), and color printers (the Epson ET series with their refillable ink tanks were very economical).

The meeting proper began with old business. Bruce wanted to know if any surveys had been passed out to the Commodore Los Angeles Super Show attendees. Robert replied no. Bruce emphasized that it would be good to find out what attendees wanted in a show, what would they like to see. For Bruce's part, he wanted tutorials, like a tutorial on the Amiga graphics program, Imagine. Robert thought that having surveys was a good idea, and he will implement them at the June 22-23 Pacific Commodore Expo NW in Seattle.

Under new business, Robert showed off the William Shatner-autographed VIC-20 for Duncan M. of The Other Group of Amigoids, the Shatner-autographed Amiga 1000 keyboard for Robert, and the Shatner-autographed T.J. Hooker t.v. show script, complete with color screen captures from the episode. Robert said that his station wagon was mostly packed up for the long trip to PaCommEx, but he bemoaned the fact that the Dell HDMI/VGA/composite monitor, the one that was being used in the meeting and would also be used at PaCommEx, was having difficulty displaying a stable hi-def picture. David

reminded Robert that he was taking the Dell monitor everywhere, the monitor being bumped and jostled in the car, and that problems with it were inevitable.

Before the hardware presentations began, Robert repeated what he had done at the last meeting, that is, to show Commodore commercials that were shown during the 1984 t.v. movie, The Day After.

David and Bruce chided Robert by asking him if there was any new Commodore/Amiga computer out for sale. To their surprise, Robert told them at the May meeting he had exhibited the new, 2024 AmigaOne A1222+ from A-EON. Robert said that they had missed out on his presentation of the A1222+ but that he would bring it again for the next meeting. When they asked him the cost, he said it was about $1,500, and that's including the case and power supply he bought for it in California (the motherboard, memory, solid state drive, and graphics card came from Europe).

For this month, Robert presented his Amiga 1000 which had been modded with the Apollo Firebird, the Firebird giving the computer massive CPU acceleration, HDMI, 512K of memory, AGA compatibility, and a very-compatible Workbench replacement, Coffin OS. He opened up various windows on the desktop, played some MP3 and MOD music off of the machine, ran the SysInfo benchmark program (the A1000 with Firebird accelerator was running more than 320x faster than a standard Amiga 600), tried out Lightwave and its rendering of 3D objects, ran a few fractal-building programs, and played some games, including Bruce's requested favorite, Gods. Bruce was amazed at how quickly the game loaded and how smoothly it played. Impressed with the Firebird accelerator, Bruce asked about its cost, and when Robert said it was over $500, Bruce was less impressed. Robert basically said no matter, because Bruce already had an '040 accelerator in his Amiga 2000.

Bruce had to leave early as did David… no further presentations on the C64C nor the VIC-20… no running the meeting until 4 this time. With that, Robert closed the meeting, David waiting to help move the gear back to Robert's car.

UNDYING LOVE FOR THE PAINFULLY UNCOOL AMIGA

-by Guest Contributor Dominik Diamond

It may have looked like something you'd see a bank teller use, but it withstood heavy battering. And it ran the coolest games

I have told my wife that I want an Amiga Mini for Christmas. I know it's only April, but I do this with things I want in the hope that when it suddenly appears in the house next week, my wife will think *she* bought it for me. I have slipped the purchase of seven games machines, a stuffed tarantula, and an air fryer under the radar this way. In an inconsistent world, I like the way this institution of marriage works.

I read the reviews and was surprised at the appearance of two words I never associated with the original Amiga: cool, and *love*. It might seem strange to say the Amiga wasn't loved, because a lot of people bought and used one. But people use things every day that they don't love: electric shavers, patience, door handles, the train.

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People *loved* the ZX Spectrum. They *loved* the Mega Drive. If you talk to an owner of *any* Nintendo machine, from a Game Boy to a Switch OLED they sound like Romeo talking about Juliet, Meredith Grey talking about Derek Shepherd, or Elon Musk talking about himself.

As someone who was actually there for the 80s and 90s, the Amiga just didn't enjoy that kind of love. Why? Because it looked uncool. The Game Boy looked like an alien artifact from a trendy 70s sci-fi show; the PlayStation was what you'd get if a high-end record turntable had mated with the sexiest sandwich maker imaginable. The curved lines of the Xbox 360 were the definition of allure. It was one of those rare machines that looked as good lying down as it did standing up. Today I still run my fingers along its curves if I see one in the wild.

The Amiga looked like something you'd see a bank teller use. And not for the cool bank stuff, like foiling a robbery.

The Amiga 500. So stately! So boring! So gray! Photograph: Felix Choo/Alamy

I know the Amiga was a computer rather than a console, but so was the ZX Spectrum, and that looked good enough to eat. The Atari ST was no great looker either, but at least they angled the top row of function buttons to make it look like they *considered* its aesthetics.

They should have at least chopped a corner off the Amiga. That would have helped. It worked for the Game Boy. (Actually it worked for the Fender Stratocaster first.)

