# Old School Gamer Magazine

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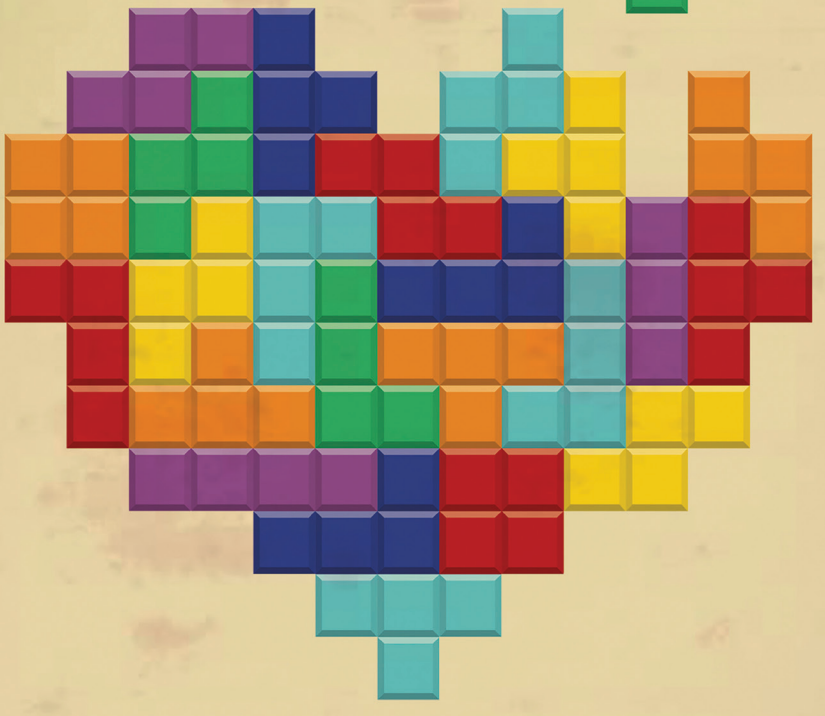

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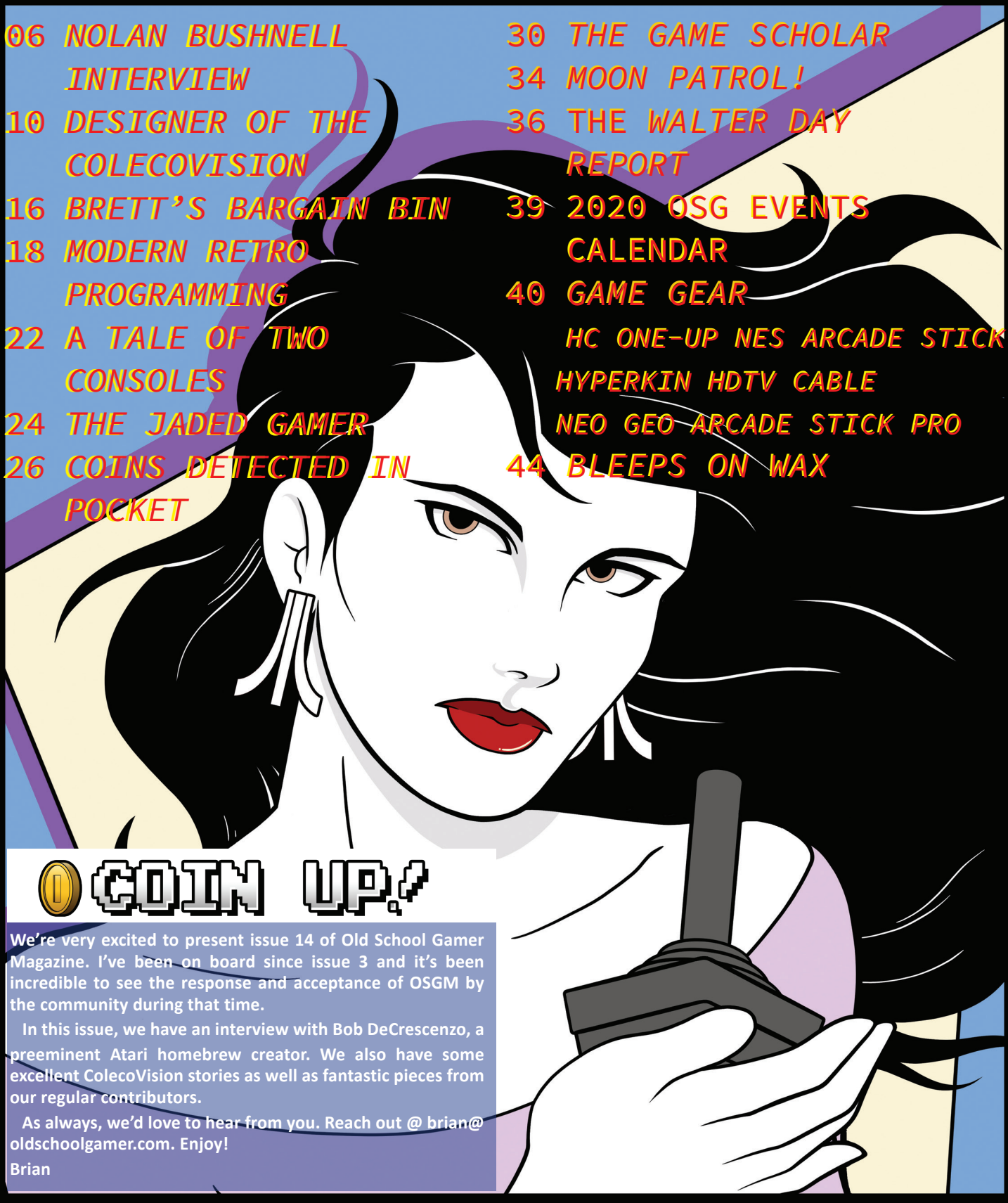

## COIN UP!

We're very excited to present issue 14 of Old School Gamer Magazine. I've been on board since issue 3 and it's been incredible to see the response and acceptance of OSGM by the community during that time.

In this issue, we have an interview with Bob DeCrescenzo, a preeminent Atari homebrew creator. We also have some excellent ColecoVision stories as well as fantastic pieces from our regular contributors.

As always, we'd love to hear from you. Reach out @ brian@oldschoolgamer.com. Enjoy!

Brian

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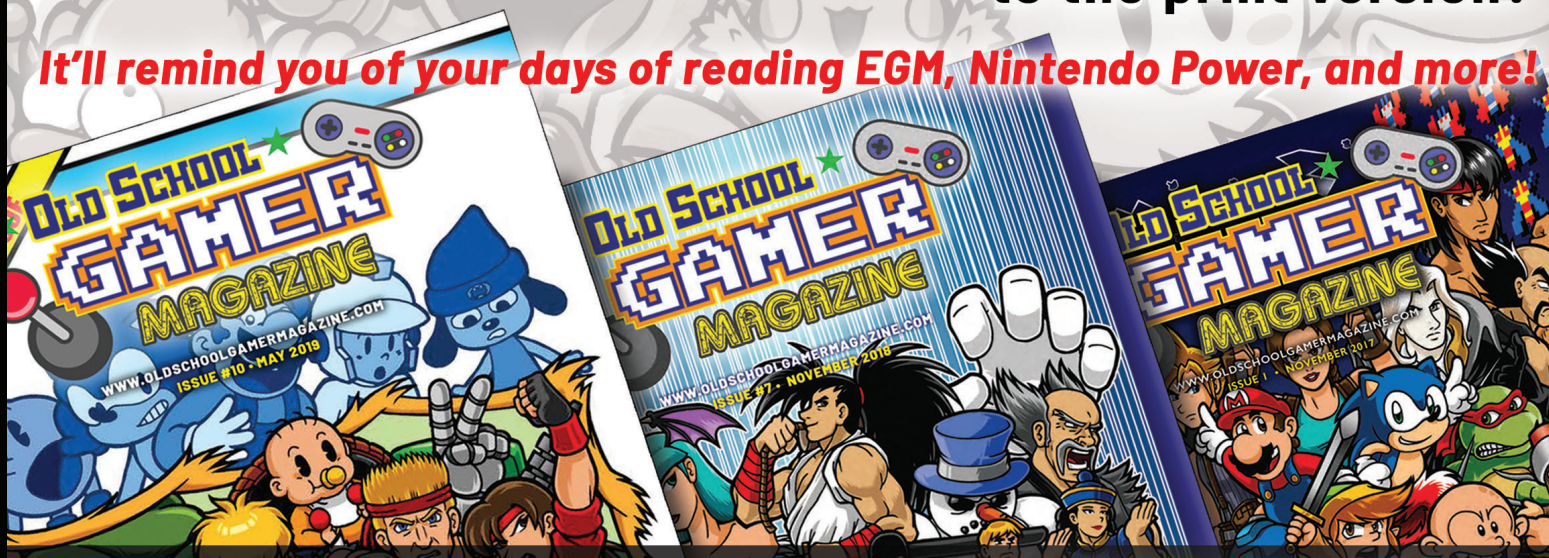