Personally? I really did *love* the Amiga. I had more glorious evenings with it than any other machine, in terms of hours played and the quality of those hours. It provided the best party game ever in Sensible Soccer, the best futuristic (and best looking) sports game in Speedball 2 and the best time-swallower with Championship Manager, just edging out Sim City. And I am not sure there has ever been a more mathematically precise sports game than Jimmy White's Whirlwind Snooker.

Party time … Sensible Soccer. Photograph: Sensible Software

The Amiga provided the most originality and humor with Lemmings and Worms. In IK+ [International Karate] it gave you a *three-player* fighting game. In the early 90s you could be burned inside a giant wicker man just for whispering of such things. I never read the Dune books, so whilst watching the Dune movies I was taken back to my first introduction to that world: the astonishing Dune 2 Amiga game.

It gave us the best adventure game in Secret of Monkey Island, which may be the funniest game ever as well. Cannon Fodder was also funny, but simultaneously poignant and sad. Has there been a better games developer than Sensible Software? It made game development seem funny and cool, not words I would have associated with games developers before.

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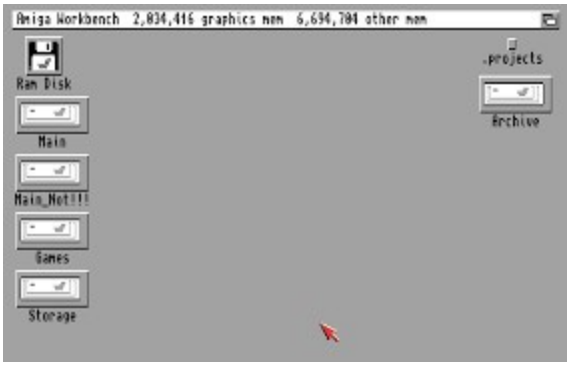
The Amiga was solid. It was dependable. Before you even played a game, slipping a floppy disk into its slot felt good. That satisfying thunk sound. The way it seemed to grip the last few millimeters of the disk and pull it in. So reassuring and trustworthy.

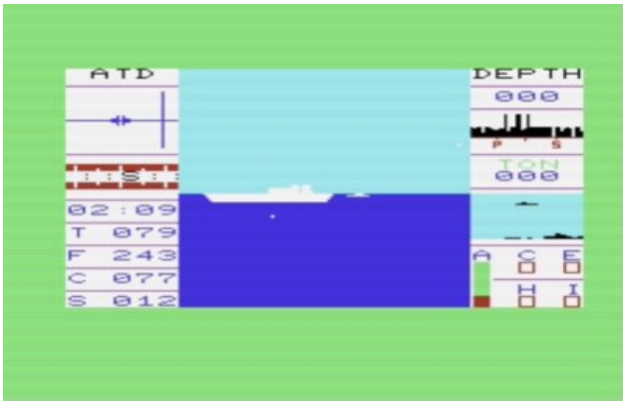
I don't remember anything ever breaking with my Amiga. I don't remember a game that didn't load. Even the peripherals were solid. My delicate little Cheetah Bug joystick took such a beating on Sensible Soccer alone, it beggars belief that it survived. All I have to do to break the R1 button on an Xbox controller is look at it in a disapproving manner.

Like the Spectrum before it, the Amiga allowed people who couldn't afford a PC to play games on a computer. Then the PC killed it: microchips got cheaper, Amiga didn't move fast enough, and it seemed to die really quickly.

We didn't love the Amiga enough. We were like Andy putting Woody in the cupboard after he got Buzz Lightyear. Alas, Pixar hasn't featured the Amiga in a single movie scene: instead Toy Story featured the Speak and Spell. Ever tried playing Zool on *that*?



LIFE WITH SUBMARINE COMMANDER - VIC-20



-by Guest Contributor Stvnorman

As I start writing this at the end of 2020, on a third consecutive day of freezing temperatures and an impenetrable fog that Silent Hill would be proud of, I'm thinking about my favourite games of the year. Actually, my favourite game of this year is easy; it's the supporting cast that needs a bit more thought!

Anyway, In Other Waters on Nintendo Switch hasn't been in any doubt as not only my game of 2020, but one of my top 25 games of all time since I first played it in around June of this year. You play an artificial intelligence guiding a xenobiologist through an underwater alien landscape, discovering its impossible lifeforms, its secrets, its history, and ultimately yours too.

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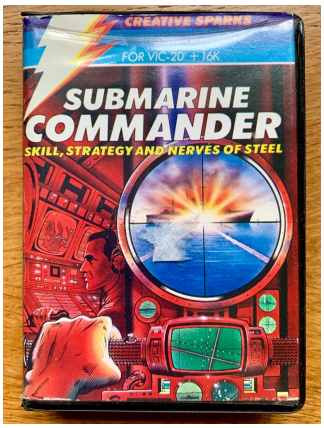
Everything centres around its beautifully refined and descriptive user interface, which almost immediately becomes second nature, and drives the wonderful story, as well as your imagination. It's intuitive, claustrophobic, tense and – despite its visual simplicity – stunningly atmospheric.



And from the minute I started playing In Other Waters, it drew my mind back to a very similar experience I had many, many years ago on the Commodore VIC-20 that could be described using pretty much exactly the same terms… This was everything I loved about Submarine Commander all over again!

By the time Boxing Day 1984 had passed, the mighty 16K RAM expansion I'd been giving for Christmas the day before had passed its first test in The Perils of Willy, and I was seeking out new possibilities that I'd spent the past year disappointingly skipping over on the shelves of Woolworths, Boots and WHSmith when I was unexpanded. Of course, in those days none of them would be open until the following day, so whatever money you might have been given for Christmas was now really burning a hole in your pocket. Actually, even worse was that same 48-hour hold-up when you'd got something that needed exchanging… I still remember the agonising wait the following year when I'd been given a really cool pop-up book on Halley's Comet (just as it was poised to become a phenomena in 1986), but the working pop-up telescope had a tear in it which obviously ruined everything!

Anyway, back on Friday the 27th December 1984 and I like to think that once David Icke and Frank Bough had finished doing their thing on Breakfast Time, I watched Charlie Brown then by the time Inch High Private Eye had been and gone I was just about ready to leave for the shops before the dreadful Lassie started at 9.50am. And that's where I made a beeline to Submarine Commander in the VIC-20 section in Boots, because to 12-year old me there was no greater use of 16K of RAM than piloting a World War II submarine, and having spent months staring longingly at this box more than any other on display, there was absolutely no hesitation that this was where my Christmas money was finally going!

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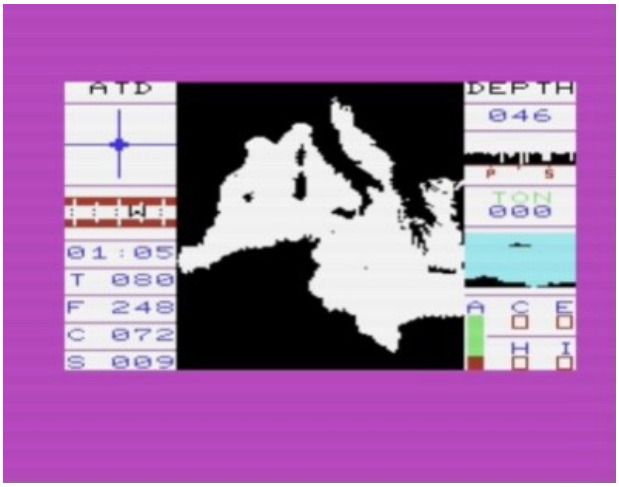
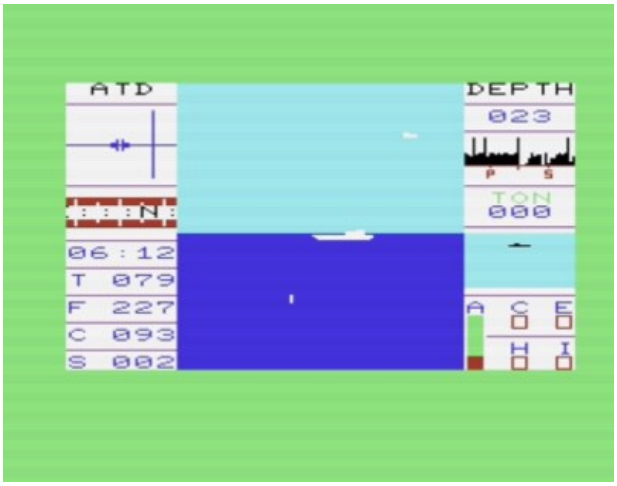


Submarine Commander was originally developed right back in the dark ages of 1982 for Atari 8-bit, then appeared on the VIC-20 the following year. Publisher Thorn EMI went heavy on the advertising, with an equally heavy message that like their Jumbo Jet Pilot, this was more real-life simulator than game… "They're designed for players who expect more of a challenge from a video game than creatures from outer-space can provide." That's all fine, but the advert itself still mystifies me, with its very serious and a little bit sterile almost double page spanning submariner artwork and three tiny screenshots on one side, where in reality in 1983 and for the next two years at least, those screenshots sold the game to anyone that was likely to buy it by themselves!

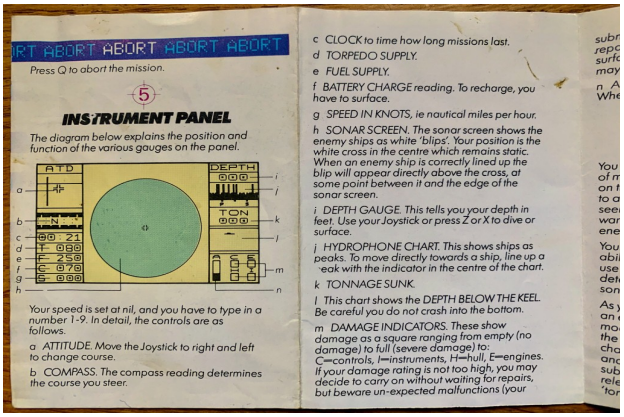
Which is why there being no screenshots on the box was also a mystery, especially when it referred to the nerve tingling action being spread over 3 screens. The front cover and wordy reverse was clearly enough to suck me in though, and seeing "FOR VIC-20 + 16K" at the top was always an indication that there was something special going on here! It also tells us that as the commander of a Mediterranean-based submarine, your job is to sink as much enemy shipping as possible. Then you've got the killer sell, where it brilliantly encapsulates the action from every great black and white submarine film you'd see on TV on weekend afternoons at the time, like Run Silent, Run Deep or We Dive At Dawn… "Using your skills and cunning you must identify the enemy shipping, close in undetected using sonar, take aim through your periscope, fire your torpedoes and get out fast. You will have to evade the shadowing warships which are armed with depth charges. This is a highly addictive game of skill and strategy and your aim is to sink enemy shipping without being sunk yourself."