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**Old School Gamer Magazine**
**(ISSN# 2574-8076 ONLINE/2574-8068 PRINT)**
**is published by BC Productions, Inc.**
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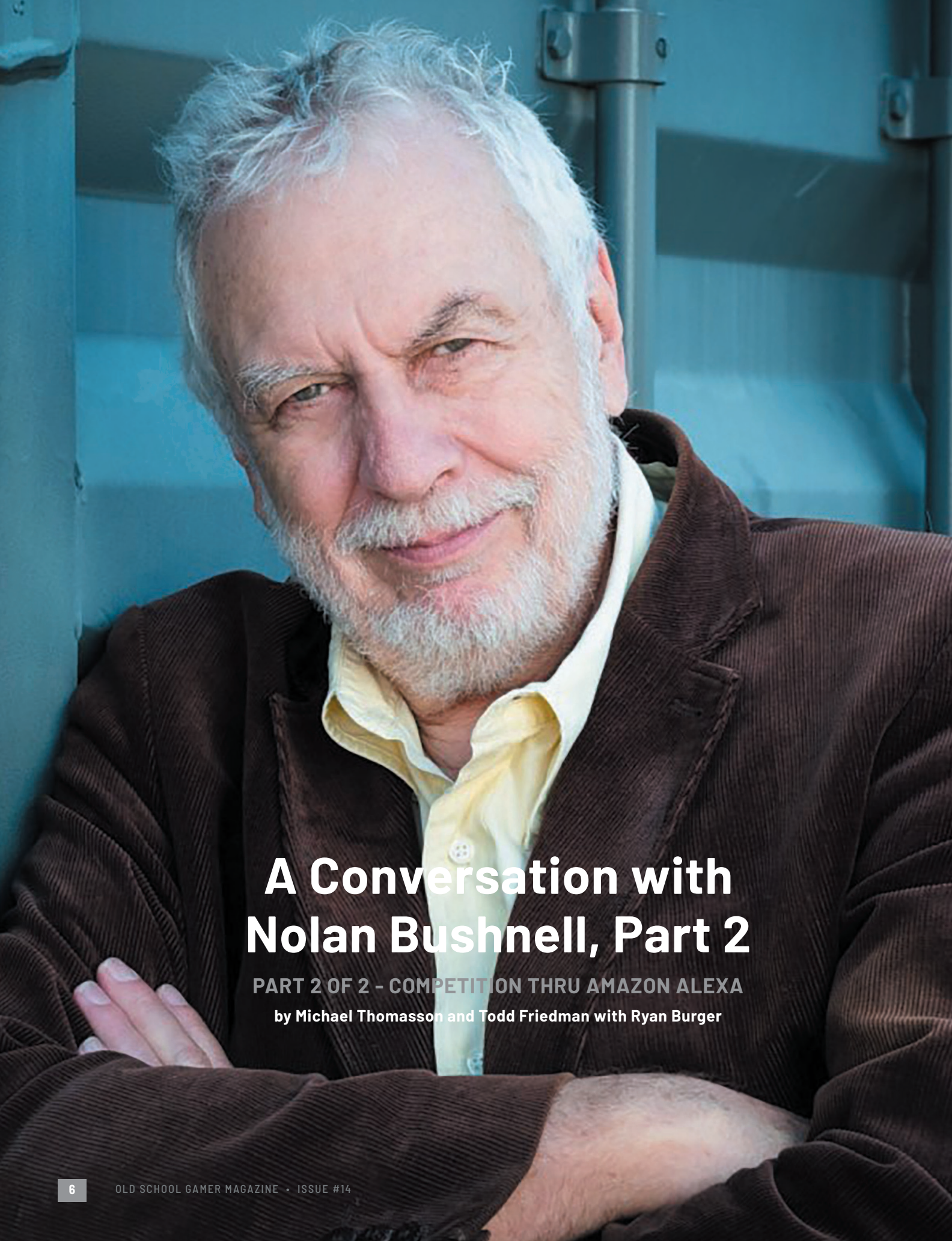


# A Conversation with Nolan Bushnell, Part 2

## PART 2 OF 2 - COMPETITION THRU AMAZON ALEXA

**by Michael Thomasson and Todd Friedman with Ryan Burger**

**In issue #12, we started an interview with Nolan Bushnell that took us up to the VCS akaAtari 2600. Todd Friedman had also done a recent interview that we brought part of into this article. We pick up when competition in the home video game space kicks up with the IIntellivision, Colecovision, Chuck E Cheese and more!**

**OSG: What was your opinion, at that time, of the Colecovision and Intellevision which competed against Atari in the early 1980's? What is your opinion of them now as it relates to the history of gaming?**

NB: All these games were better than the 2600, but had sparse software and helped to create confusion in the market.

**OSG: Can you tell me how you felt after the Atari 2600 (VCS) stopped production and what Atari's expectation was of the Atari 5200?**

NB: I thought the whole Atari strategy from 1980 forward was a giant cluster. The 5200 was a rush job and based on the Atari 800. It was already old tech.

**OSG: Arcades were hot in the early 80's, but then crashed due to the booming home console generation. Did you expect that to happen, and was there competition against the arcade manufacturers?**

NB: I think that the Arcade was killed by the era of *Mortal Kombat.* These games were very successful but narrowed the market drastically. Arcades went from a casual game place for players and women to teens and young men only.

**OSG: Was the Atari 7800 intended to continue the success of the Atari 2600, since gamers could play those cartridges on the system?**

NB: It was in all ways horrible; as a product and as technology.

**OSG: Would there be anything you would change about the early 1980s home console generation?**

NB: I would have designed, from scratch, a game that had a full line buffer, a better microprocessor and perhaps multiple N channel custom chips. Perhaps being a $300 introductory price moving down in year two. That would have been a big enough difference in game play to avoid confusion.

**OSG: Why do you believe the consoles and games from the early 1980's generation are still popular today?**

NB: The games were well crafted and focused on game play without the need for massive graphics.

**OSG: Can you tell me how home gaming from the late 1970s transitioned to the early 1980's and what was your ultimate goal for that decade?**

NB: I left Atari in 1978, so I was mainly focused on Chuck E. Cheese.

**OSG: Can you summarize the good and the bad of gaming in the early 1980's?**

NB: The good was that it showed how games were a massive hit. The bad was how the industry was criminally mismanaged leaving the door open to the Japanese companies.

**OSG: So, let's change direction and chat about Pizza Time Theater and Chuck E. Cheese.**

NB: Yeah. Chuck E. Cheese really came from me wanting to diversify towards the market. The math was very simple. We were selling games at that time for about $1,500 to $2,000 each, and during their lifetime they'd earn $30,000 to $50,000 in coin drop. I realized that I was on the wrong side of that equation.

But I didn't want to compete with the guys who

were buying my machines, so I felt that I had to build my own locations. Pizza had a wait time and I felt that would be good game-playing time. The most successful pizza parlor in our area was a place called Pizza and Pipes. They had a deconstructed Wurlitzer theatre organ with the symbols and all that spread around on the wall.

**OSG: I've seen one of those at the Riviera Theater. I know exactly what you're talking about. They were actually made here in North Tonawanda, a suburb of Buffalo.**

NB: Yeah. And the place was packed when they had an organist, but it was ho-hum when they didn't. And I thought to myself, "Hey, I can manufacture all these little gags and spread them around on the walls, add some synthetic animals, and that can be my entertainment show." That was the thinking behind Chuck E. Cheese, and we didn't look back.

**OSG: Now was that an offshoot of Atari, or a totally separate corporation?**

NB: It was an offshoot of Atari. When I sold Atari to Warner, they didn't want anything to do with Pizza Time Theater. They sold it back to me and it was probably the best deal I ever got. We had one prototype store. It was pulling in $500,000 a year. They sold it to me for $500,000 in cash, payable $100,000 a year for 5 years. What a deal!

**OSG: So, you brought in Gene Landrum to manage the operation for you because you were still partially involved with managing Atari for Warner. It seems that Gene kicked it up a bit, and then the whole operation exploded before you ceased working with Warner's Atari.**

NB: Yeah. He was the guy -- he was part of the marketing department of Atari. I tapped him to run the Chuck E. Cheese division and he did a fantastic job. He found the pizza formulas. He found all the vendors, figured out how to set up the kitchen, discovered things like conveyor ovens. He was president of the company.

I kept him on for the first two and a half years. When it came time to take the company public, I felt that I needed somebody with public company experience. I then convinced Joe Keenan to leave Bally and come over and be the new president of Chuck E. Cheese.

**OSG: Many kids had their first real arcade experience at Showbiz Pizza…**

NB: Yeah, Showbiz was a competitor and a knock-off.

**OSG: But Showbiz was eventually acquired and absorbed by Chuck E. Cheese following your departure, right? When did you leave?**

NB: Correct. They merged together. I stayed involved pretty much through 1983, and I sold my position in 1984.

**OSG: So, why did you get out of it? To be a serial entrepreneur? Did you just want something new? Tell me about those years in between the late '70s and early '80s of Pizza Time into Chuck E. Cheese.**

NB:Well, it became clear to me, probably in ’80, that I was only a “tweaker”. What I was doing was only replication and strategy, with no innovation. That was kind of boring to me. So, in 1981, I started Catalyst Technology, which was a high-tech incubator. It was taking more and more of my time and I was having more fun with it, so I just decided to walk away from the rest.

**OSG: There has been a resurgence of the arcade lately. Dave & Busters, barcades, even Chuck E. Cheese to some extent.**

NB: Yeah. My oldest son has actually built a micro-amusement park called Two Bit Circus. Think of it as a Dave & Buster’s on steroids. It houses a lot of VR, story rooms, escape rooms, and a lot of really, really interesting technology. He’s knocking it out of the park, right now. In 2020 they’ll be expanding to four or five locations; plus, they’ve got a big deal in Korea. My second son does Polycade, and my youngest son built the fast-paced arcade racing game King of the Road.

**OSG: So, it seems that three of your eight offspring have inherited the video game entrepreneurial spirit from their father…**

NB: Oh yeah. Well, Polycade is really a very interesting retro device that connects to the internet so that you have all the user interface of multiple arcade games and you can just download your own favorites. There are a lot of the indie game developers that are developing games for it. I think it’s going to be a de facto go to item for barcades. Brent has several of them in Two Bit Circus. They’re also popping up in dentist offices, homes, and more.

**OSG: Like the old days when you’d see an Atari coin-op in just about any location. They were just everywhere. Do you think it’s coming back around some 30 plus years later with dropping these types units in just casual gaming locations?**

NB: Yeah. I think that there are some things that a lot of people don’t realize, that the user interface is really important. For certain kinds of games touchscreens are really great. For others you really want a knob. Others you want a joystick. Other ones you want a joystick and six buttons. By having all of that you have a better game experience. People are starting to realize that and that is why the barcades and platforms like Taylor runs is resonating with them.

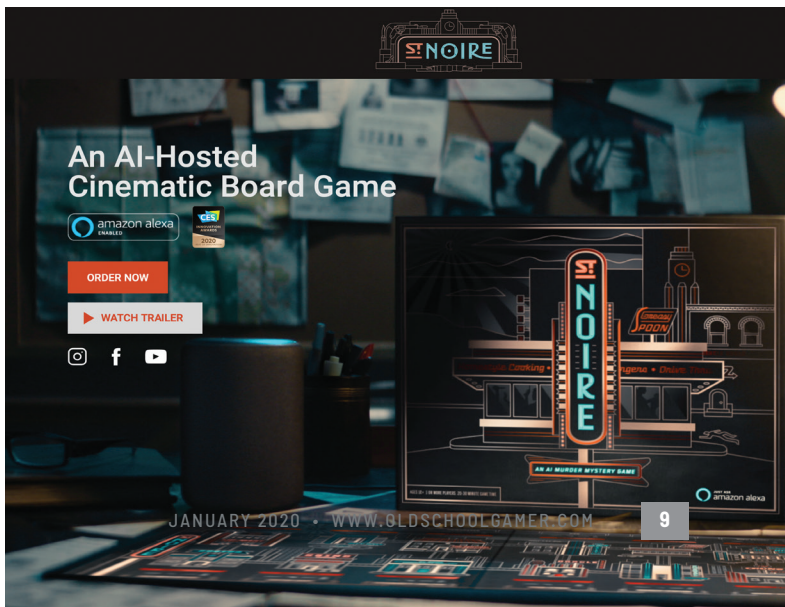
**OSG: I suspect that you are not sitting idle. What do you have your hands in n ow?**

NB: I call my current project an enhanced table game. I’m using an Amazon Echo as a driver for an AI assisted cinematic board game called St. Noire. [editor’s note: see https://www.st-noire.com/]

**OSG: Okay, so I can ask Alexa all about it. I did hear that one of your sons is really hardcore into board games and hauls them around everywhere he goes. We truly appreciate you taking the time to speak with us. So great to hear new information about your humble beginnings and how your sons are keeping the dream alive!**

**Michael Thomasson** teaches multiple college level videogame courses, and has contributed to dozens of gaming texts and television shows. In 2014, The Guinness Book of World Records declared that Thomasson had “The Largest Videogame Collection” in the world.

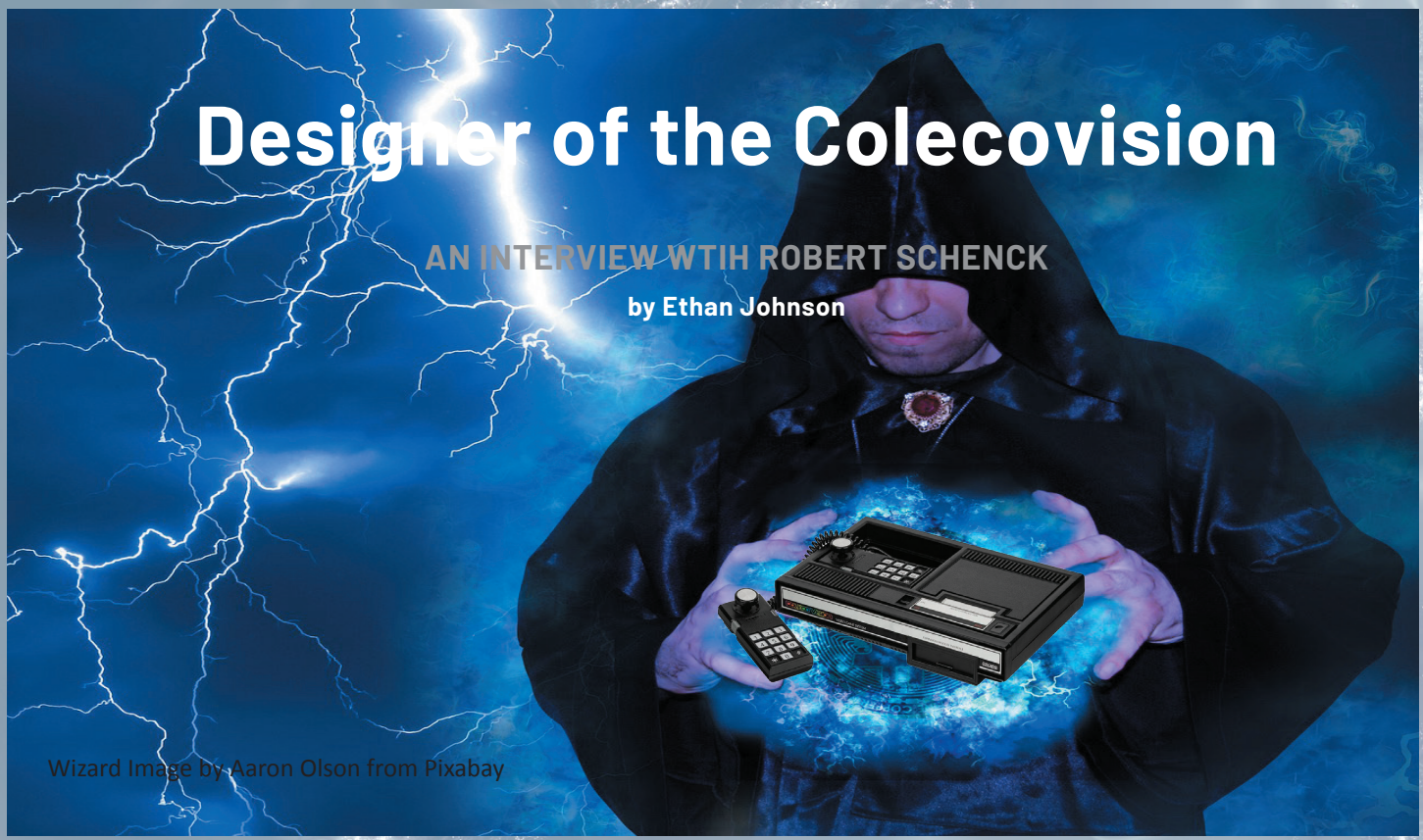
**Todd Friedman** is heavily involved in the video game community. He has over 3500 console games and 35 systems. Todd was also a nominee for the Inter¬national Video Game Hall of Fame, class of 2016 and 2017.



# Designer of the Colecovision

## AN INTERVIEW WTIH ROBERT SCHENCK

by Ethan Johnson



Wizard Image by Aaron Olson from Pixabay

**The Colecovision was a remarkable console for its era, entirely stifled by market conditions well beyond its control. From its brief time in the spotlight and less than three years of production, it remains a console that many have experienced, but few know anything about. Valiant efforts have been made to reach those behind the scenes in Coleco's game department, like design director Jennell Jaquays, but the origins of the system have remained obscure.**

**It was by chance that I happened to contact Rob Schenck, who informed me that he was, in fact, the designer of the Colecovision console itself. For a long time, it had been assumed that hardware department head Eric Bromley had been the driver behind the project, but he never claimed to have started the development directly. In this interview, Mr. Schenck reveals the origins of the Colecovision, what it was like to work at Coleco, and his involvement with the infamous disaster - the Adam computer.**

Robert Schenck: For starters, I was working for RCA in New Jersey, on the Phased Array Radar for the Aegis Missile System. My wife has family in East Hartford, Connecticut, whom we would visit for holidays, etc. During one such visit, I came across a job listing in the Hartford Courant, for an electronic design engineer working in the R&D department on Coleco. I guess my academic credentials and design on the cheap from my Ham Radio hobby, made me suited for the needs of the R&D group.

I started working for Coleco in April of 1979. My colleagues at RCA thought little of working for a toy company, yet I was exposed to the most cutting edge of components than you could ever dream of working on military programs.

The only rub was that Coleco was a copycat company.