That bit about depth charges sinking you is so powerful, because this was always the most tense part of those war movies, where the crew would all be stood in complete, terrified silence, dripping sweat and probably smoking Marlborough Reds in this suddenly fragile, claustrophobic metal tube as all hell rained down on them from the surface, with these vast underwater explosions waiting to tear them apart if the barrels fell close enough. And what wonderful shots of that you'd get from outside of the submarine too, with all the special effects they could muster in the Forties and Fifties still having precisely the desired effect all those decades later. Of course, this would all end up with an a bit of ominous creaking and a few pipes bursting before the ships passed by and they could carry on about their business, but the tension in those moments

was always heart-in-mouth as you watched, and screenshots or not, those words combined with the imagination of a 12-year old that loved his war films worked brilliantly to convey exactly what you were in for… And just in case, it did say it had “amazing sound and graphics” on the box too!

Once you’ve loaded the game up, you’re presented with one of the most unassuming title screens in the history of gaming, but that means there’s no messing about – choose your skill level, press F3 and you’re instantly dumped somewhere in the Mediterranean, signified by a flashing dot on your wonderfully detailed map, surrounded by all your instruments and readings and everything you need to start hunting down the enemy. The identity of the enemy isn’t really specified, but – just picking one of the instruments at random – battery charge is represented by a C for charge, which it wouldn’t be in German, so therefore we’ll assume you’re not in charge of a U-boat.


RT ABORT ABORT ABORT ABORT

Press Q to abort the mission.

5

INSTRUMENT PANEL

The diagram below explains the position and function of the various gauges on the panel.

Your speed is set at nil, and you have to type in a number 1-9. In detail, the controls are as follows.

a ATTITUDE. Move the Joystick to right and left to change course.

b COMPASS. The compass reading determines the course you steer.

c CLOCK to time how long missions last.

d TORPEDO SUPPLY.

e FUEL SUPPLY.

f BATTERY CHARGE reading. To recharge, you have to surface.

g SPEED IN KNOTS, ie nautical miles per hour.

h SONAR SCREEN. The sonar screen shows the enemy ships as white ‘blips’. Your position is the white cross in the centre which remains static. When an enemy ship is correctly lined up the blip will appear directly above the cross, at some point between it and the edge of the sonar screen.

i DEPTH GAUGE. This tells you your depth in feet. Use your Joystick or press Z or X to dive or surface.

j HYDROPHONE CHART. This shows ships as peaks. To move directly towards a ship, line up a peak with the indicator in the centre of the chart.

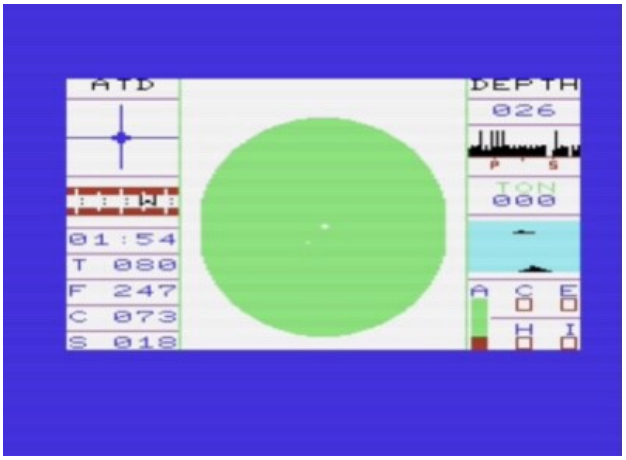
k TONNAGE SUNK.

l This chart shows the DEPTH BELOW THE KEEL. Be careful you do not crash into the bottom.

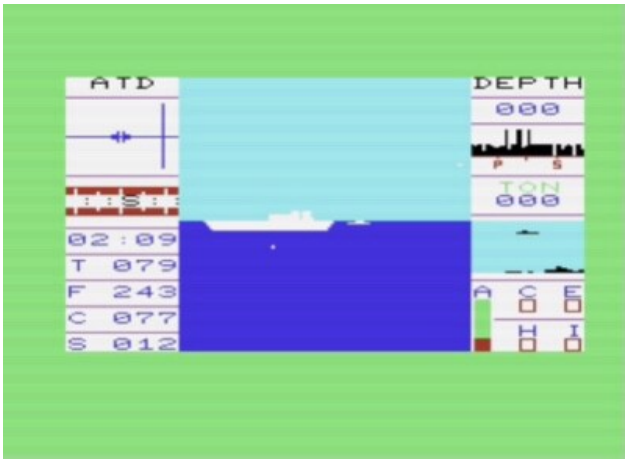
m DAMAGE INDICATORS. These show damage as a square ranging from empty (no damage) to full (severe damage) to: C=controls, I=instruments, H=hull, E=engines. If your damage rating is not too high, you may decide to carry on without waiting for repairs, but beware un-expected malfunctions (your