Eric Bromley

Competitors would put some new product on the market, and if it took off, Coleco would make a cheaper version, and clean up. The challenge was in coming up with an inexpensive, yet reliable design. By reliable, it meant that there was a minimum percentage of rejects in manufacturing. At production rates of 6000 units per day, there were no repairs of rejects. It just cost too much to repair them, so they were destroyed. We had rates at or less than 1%. You could spend two weeks to pull a nickel out of the cost, as that came to $50,000 for a run of a million units, all of which was bottom line profit. The first real chance for original creative design was with the Head to Head baseball game.

**Old School Gamer: Can you tell us about the Hartford Coleco facility and your equipment? What were you guys using to create these electronic handhelds? I know that with their earlier games Coleco liked to use OEM chips, but had they built up chip-making capacity by the time you were there, or was that to be something you oversaw?**

RS: In the beginning of my employment, we had a real small staff in AR&D (Advanced Research and Development). One Electrical Engineer (me), one Mechanical Engineer, three technicians, three or four programmers, as well as Eric Bromley. Eric was not a great people person, but he knew what would make it as a product and what would not. We typically had four of five products in the pipeline, with about ten new items getting into the catalog each year. At least 80% of the items were "home grown" as it were.

We had very little equipment. A Tektronix 465 oscilloscope, a couple of Simpson meters. We had software development systems for the TI TMS1000, the National 400 series, and General Instrument PIC microcontrollers. They were mostly four bit machines with limited I/O capabilities, and even smaller resources. They were for mask ROM parts in production.

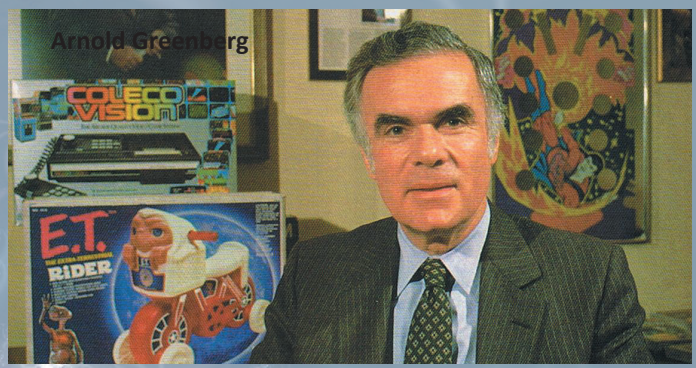
We had emulator boards of about 4x5. They had special versions of the parts with pins bringing out the address and data lines for the EEROM (Electronic Erasable ROM). We would mount the boards in bud boxes with a model of the hand held mounted on top, with wires from the push buttons and LED displays wired into the box. We also had a small AC power supply built in to run the demo unit. To survive the frenzy, I created a process for making these things up.

The first thing I proposed was a production schematic to determine if something could be built for the target price. Cost of board and parts had to be 1/4 or less than the planned price in the catalog, known as the Green Sheet price. Some non micro-controller based prototypes were wired up "rat's nest" style.

There was tremendous pressure to produce a working prototype of the *Head to Head Baseball* game. This product required a display that could be seen by both players. I introduced the company to Vacuum Fluorescent displays for this unit; it was nine digits. Most of the products with these displays had an expensive power supply to make the AC filament voltage as well as the -30 V or so for the segments on the display. We could not afford the power supply in the budget, so I created a set up where the 10th digit was the filament. Now many displays multiplexed the digits, that is, sequencing through them. So, the micro would kick the filament every tenth time around the digits. The unit would also use two nine volt batteries provided by the customer, to make 18V, just enough to run the display. So back to the crunch.

The programmers were having trouble getting the demo software together, so I designed a circuit using a number of CMOS digital IC's to simulate the pitch LED sequence, walk a hitter around the bases, and play some sounds. We ended up showing the jinned up unit to the board of directors and the product was born! New products were presented to the board on a quarterly basis.

**OSG: You did mention to me before that the Colecovision came out of a hobbyist computer you were put-**




Pictures by Rob Schenk

**ting together. How much experience with TV displays and microcomputers did you have before you embarked on that project?**

RS: I had worked on some prototype computer display units when I was with RCA, but I mostly knew about TV from my senior project at Cornell, where I designed and built a black and white television camera. The home made computer was a Z80 machine using STD bus prototyping cards and a card cage. I designed the CPU card, the ROM and RAM cards as well as the Serial/Parallel I/O card.

I built the computer in my basement workshop as a thing to play with computers and learn about them. All the software was hand assembled and burned into EEROMs with a homemade burner. Those were the days. I had made up a couple of CRT type keyboard/display units using boards I had gotten from National Semiconductor for a CRT controller they were trying to market.

I had gotten a sample of the TI9918 video display controller from Texas Instruments and made a board to add it to my Z80 machine. I had assembled code to make the image of the *Pac-Man* game with ghosts and *Pac-Man* running around through the maze. I took it into work and showed it to Arnold Greenberg, even calling it Colecovision. The rest is history.

[Note: Mr. Schenck claims to have a prototype Colecovision which actually has a start up screen displaying the name "Robovision"]

So, the day after Arnold saw my demo, Colecovision was born. I then had to create the circuit design for the production unit. Bromley wanted some consultant buddy of his to help out, but the guy knew very little about the toy industry or how to make low cost circuits. To keep costs down, I designed a custom IC called the MI/OC (Memory Input/Output Controller) to do the glue logic and the eighth bit of a refresh counter for the dynamic rams, as the Z80 only had a 7 bit counter (a stupid design mistake). I think I still have a schematic of that custom part.
The LM1889 had to be enclosed in a small metal shield box as it now had the RF modulator in use. It took a lot of work to convince the Coleco PCB layout people how to do an RF board, but it was done.

**OSG: Why did you decide on the Z80 and were there any other alternatives that you looked at?**

RS: I chose the Z80, much to the objections of upper management who were pushing the TI 7000 machine, because of the wide proliferation of Z80 and 8080 programmers, as I would need to hire over 30 of them in the next couple of months. I also liked the architecture of the machine.

**OSG: On this prototype for the Colecovision, how close were its specifications to what went into production?**

RS: With regard to the prototype of Colecovision, the Z80 and TI9918 video processor were the only two items that ended up in the final design. The prototype was built out of a Z80 computer I built for my kids to learn about computers. It had 32K ROM and 32K CMOS static ram. The production unit had 16K dynamic RAM. The configuration and I/O porting of the machine was completely out of my own head.

**OSG: Do you recall when approximately you were building this device?**

RS: I built it in the spring of 1980.

**OSG: The computer started as a personal project. Was Bromley or anybody making murmurings about wanting to get into the same market as Atari? There was a lot of expenses associated with that, so I'm curious how you managed to convince them to go in that direction.**

RS: Coleco had already acquired the license for *Donkey Kong* and was planning an Atari [2600] knock off. Some former Atari engineer had "reverse engineered" the Atari 2600 IC and was selling instruction books for $50K each. There was big money to be made doing cartridges.

Bromley was pushing the Atari 2600 knock off [Coleco Gemini]. There was the prospect of really big money in the home video game market. Coleco had done a

*Tank* game in the days of *Pong* and it had some success. Meanwhile, TI had supplied me with a couple of samples of the 9918 video display controller.

After I had figured out the code to create the maze and have the ghost and *Pac-Man* running around aimlessly, I took the shooting match into work and called Arnold Greenberg on the phone. The *Pac-Man* clone was easier to do than the monkey and ladder maze of *Donkey Kong*. So, when Arnold came into my office, I said, "This could be Colecovision" naming the product at the same time.

Arnold asked if Bromley knew about this unit, and I said "No". It was pretty nervy of me to bypass Bromley, and I figure he never forgave me, in spite of all the money he got out of it. I didn't care. After years of knock offs, I wanted to do something original.

So, in the first year, they made $50M in pretax profits from the console alone.

The demo did all the selling. My unit looked just like the actual arcade game in image quality. The Atari effort became a plug-in adapter that sold 50% for each Colecovision console. Funny - it was no better than the Atari 2600 - but people were fooled.

**OSG: There's a programmer's manual that's been online for a few years. Did you write it?**

RS: I don't recall if I actually wrote a "manual" or just had a list of I/O ports, functions and memory map. It was customary in those days of all the handheld units for me to create a map of the I/O ports and what they did for the programmers to use. The printout I have is of the source code for the operating system. The idea, based upon the limited resources, was to have the "operating system" be a collection of I/O interface routines, and, of course, a start up sequence. There were things like collision detection, music players, controller interfaces, etc. Much like the drivers in a PC of today.

The cartridges were to have all the images and game play algorithms of the particular game. For the simplicity of these games, there was never enough memory, so compromises had to be made in either imagery or game play. I think the memory IC's were 4116 devices that were 4 bits by 16K. I'd have to dig up a schematic or look through the source code definitions.

**And the list of games that were available on the Colecovision just kept getting longer...**

As to software, I did none of the actual programming. it was enough to get the hardware the way I wanted it. A lot of the software engineering and design was initially done by a guy named Zachary Smith, who worked with me doing software. The music system, as well as all the music and sound effects, were done by two programmers/musicians who played with the Hartford Symphony. One was named Ken Lagace, who was first clarinet.

**OSG: Were there specific development systems that the in-house Coleco people were supposed to use?**

RS: We used an HP development system that initially consisted of two development stations with In circuit emulation, plus a 10 megabyte external hard drive unit shared by both. Of course, this expanded to many

units as time went on. The first HP system cost over $160K, and I needed it yesterday. I told the HP rep that if he had them here in two days there would be a check waiting for him. Sure enough, he delivered.