The instrument panel is brilliantly dynamic. On the left side of the screen you’ve got your attitude, dictating depth and direction on the compass below through your keyboard or joystick inputs, then there’s a mission clock, torpedo supply, fuel supply and battery charge. Your speed is controlled by the number keys, and you’re getting that here in knots. On the right side, you’ve got the all-important depth gauge, and under that the hydrophone chart, which shows ships as peaks that you use together with the sonar screen to line-up your prey when you get close, and once you’ve taken them out you’ve also got a reading of tonnage sunk that contributes to your post-mission assessment. Then there’s the chart showing depth below the keel, which is my favourite bit of the whole game – it’s showing the bottom relative to your ship, which opens up a whole new dimension to exploring and seeing how deep you can go in different parts of the ocean; it’s also the source of utter panic when you’re maneuvering a bit too close to shore! Next, you’ve got your damage indicators for the hull, instruments and engines, and there’s a nice risk-reward element here of chancing carrying on or finding somewhere to surface to get repairs done. Of course, a particularly serious screen-shaking battering from depth charges, or grounding yourself is going to end up in the hull cracking and finding yourself in a watery grave!

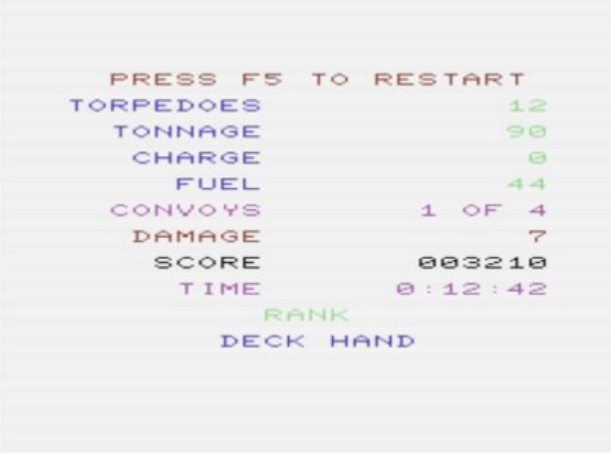
Medical professionals claim that those addicted to brake fluid can stop



Being underwater or on the surface is always on your mind – you'll be faster on the surface, but if you get caught short by the big guns escorting a convoy you're going to be crash diving as deep and as silent as possible while those depth charges drop all around you. This is a lovely example of the amazing attention to detail you're getting in this VIC-20 game from 1983 – if you do end up within visual range of a convoy, you'll get a bell (kind of!) to warn you to take action. Underwater gives you an advantage, but you do need to keep an eye on air and batteries, and as another great piece of attention to detail, if you switch to your sonar (or fire a torpedo) they're going to clock that distinctive ping regardless!

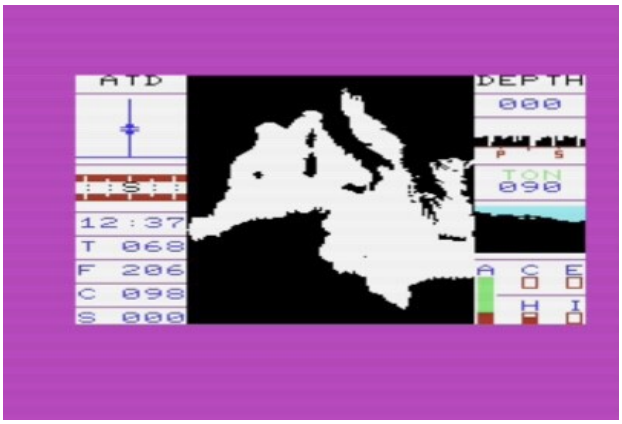


Once you've worked out where you are at the start of the game, you'll be looking for shipping movements on your map, and once you've swung your sub around in the right direction you'll be scooting off across the surface. As you approach, you'll want to dive and switch the main screen from map to sonar, which, together with your hydrophone chart, is going to get you close and pointing your torpedoes at the enemy. Get up to around 25 feet and your periscope is going to come into play so you can accurately line up the enemy and fire your torpedoes; this is where the thrill-ride happens, and you'll be identifying and prioritising tankers, destroyers and patrol boats across the sea, as occasional clouds pass by in the sky, somehow adding to the sense of space and your vulnerability as the ultimately fragile hunter in this vast open expanse of water. Line everything up right and you'll see your torpedo trail heading ominously across the surface until it impacts with your target, which will sink it with a bit of luck, though it might take a few direct hits at higher skill levels. What a great feeling, together with a sense of relief, when that happens! Or you might just miss and see one of your precious torpedoes float harmlessly by the now fully alerted enemy!



This game of cat and mouse goes on until you've sunk all the enemy convoys at play across the entire map, and is going to take you a good thirty

minutes to an hour at higher levels – again, pretty cool for a 1983 VIC-20 game! But that's if you haven't used up all your oxygen or fuel or battery in the meantime, and that you haven't been taken out by depth charges or run yourself aground because in the heat of the battle you forgot to reduce your speed as you turned into the channel between Italy and Sicily, and out of nowhere the bottom appeared on your chart and you couldn't blow your ballast tanks in time to do anything about it!