**OSG: I know you weren't involved with the industrial design, but I was curious about the functions of the controllers. The unit has a serrated wheel at the base of the controller in the early versions. Do you recall what function this was going to have and how you planned to deal with that?**

RS: The serrated wheel was for controlling objects on the screen. We patented it and it is the same fundamental item as in a mouse wheel.

I had started conceiving of the next generation of video games. It was to have a Z8000 and dual TI 9918's. You see, the 9918 had multiple planes of video and the rear one was an external video input. So that was going to be the output of the second 9918. You could create the illusion of depth in the image on the screen.

**OSG: How quickly did the hardware become a team project as opposed to your pet project after you spoke with Greenberg? As you were able to maintain use of the Z80 as opposed to the TI processor, how much were you able to decide and figure out?**

RS: The hardware team was basically me. The ARD group was very small at the time. One EE, one ME, one programmer, and several "game designers". I had pretty well designed most of the hardware, much of which was from personal "home project", especially the video and RF portions.

It was decided to put most of the processor "glue" logic into a custom IC. I had to create a supplemental counter for the dynamic ram's refresh cycle, as the Z80's problem was that it had a 7 bit refresh counter and we needed the eighth bit. The IC also provided the I/O and Memory mapping logic.
One rather large struggle was over the processor. There was some relationship with TI that was pushing (again) the TI 7000 processor, a register based machine for which you could customize the instruction set. The issue was settled when I pointed out the availability of 8080 programmers who could easily switch to the Z-80, while there were virtually no TI-7000 experienced programmers. And, I had to ramp up the software group from one to a total of over 35 personnel. It was a fun and exciting time.

**OSG: Many people have questions about the other companies involved with the Colecovision. Nuvatech, who were involved in some of the early Colecovision games, have also claimed that they had some sort of hardware involvement or a separate project in tandem with the Colecovision.**

RS: I believe Nuvatech was another one of the various consulting companies that were always being pushed on us from above. I meet with one of their engineers and found they were clueless about the refresh counter problem, so I rejected their help. The powers that be were regularly pushing some crony on ARD engineering to provide "help". These people needed more guidance than they were worth.

**OSG: What was the first game created for the Colecovision? Some say it was *Cosmic Avenger.***

RS: I am pretty sure the first game was *Donkey Kong*.

**OSG: Jennell Jacquays described you as the head of software. Is that an accurate title?**

RS: I was the head of ARD engineering. The title was VP Engineering and Chief Scientist. All the programmers were in my department, so, you could say I was the head of software.

Besides the ARD personnel (about 45 people) there were outside companies that were doing some of the games due to overload. Many of these companies came upon the scene due to connections with people above me. They rarely integrated with us too well as they were "outsiders" and often marched to a different drum.

The tsunami that came as a result of Colecovision overwhelmed the company. Coleco went from $80M sales to over $600M. The console pretax profits exceeded $50M. They should have spun it off as a company, but



Background photo: ID 223

did not. They also still ran things like a mom and pop company.

The Adam computer killed it. It was to be a simple computer for kids to use and type up school reports and not tie up any family PC that might exist. Instead, the powers that be (Eric Bromley) pushed the idea of competing with the IBM PC. I believe that Zilog had come up with a machine called a Z-800, 16-bit big brother of the Z-80. I was developing a Super-Colecovision that used this CPU, but the rug was pulled out from under me.

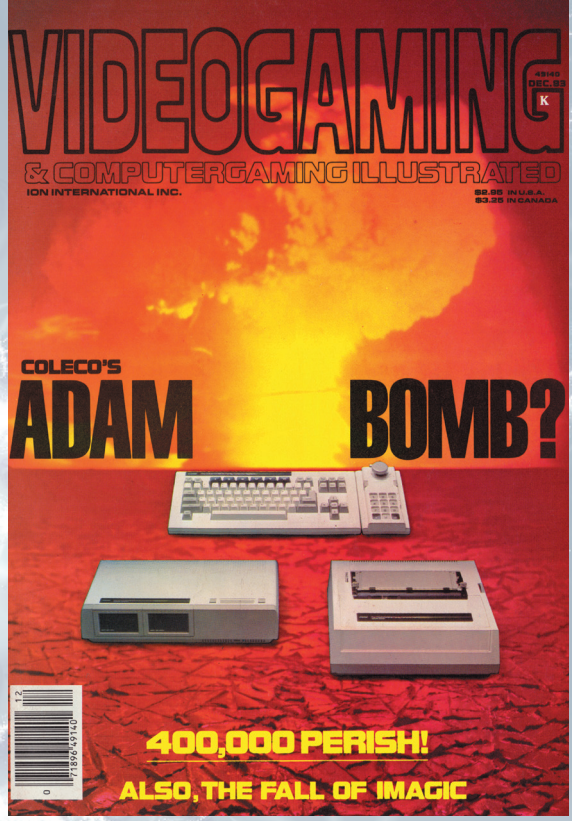
**OSG: The situation around the Adam is pretty murky. What was your role in creating that computer?**

RS: The Colecovision prototype was built out of a Z80 based computer I built for my kids. It was a simple machine by today's standards. I had no thought of proposing that Coleco get into the PC business. It started with an idea that came from someone meeting with a company in England that had a toy daisy wheel typewriter.

The thought was to adapt it to be a printer to be used with Colecovision with an accessory keyboard. Kids could write up and print out their school term papers. I was asked to come up with the architecture to connect these elements together. There was no separate Adam computer at that time.

The requirement of low cost meant to kept the component count down on all peripherals proposed for the main console. I decided on an addressable serial buss that would be shared by each subsystem. The 6801 micro-controller had a built in asynchronous serial port and had enough horsepower to do each peripheral function. The system was to use a simple cassette recorder with Kansas City data recording protocol. The insanity grew out of wanting to compete with the IBM PC and be more than just a child's first computer.

I just wish I'd had the power to stop it. Opposing it was the beginning of the end for me personally. There was such a rush to make this happen that they swallowed almost any idea that walked through the door.




**OSG: How much personal contribution did you have with Adam then? Was there a particular point from an engineering perspective when you knew it wasn't going to work?**

RS: I had created the architecture for the Adam with input from the programming staff. the serial bus was the big thing. I guess it was a forerunner to the USB, of course, much slower.

I saw the handwriting on the wall when they insisted on creating a "Tape Operating System" like DOS. I had wanted to use a DC-100 tape system that I had negotiated with GM for $40 for Drive with R/W electronics plus one tape. These units were foolproof. But the powers that be wanted to build the cassette style deck. Go figure. You can just put so much of yourself into something before other forces have drained you.

**Thanks very much to Mr. Schenck for sharing his memories of working at Coleco and for his work in bringing us the Colecovision.**

**Ethan Johnson** - Ethan holds a BA in Game Design from Columbia College Chicago, class of 2017. Currently he writes research guides for the VIdeo Game History Foundation and runs "The History of How We Play" game research blog.

# 40th Anniversary of the Intellivision


By Brett Weiss

**Late in 1981, I discovered a trio of exclusive shooters for the Intellivision: *Astrosmash, Space Armada*, and *Star Strike*. Each is easy to find today, making them a great bargain for fans of the system. Complete boxed copies are worth only a few dollars each. Before I get to a capsule review of each game, some history is in order on my background with the Intellivision since I'm here to celebrate the console's 40th anniversary.**

Let's flash back to 1980, when the Intellivision was released nationwide after a limited, but successful test marketing campaign in 1979. The console cost $300 at retail (almost $1,000 adjusted for inflation), which was way too expensive for the Weiss household. However, a number of my friends and acquaintances received the system within a few months of release, including a female friend of mine who I would start dating in 1981, when I was 14 and she was 16.

Dating a girl who was two years older than me was awesome because she had a car. Not only could we go out on actual dates, we had transportation to Six Flags without relying on our parents. This was dwarfed by the fact that her family had an Intellivision hooked up in the living room, which is where game consoles typically resided in the pre-Nintendo NES era.

While I was well-familiar with home gaming - my cousin got Atari *Pong* in 1975, and I had countless friends and cousins with Atari 2600s, Odyssey2s, and even Fairchild Channel Fs - it was still mesmerizing to me to play games in a house on TV, especially since I didn't have a console of my own. Unfortunately, my girlfriend's dad and his friends were usually playing the Intellivision when I would come over, and their system library was limited to such games as *Major League Baseball, NFL Football*, and *Las Vegas Blackjack & Poker*, which was the pack-in title with the console. They really didn't have much in the way of shooters or action titles, which were my favorite genres.

Flash forward a few months to a sleepover at the home of the youth director at my church. (I grew up in the Church of Christ, attending three times per week. The actual services were boring, but we had lots of fun youth activities.) After eating and doing a bunch of stupid teenage boy stuff, like wrestling in the front yard, we went inside the house to play some Intellivision. Instead of sports titles, the youth director had what were to me far more interesting games, most notably *Astrosmash, Space Armada*, and *Star Strike*.

Suddenly, I was a hardcore Intellivision fan. Looking at the games objectively today, I can see their flaws, but each title is certainly playable, and back then they were nothing short of magical. We played those games late into the night, and it was an absolute blast. Early the next morning, I was still sitting on the floor, with cramped hands and bloodshot eyes, firing away at onscreen invaders while everyone else had gone to sleep in various places around the house.

## ASTROSMASH

A hybrid of sorts of *Asteroids* and *Space Invaders*, *Astrosmash* is an entertaining entry in the genre that certain early video game journalists called "slide-and-shoot." You guide a hyperspace-equipped "laser battery" along the bottom of the screen, firing (rapid or auto) upward at a continual downpour of falling rocks, spinning bombs, guided missiles, and UFOs. The most innovative aspect of this easy, yet action-packed game is that you can lose points for letting objects pass you by. In fact, you'll lose a life if a white spinner gets past your ship and hits the surface of the planet below. This is not cause for over concern, however, because it's easy to rack up lots of points very quickly. Adding to the ease of play is the fact that an extra ship is awarded with every 1,000 points. Games can last seemingly forever (even on the hardest difficulty level), which is probably why this was the first Intellivision game with a pause feature. Visually, meteors and other items are simplistic in design, but they move at varying speeds with little flickering or slowdown. *Astrosmash*, which was adapted for the

Background picture: dreamstimefree - 88157


Atari 2600 as *Astroblast* (a better game that lets you use paddle controllers), enjoyed newfound fame in the 2000s when uber nerd Sheldon wore a T-shirt featuring the game in the smash sitcom *The Big Bang Theory.*

## SPACE ARMADA

*Space Armada* is essentially *Space Invaders* for the Intellivision, but with larger, more animated invaders (though they do stay in formation) that come in four designs. The game doesn't really add anything new or particularly interesting to the basic concept of shooting rows of descending aliens and hiding behind bunkers, but it was refreshing to play an arcade-style shooter on the Intellivision when the game was first released, and it's still relatively fun and challenging today. When compared to the Atari 2600 *Space Invaders* port, which contains an impressive 112 game variations, *Space Armada* isn't as strategic, as versatile, or as inventive. After a few levels, invisible invaders begin appearing, but Atari 2600 *Space Invaders* had the same feature, and it was an option, not a requirement. Holding in a side button lets you shoot auto-fire, which is nice since mashing the buttons on the Intellivision controller can cramp your hands after a while. *Space Armada* doesn't really hold up all that well compared to the many *Space Invaders* sequels and clones that have passed down the video game pike in the ensuing years, but it does have plenty of nostalgia attached, at least for this old-school gamer.

## STAR STRIKE

Like *The Dreadnaught Factor* for the Intellivision, *Star Strike* appears to be a *Star Wars* game, but without the expensive licensing fees. Reminiscent of the famous Death Star battle sequence near the end of *A New Hope* (as the kids are calling the original *Star Wars* nowadays), *Star Strike* has you piloting a spaceship through a trench, dropping bombs on five small targets that appear on the floor of said trench. Pairs of enemies appear from behind, take their shots, and pass you by. Shooting the alien ships is hardly imperative as bombing the five targets remains the primary objective. The viewpoint of the game is from behind your ship. Unfortunately, *Star Strike* has three strikes against it: aliens are easy to avoid, objectives are minimal, and gameplay is less than exciting, but these are moot points. In 1981, the game had absolutely mind-blowing visuals, including the great sensation of high speeds. I couldn't believe what I was seeing on the television set.


**Brett Weiss** - Brett Weiss is the author of 10 books, including the Classic Home Video Games series, The 100 Greatest Console Video Games: 1977-1987, Retro Pop Culture A to Z, and The SNES Omnibus Volumes 1 and 2. Check out Brett's new YouTube show, "Tales from a Retro Gamer."

Images courtesy of www.mobygames.com

# Modern Retro Programming: An Interview with Bob DeCrescenzo

by Brian Szarek, Editor

The retro community has been growing at a rapid pace, and one of the reasons are homebrew games, hacks and ports that attempt to faithfully recreate (or put a new spin on) arcade classics for vintage consoles. The Atari 2600 and 7800 libraries have been growing at a similar clip, and our interview this month is leading the charge. Bob DeCrescenzo is a preeminent modern Atari programmer who has published incredibly faithful ports of some amazing arcade games. Old School Gamer Magazine was lucky enough to interview Bob - understand his process a little bit, as well as learn about his published games library and upcoming projects!


**OSG: Tell us a bit about yourself, if you don't mind. Do you have a full-time job that is not programming for a 35-year-old home game console?**

Bob Decrescenzo: I am a programmer by trade. I am currently working for a wonderful company where all the developers work from home.

**OSG: Where did you grow up and what were your gaming influences? Did you play games with family and friends at arcades, or did you spend most of your time on computers and home consoles?**

BD: I grew up on Long Island, N.Y. My gaming influences were *Asteroids* and *Pac-Man*, in that order. I had an Atari 2600, and would play mostly with my best friend, who unfortunately passed away almost five years ago. I went to the arcade when I could (mostly to 'Time Out' in Sunrise Mall in Massapequa). I've worked on computers since 1981 when I got my first TI/994a.

**OSG: What were some of your favorite games growing**

**up, console or arcade? Which ones did you destroy joysticks on? Have these games influenced which games for which you will port or create sequels?**

BD: My first favorite was *Asteroids*, although I never got really good at it. Then once *Pac-Man* came out, it was over! My favorite in the series became *Pac-Man Plus*, followed VERY closely by *Ms. Pac-Man*. On the consoles, it was usually *Adventure* on the 2600, and *Countermeasure* on the 5200.

**OSGM: How did you get your start with game prog ramming?**

BD: I was given an Apple IIc in 1984 for Christmas as


the school I went to had just replaced their Commodore PETs with them. I started in BASIC, but eventually began dabbling in assembly language, writing little utilities to accept screen input, etc. Once I found AtariAge around 2002, I saw a commented disassembly of the 5200 version of *Pac-Man* (by AA user Bryan) and I thought the opcodes looked familiar. Turns out (lucky for me) that the Apple used (basically) the same CPU as the Atari 2600, 5200, and 7800. That's what started this whole thing.

**OSG: We all know that AtariAge has one of the most active retro gaming communities out there. When you create a game (homebrew), do you post .rom files on AA to get real-time gameplay feedback or do you do all of your testing in-house?**

BD: Yes – I post most later WIP games that I am working on to get feedback from everyone on there. It helps refine the games and catch any bugs that might be there.

**OSGM: So how many games have you created for the Atari 7800 so far? Have you programmed for any other systems, such as the 2600 or Coleco, and if not, why have you stuck with the 7800?**

BD: When I began, I did one have for the 2600, moved on to the 5200 and did a few hacks, then settled on the 7800. I've recently done a few games for the NES (*Rainbow Brite, Frenzy*) and am working on a third. I always go back to the 7800 though – that is my home.

**OSG: How are you able to balance a full-time job with the demands of the retro community, specifically those of us that crave more Atari releases? How long does it take you to program a typical 7800 game?**

BD: I work on them with my free time. The time it takes for me to program a game depends on the game. Some of them can take as little as a month (like *Astro Fighter*), while others take over a year (*Baby Pac-Man, Bentley Bear's Crystal Quest*) and anywhere in between.

**OSG: How do you go about programming new games or ports for the 7800? What is your method, favorite software, etc.?**

BD: It depends… If there are some 'B' level arcade games that don't see many ports (or in some cases at all), I like to do them (i.e. *Astro Blaster, Moon Cresta, Rip Off*, etc.). Others happen where I like the original game so much that I want to do a sequel (i.e. F*ailSafe, Super Circus AtariAge, Armor Attack II*). Finally, there are the few that I just get an idea for a game (*Bentley Bear, ReZolve* – which needs to be finished, etc.).

**OSGM: Do you play on any modern consoles or stick with the vintage stuff?**

BD: Nothing modern until recently. I finally got a PS4, but mostly for the VR headset. I *love* *AstroBot, Moss*, and some of the driving games that use the headset. Other than that, just vintage.

**OSG: I'm personally relatively new to the homebrew community, but I looked in my pile of homebrew games (that are always in heavy rotation) and realized how many of them you programmed (*Frenzy/Berzerk, Pac-Man Collection, Jr Pac-Man* and *Space Invaders* so far, with *Baby Pac-Man* in the mail as we speak). These games just happen to be some of my all-time favorite games. Do you program/port games that you would most enjoy playing or games that would be the most successful from a sales perspective?**

BD: Oh, this is definitely a labor of love. Nobody will


make enough money to sustain themselves with homebrews, so it's just the ones that I would like to do or would have like to have seen back in the day.

**OSG: One of my favorite 7800 cartridges is the *Pac-Man Collection*. It's a wonder you were able to cram all of those games onto one cartridge. Can you explain a little how you are able to maximize the ROM available in a cartridge to accomplish a feat like this?**

BD: It was fairly easy, actually. The monster AI between *Pac-Man* and *Ms. Pac-Man* are *very* similar. There are just some small changes here and there (i.e. in *Ms. Pac-Man*, 'scatter mode' only appears once at the very beginning of the board but it happens a few times in *Pac-Man*). So, those were just small changes. The 32 mazes that are stored in there were fairly easy as well – only half of the maze is stored, and it is compressed so it doesn't take much ROM space at all. I just had to add the menu selections and that was it.