We started by talking about 2020 masterpiece In Other Waters… Intuitive, claustrophobic, tense and – despite its visual simplicity – stunningly atmospheric. And that's Submarine Commander too. There's so much going on, so much to think about, and that's before you're presented with this 3D sea-scape where a ship appears on the horizon and you don't know what it is yet, but as you get closer you realise it's the high-tonnage prize of a tanker, but hang on, there's a destroyer right behind it, but you only noticed it after that first torpedo slammed into its escort and now you're in for a scrap, but first you need to kill your speed and dive, dive, dive!

In the great pantheon of VIC-20 games, for me Submarine Commander sits only behind The Perils of Willy, Andes Attack, and Jetpac. But that said, if we're scoring complexity of game, it beats everything else on the system outright. And the same for atmosphere. And – maybe apart from Jetpac – how it stands up as a gaming experience in 2021 (which somehow happened in the process of writing this!) too. And I reckon I knew all of that when I had to give up my VIC-20 and all of my games to fund my Spectrum, but somehow this – together with Jump Jet managed to escape the box of booty we sold!

50 YEARS OF THE PC OPERATING SYSTEM

-by Guest Contributor David Laws

Gary Kildall at the first West Coast Computer Faire in the San Francisco Civic Auditorium in 1977. © Tom Munnecke/Hulton Archive/Getty Images

PC software pioneer Gary Kildall demonstrated CP/M, the first commercially successful personal computer operating system in Pacific Grove, California, in 1974. Following is the story of how his company, Digital Research Inc., established CP/M as an industry standard and its subsequent loss to a version from Microsoft that copied the look and feel of the DRI software.

Early Days

Gary Arlen Kildall was born to a family of Scandinavian descent in Seattle, Washington, in 1942. His inventive skills flourished in repairing automobiles and having fun but suffered in scholastic pursuits. He qualified for admission to the University of Washington based on his

teaching experience at the family-owned Kildall Nautical School rather than his high school grades.

Gary entered college and married his high school sweetheart Dorothy McEwen in 1963. He was one of 20 students accepted into the university's first master's program in computer science. Here, his mathematical talents were applied to a subject that fascinated him: all-night sessions programming a new Burroughs computer. To avoid the uncertainty of the draft at the height of the Vietnam War, on graduating with a PhD, he entered a US Navy officer training school and was posted to serve as an instructor in computer science at the Naval Postgraduate School (NPS) in Monterey, California.

Gary remained at NPS as an associate professor after his tour of duty ended in 1972. He became fascinated with Intel Corporation's first microprocessor chip and simulated its operation on the school's IBM mainframe computer. This work earned him a consulting relationship with the company to develop PL/M, a high-level programming language that played a significant role in establishing Intel as the dominant supplier of chips for personal computers.

To design software tools for Intel's second-generation processor, he needed to connect to a new 8" floppy disk-drive storage unit from Memorex. He wrote code for the necessary interface software that he called CP/M (Control Program for Microcomputers) in a few weeks, but his efforts to build the electronic hardware required to transfer the data failed. The project languished for a year. Frustrated, he called electronic engineer John Torode, a college friend then teaching at UC Berkeley, who crafted a "beautiful rat's nest of wirewraps, boards and cables" for the task.

This is going to be a "big thing"

Late one afternoon in the fall of 1974, together with John Torode, in the backyard workshop of his home at 781 Bayview Avenue, Pacific Grove, Gary "loaded my CP/M program from paper tape to the diskette and 'booted' CP/M from the diskette, and up came the prompt: *."
"This may have been one of the most exciting days of my life, except, of course, when I visited Niagara Falls," he exclaimed. We now have the power of an IBM S/370 [mainframe computer] at our fingertips." This is going to be a "big thing," they told each other and "retired for the evening to take on the simpler task of emptying a jug of not-so-good red wine … and speculating on the future of our new software tool."

By successfully booting a computer from a floppy disk drive, they had given birth to an operating system that, together with the microprocessor and the disk drive, would provide one of the key building blocks of the personal computer revolution. While they knew it was important, neither realized the extraordinary impact it would have on their lives and times.

As Intel expressed no interest in CP/M, Gary was free to exploit the program on his own and sold the first license in 1975. He continued teaching part-time at NPS, and in 1976, with his wife Dorothy as co-founder, they established Intergalactic Digital Research to pursue commercial opportunities. They shortened the company name to Digital Research Inc. (DRI) when it became available.

Glenn Ewing, a former NPS student, approached DRI with the opportunity to license CP/M for a new family of disk subsystems for fast-growing microcomputer maker IMSAI Inc. Reluctant to adapt the code for another controller, Gary worked with Glen Ewing to split out the hardware dependent-portions so they could be incorporated into a separate piece of code called the BIOS (Basic Input Output System).