**OSG: I have not received it yet, but I purchased from AA your most recent release, *Baby Pac-Man*. I've read/heard nothing but incredible reviews, so I can't wait to get my hands on it! For those that don't know, this was an arcade game with both a video game and pinball component. Did you find porting this relatively obscure arcade game to be difficult? What possessed you to take on such a monumental undertaking?**

BD: Absolutely! It was one of the most difficult games I've ever worked on. In fact, I gave up on it a few times. Kurt Woloch (another AA user) jumped in and helped with the pinball physics (the biggest thing I was having issues with). I am forever grateful for that. I had wanted to port *Baby Pac-Man* for a long time, as I liked the game, and there were *no* home console ports of it (some people just hacked the mazes into existing games, but that was not the entire game by a long shot).

**OSG: We see the wealth of games that you have created for the 7800, most of which are, to this day, regurgitated nearly annually (or more frequently) for some plug-n-play creation or collection for a newer system. How do you go about getting the licensing**

Photos by Bob DeCrescenzo

**for these games? Do you find these companies are easy to work with or does it take a lot of convincing?**

BD: I tried a few times to contact Namco when making *Pac-Man Collection* (e-mail, web sites, even someone on AA who had connections with them at the time). I also tried to contact Taito when doing *Space Invaders*. Basically, if they aren't Nintendo, they ignore you. What I do, however, is I make sure I put their copyright on the title screen of every game I port. This way there is no question on who the game belongs to and I'm not trying to do anything but put the game on my favorite console system.

There were times I've actually had help from the arcade authors themselves. For *Space Duel*, Owen Rubin gave a little help, and for *Frenzy* I had some help from Alan McNeil (R.I.P.).

**OSG: One final question for you. As you can see, the retro gaming community has continued to grow at a very quick pace these last few years. I believe it is due to the fact that a lot of people want to get back in touch with what they grew up playing as a child. What games are you hoping/planning to port or create in the future? What is your hope for the retro gaming community in general?**

BD: I have a few games that I've started but need to finish. The 7800-library had two 'holes' in it: *Pac-Man* and *Defender*. I've more than filled the *Pac-Man* hole, and I'd like to get back to *Defender* which I had already started. *ReZolve* is a survival zombie game that I've started too, as well as '*Adventure III: The Quest for the Chalice*'.


Regarding my hope for the retro gaming community? Just that it never fades away. We're all getting older and this is too much a part of my life for it to be lost forever.

**OSGM: Thank you so much for your time and insight. We truly appreciate it, as we continue to play your wonderful ports/creations and look forward to your future endeavors.**

BD: Thank you for even thinking of me to do this... and thank you for the kind words.

**Bob's creations and ports can be found at the store of AtariAge.com.**

**Brian Szarek** - Brian is an avid gamer of arcade classics as well as both vintage and current home consoles. He also has a passion for preserving and restoring vintage consoles and games. When not busy editing and contributing pieces for OSG, he loves to spend time with his wife and two beautiful children in the suburbs of Cincinnati, OH.

# A Tale of Two Consoles

By Frank Schwartztrauber

**In the fall of 1982, I decided to make my first major electronics purchase: a ColecoVision home video game console. I was married with a child on the way, assumed I would be spending more time at home in the future and thought it was a great idea. I had grown up playing *Pong* at different friends' houses, but never owned the console.**

I had been going over to my cousin's house to play his Atari VCS. Months earlier, he had been going on and on about this gaming system he had bought that was "so amazing" and that I "had to come over and check it out." It was somewhat impressive, much better than *Pong* anyway, but my years after *Pong* were spent heavily in arcades like Pinball Wizard here in Des Moines, transitioning from pinball to videogames with titles like *Death Race, Galaxian, Circus, Missile Command, Omega Race, Pac-Man, Space Invaders*, and of course, more *Breakout!* Anyway, I knew video games, good video games, fun video games. His Atari, and his blocky, black and white stick-people, just didn't give me the same thrill.

A few years later, when I started seeing commercials on TV about this new gaming system, I didn't really pay it that much attention. When I finally did start paying attention to those commercials, I started getting a little excited. I still didn't believe that a home gaming console could really look like the arcade machines I played so much. I think it was Children's Palace where I saw an actual demo. I was totally blown away! *Donkey Kong* at home can look just like *Donkey Kong* at the arcade? If anyone could master bringing the real arcade experience to your home, it would have to be the Connecticut Leather Company! Wait, what? The Connecticut Leather Company? Yeah, the (CO)necticut (LE)ather (CO)mpany. Well, they sounded like a company that probably… maybe… knows their way around home electronics. I went right out and earned $199.99 as fast I could. Not exactly sure what I was thinking with a first child on the way and all, but I was a full-time gas station attendant. Like I said, I was an "adult" and I was sure everything would be just fine. Besides, those cartridges were only $40 - $50, and if I budget correctly, I should be able to buy two a year. Most importantly, I could tell my cousin to stick his stick-figures. I have an arcade at my house now!

Playing my new Colecovision was great fun back then. Friends would come over and be just as amazed as I was with how close the games resembled the arcade versions. We would make jokes and laugh about those people who were conditioned to think that stick-figures made for great gaming. Coleco specialized in bringing actual games you would find at the arcade to their console; games like *Zaxxon, Space Fury, Mouse Trap, Ladybug, Donkey Kong Jr, Carnival* and *Mr. Do*. These games had pictures of the arcade cabinets right on the box covers so you knew what you were getting. Some of the games were missing some of the levels of their original arcade versions, but it didn't matter, the games were still great. They even released an expansion module that let you play the blocky stick-figures cartridges that other guys had. Why anyone would want to do that when they already had the world's greatest console? What could go wrong?

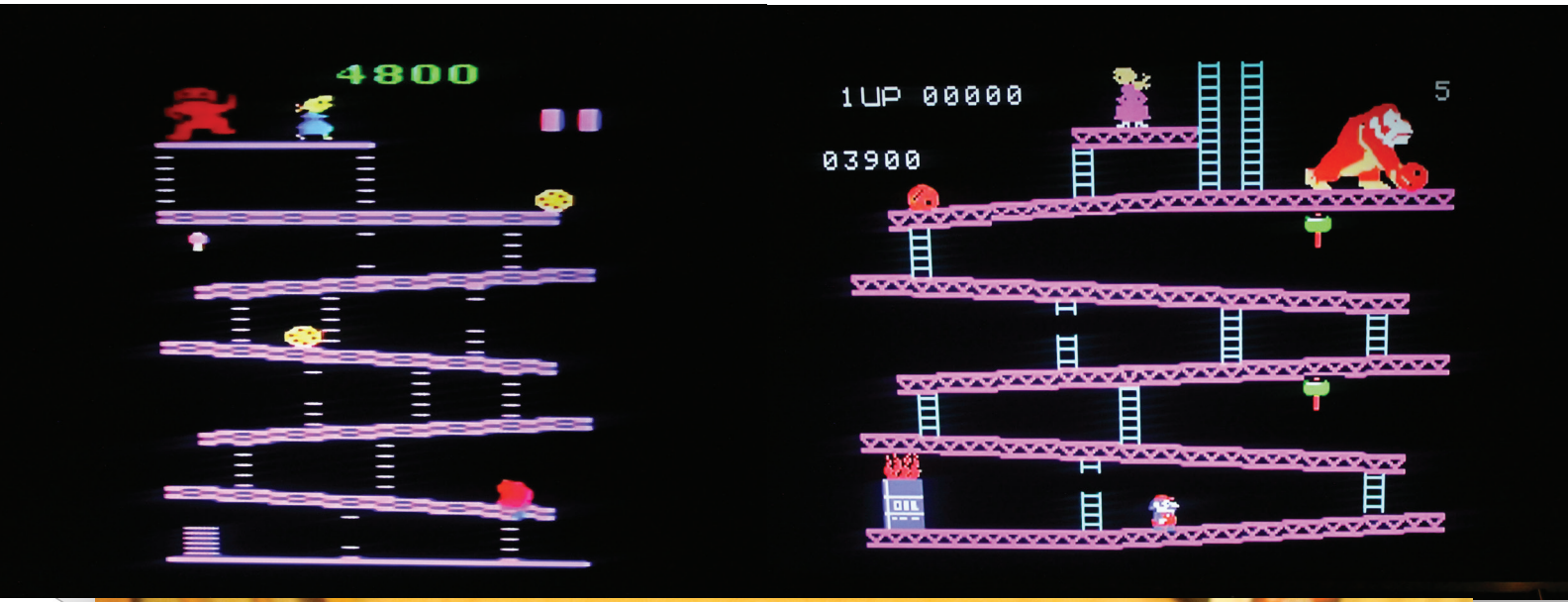
## THEN IT HAPPENED..

The CRASH! The Great Video Game Crash of '83'. I'll just say that I lived it, survived it and was left a little jaded because of it. It seems that one of the stick-figure consoles had tried to cash in on some movie licenses and big-name arcade titles, and just couldn't produce a quality product. Video game companies were dying like flies. After all that, Coleco got out of the home console business and took the next logical step and went on to set the world on fire

with the creation of the Cabbage Patch Doll.

I still have that Colecovision, and all its games, in an old, ugly box. It works, but it's not ideal to hook up to these modern TVs. I'll probably never get rid of it, even if it dies. So many good memories. I just purchased a CollectorVision Phoenix to play my old carts in glorious HD, but it will never feel quite the same as those wonderful times with my original Colecovision.