Before CP/M, computer manufacturers designed their operating systems to work only with their own hardware and peripheral equipment. An IBM OS would only work with IBM computers; a Burroughs OS would only work with Burroughs

computers, etc. Applications had to be written for each computer's specific OS. Such "closed systems" made it difficult or impossible to mix and match the best pieces of equipment and software applications programs from different manufacturers.

The BIOS code allowed all Intel and compatible microprocessor-based computers from other manufacturers to run CP/M on any new hardware {including the Commodore 64 and the Commodore 128]. This capability stimulated the rise of an independent software industry by expanding the market's potential size for each product. A single program could run without modification on computers supplied by multiple manufacturers, laying an essential foundation for the personal computer revolution.

Dorothy and Gary opened their first office at 716 Lighthouse Avenue, Pacific Grove, on the upper floor, with a view of Monterey Bay. They sold CP/M disks via mail order and walked to the post office every workday to pick up checks resulting from ads placed in industry magazines such as *Byte* and Dr. Dobbs' Journal of Computer Calisthenics and Orthodontia.

A licensing deal with computer manufacturer IMSAI bestowed credibility across the industry CP/M became accepted as a standard and was offered by most early personal computer vendors, including pioneers Altair, Amstrad, Kaypro, and Osborne.

Outside the DRI office at 801 Lighthouse Ave. in Nov. 1980. Photo: John Pierce

In 1978, revenue topped $100,00 per month, and DRI purchased a Victorian house at 801 Lighthouse Avenue for the company headquarters. By 1980, DRI employed more than 20 people, and *Fortune* magazine reported that the company generated revenue of $3.5 million, five times the revenue of Microsoft at that time. Gary also acquired a Piper aircraft that allowed him to fly from Monterey to meet regularly with his customers in Silicon Valley and beyond.

To accommodate the expanding engineering staff hired to service the hundreds of different computer models used by more than a million people worldwide, DRI purchased a 1909 American Foursquare-style residence at 734 Lighthouse. Today, it houses the offices of the *Carmel Pine Cone* newspaper.

Medical professionals claim that those addicted to brake fluid can stop

Gary in 734 Lighthouse Avenue. Photo: John Pierce

One Friday afternoon, Gary called the engineering staff together and announced that he would give them all a raise over the weekend. On Monday, when they returned to work, contractors began raising the building to make room in the basement for a new Digital Equipment Corporation VAX 11/750 computer system. After several weeks, supported by heavy wooden beams and house jacks, the engineers' desks were five feet higher.

By 1983, DRI's annual sales reached $45 million. The company employed over 500 people, including more than 100 engineers, and had expanded into another building at 160 Central Avenue, which today houses the Monterey Bay Aquarium's offices.

THE IBM PC EFFECT

In 1980, IBM established a new business division in Boca Raton, Florida, to develop a desktop computer for the mass market. To get the IBM PC, as it became known, to market as quickly as possible, they used commercially available components, including an Intel microprocessor chip. Bill Gates knew Gary from early discussions about merging their companies and setting up shop in Pacific Grove, so when an IBM procurement team visited Microsoft to license the BASIC interpreter program, he referred them to DRI for an operating system.

When the IBM team arrived in Pacific Grove, they met in the morning with Dorothy and DRI attorney Gerry Davis to agree on the terms of a non-disclosure agreement. Gary, who had flown his aircraft to Oakland to meet an important customer, returned in the afternoon, as scheduled, to discuss technical matters. IBM wished to purchase CP/M outright, whereas DRI sought a per-copy royalty payment in order to protect its existing base of business. The meeting ended in an impasse over financial terms, but Gary believed they had essentially agreed to do business.

Kildall tried to renew the negotiations a couple of weeks later. IBM did not respond because, in the meantime, Bill Gates purchased an OS from Seattle Computer Products that was written to emulate the look and feel of CP/M. He then sold a one-time, non-exclusive license to IBM, which used the designation PC DOS. With great foresight, he retained the right to license the product to others as MS-DOS.

When Gary learned of this transaction, he threatened IBM with a lawsuit over what he believed was an illegal copy of CP/M. IBM responded by agreeing to fund DRI to adapt CP/M for the PC and to make both brands of OS available to customers. With CP/M's reputation and enhanced features, DRI believed customers would opt for the better product.

IBM announced the PC on August 12, 1981, but with the PC-DOS list price set at $40 versus $240 for CP/M, most customers simply chose the former as the lower-cost option. Attorney Gerry Davis recalled that "IBM clearly betrayed the impression they gave Gary and me."

Medical professionals claim that those addicted to brake fluid can stop

Aftermath

DRI continued to thrive for several years with a multi-tasking operating system for the IBM PC-XT and a host of new products. The company also introduced operating systems with windowing capability and menu-driven user interfaces years before Apple and Microsoft. At its peak, DRI employed over 500 people and opened operations in Asia and Europe. However, by the mid-1980s, in the struggle with the juggernaut created by the combined efforts of IBM and Microsoft, DRI had lost the basis of its operating systems business. Dispirited, Gary, who never relished the responsibility of managing a large company or displayed the cut-throat business acumen of a Gates, sold the company to Novell Inc. of Provo, Utah, in 1991. Ultimately, Novell closed the California operation and, in 1996, disposed of the assets to Caldera, Inc., which used DRI intellectual property assets to prevail in a lawsuit against Microsoft. In other pursuits, Gary founded KnowledgeSet with his friend and DRI VP of engineering, Tom Rolander, where they created the first CD-ROM encyclopedia for Grolier. In an oral history for the Computer History Museum, Brian Halla, Intel's technical liaison to DRI, recalls that Gary "showed me this VAX 11/780 that he had running in his basement, and he was so proud of it, and he said, 'I figured out a way to have a computer generate animation,' and he said, 'Watch this. And he runs a demo of a Coke bottle that starts real slowly and starts spinning, and so as maybe several months went by, he lost interest in this, and he sold his setup to a little company called Pixar.'"

Kildall continued to innovate after selling DRI. He moved to Austin, Texas, where he founded Prometheus Light and Sound to explore wireless home networking technology and participated in charitable work for pediatric AIDS.

Gary Kildall died in 1996 at age 52 following an accident in Monterey. His ashes are buried in Seattle, the hometown he shared with Bill Gates. Dorothy McEwan Kildall purchased the Holman Ranch in Carmel Valley and served on many community boards, including the Heritage Society of Pacific Grove. She died in 2005.

The Legacy of Gary Kildall

In 1995, the Software and Information Industry Association presented Gary Kildall with a posthumous Lifetime Achievement Award, citing eight significant areas in which he contributed to the microcomputer industry.

In an obituary published in the Microprocessor Report in 1994, his friend, the late John Wharton, commented, "I don't think Gary ever really begrudged Bill Gates his business success or his personal fortune.… what I think Gary wanted most was to share his excitement and enthusiasm for computers and technology with others.

On April 25, 2014, the Institute of Electrical and Electronic Engineering, "The world's largest professional association for the advancement of technology," installed a bronze IEEE Milestone in Electrical Engineering and Computing plaque outside the former DRI headquarters at 801 Lighthouse Avenue. The Milestone program honors important events in electrical engineering and computing. Achievements such as Thomas Edison's electric light bulb, Marconi's wireless communications, and Bell Labs' first transistor are recognized with plaques in appropriate locations.

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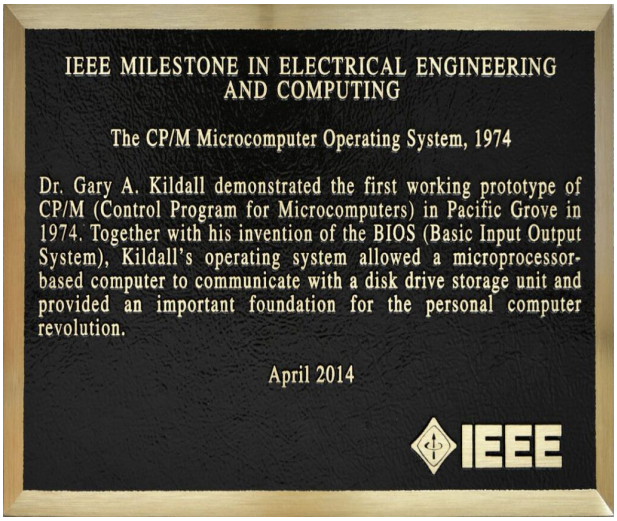

The citation reads: "Dr. Gary A. Kildall demonstrated the first working prototype of CP/M (Control Program for Microcomputers) in Pacific Grove in 1974. Together with his invention of the BIOS (Basic Input Output System), Kildall's operating system allowed a microprocessor-based computer to communicate with a disk drive storage unit and provided an important foundation for the personal computer revolution."

In 2017, US Navy dignitaries, friends, family, and peers gathered to celebrate the dedication of the Gary A. Kildall Conference Room on the Naval Postgraduate School campus in Monterey. The ceremony included the installation of a duplicate of the IEEE plaque in the conference room.

Despite this wide recognition of his technical accomplishments, Gary's legacy remains mired in a tangle of myths and conspiracy theories. The most persistent being driven by a 1982 comment attributed to Bill Gates and published in the London *Times* newspaper that "Gary was out flying when IBM came to visit, and that's why they did not get the contract."

The former editor of the *Times*, Harold Evans, atoned for that story in a PBS documentary and his book *They Made America: Two Centuries of Innovators from the Steam Engine to the Search Engine*. The subtitle of the chapter on Gary, "He saw the future and made it work. He was the true founder of the personal computer revolution and the father of PC software," offers a sympathetic telling of the life and times of the entrepreneurial genius who helped give birth to the PC operating system 50 years ago this year.

Additional Info at the Computer History Museum

Comments in quotes in this article without source attribution are from Gary's unpublished draft of *Computer Connections: People, Places, and Events in the Evolution of the Personal Computer Industry*, written in 1993. The Kildall family has authorized the online publication of extracts from this memoir in the blog *Gary Kildall: In His Own Words*.

The Computer History Museum has also made the source code of several early releases of CP/M available for non-commercial use.

A search for "Kildall" in the CHM collection catalog yields 45 records comprising objects, documents, and images, including a video of the 2014 CP/M IEEE Milestone Dedication event.

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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.

 Club members are encouraged to submit articles, tips, or ideas for articles.

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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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