**Frank Schwartztrauber** is a video game collector from Iowa that specializes in RPGs.




# AMAZON
# or
# Big Brown River!

## From the man formerly known as THE JADED GAMER

**by Bill Donohue**

**The following are excerpts from a tattered notebook recovered from the mummified hand of an unknown explorer. How the explorer got into his leathery condition is still a mystery that maybe these notes can solve. A bigger mystery is how this explorer was found under a Baccarat table in the Tropicana Lounge of the Macapa Motel 6, where they keep the torches lit for you. These mysteries will remain unsolved forever, unless I stop writing this rambling prelude and we get on with reading the notebook, so…**

### 11/23/56

We are no longer alone in our search for the emeralds. Beneker has been murdered, but his pet parrot, Paco, has survived. I am continuingto investigate the scene. Will report later..

### LATER

It is as we feared. Beneker's assassin has taken the map. Fortunately, Beneker's potty-mouthed parrot has convinced me that he knows the way to the lost, forbidden city of Chak. We are off to the airport!

### 11/25/56

We arrived in Macapa, slightly worse for wear. Thanks to Paco's foul language and penchant for bawdy songs, we were forced to sit out the trip in the baggage compartment. We immediately met with M, who supplied us with the necessary gear for our journey. We'll rent a small plane for the next leg. More later.


Michael Crichton's AMAZON – the only game with ******* Paco on the cover.

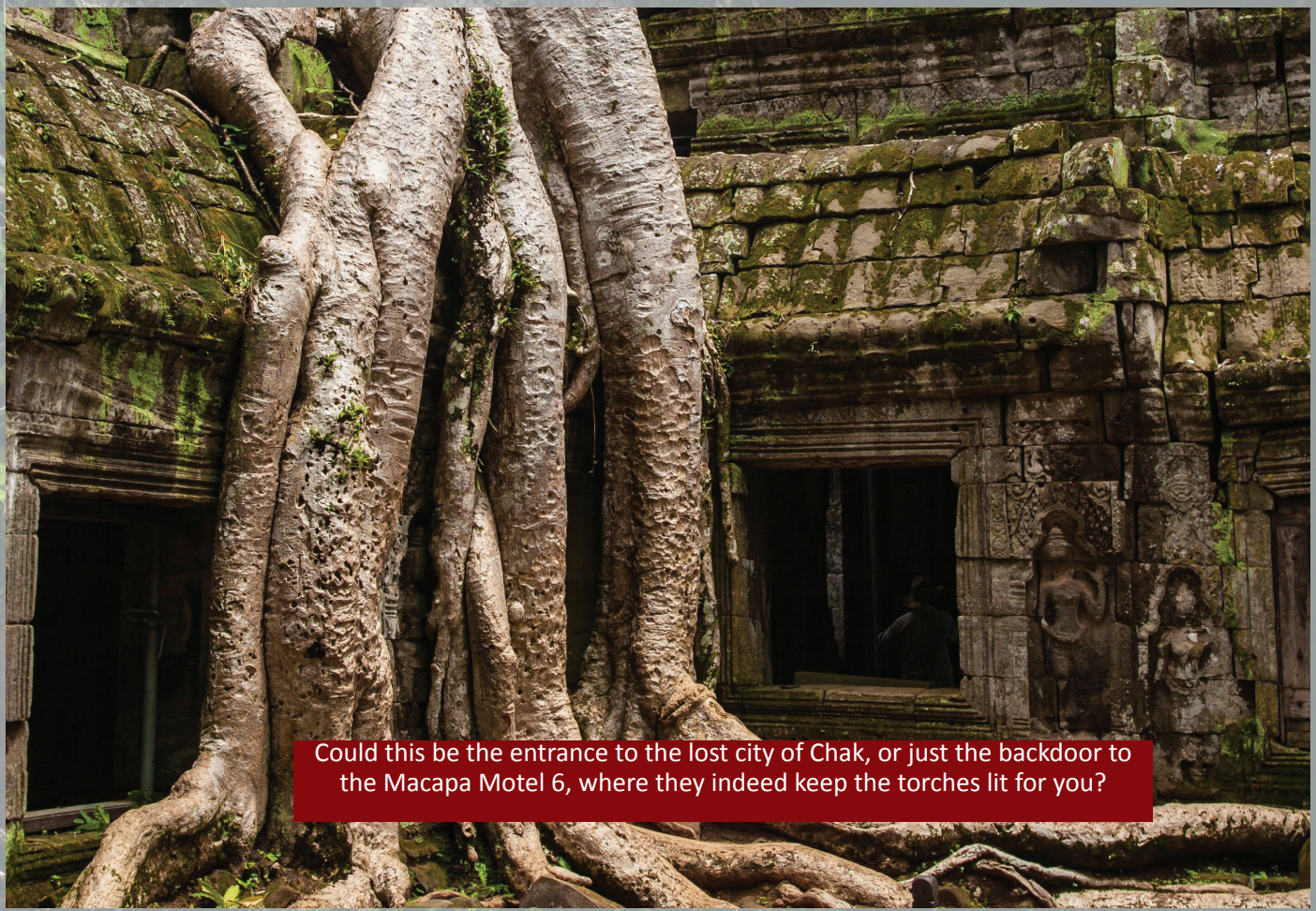
### 11/27/56

More bad news. Thanks to Paco's insistence that he was "the ******* bird and he sure as **** knew how to fly", our small plane crashed in the jungle. I've just come to after being out all day yesterday. I've got a huge bump on my noggin, but I'm otherwise okay. Paco is uninjured, after bailing out while yelling "Enjoy the ride, you ******** wingless wonder!" I'm beginning to hate that bird. We'll start trekking towards the river soon. Requested an airdrop of a canoe to cross the river. More later.

### 11/29/56

We have escaped certain death and the failure of our mission thanks to Paco. I'd praise him more, but it was his fault we ran into a unit of stoned, drunken revolutionary guerillas yesterday. We started hiking towards the river early on the 28th. Paco had started counting cadence in a most obscene way ("I don't know but I've been told, Eskimo ***** is mighty cold".) when we were ambushed by the guerillas. They just came out of the jungle and captured us. At first, their "jeffe" threatened to kill us if we couldn't pay him, but when he realized we had no money, he said he'd kill us just for the amusement. It was then that Paco started singing. I'd never heard such filthy ditties before, but the guerillas seemed to know them and soon they were all singing along with Paco. They sang "Thighs Over Java" and "Betty's Getting Sweaty",

Amazon photo by Bill Donohue



Could this be the entrance to the lost city of Chak, or just the backdoor to the Macapa Motel 6, where they indeed keep the torches lit for you?

not to mention the grotesque "***** *** with a ***** *********, Baby!" As they sang, they drank, and soon the whole band was snoring loudly. Paco and I slipped out of camp and headed towards the drop site. We should cross the river tomorrow.

## 11/30/56

It's been a very trying day today, but at least I can report that I've crossed the river and am just a few miles from entering the lost city of Chak and finding the emeralds. I say I, because the fact of the matter is that Paco is dead. I'm afraid it is all my fault, but I am sure I will be forgiven after you hear all the evidence. When we escaped the guerilla camp, I grabbed our backpack. This pack should have held the remaining supplies we needed to survive the remainder of our journey, but all it held was an oar, a tranquilizer gun and a Very pistol. Paco, being native to the region, found plenty of sustenance in the trees through which we trekked and he constantly reminded me of that fact. "Hey Skinny, want some delicious termites? Mmm, mmm wood! Oops, I mean good! Ha, ha, ha!!!"

I tried not to let on that he was getting to me, but when we got to the drop site and Paco saw the canoe, that's when things went to Hell in a handbasket. Paco took one look at the canoe and began cursing in the most obscene manner! He said he wasn't going to "ride in any ***** *** ** ***** boat" and that I was a "*** ******* ** * **********" for thinking I could make him do so. I'd already dragged the canoe to the bank of the river and gotten inside. Paco flew up and landed on my shoulder, screaming in my face that I should just "forget this ********** idea and fly his ********** butt back home!" That's when I grabbed him, reached into the pack for the tranquilizer gun, aimed and fired. Sadly, in my hurry, I'd grabbed the Very pistol and Paco had exploded into a ball of feathers. On the plus side, however, I can now report that parrot does indeed taste like chicken…

**And that's where the notebook ends.**

**We'll never know if our intrepid adventurer found the emeralds. An expert might say that the idiot had made one huge circle through the jungle and crawled into the hotel through the servant's entrance, thinking it was the lost city of Chak. We'll probably never know. Why would we want to know? Who knows? There is one thing we know for sure – parrot does indeed taste like chicken.**

A friend to those who need no friends, an enemy to those who have no enemies - he is **Bill Donohue!**

# Coins Detected in Pocket


## VERSUS ARMANDO GONZALEZ, MIKE THOMPSON, AND JORDAN DORRINGTON

**by Steve DeLuca**

**Welcome to another installment of a column dedicated exclusively to Old School Gamers and Old School Games from the Golden Age of gaming. These gamers, back in the day, had to physically use a coin or token to start a video game. The earning of these coins was mostly accomplished after some form of work, usually the hard or difficult variety. After earnings were paid to the gamer, there was the trip to the ARCADE. ARCADE is written in ALL CAPS because it is the Old School Gamer's origin and sanctuary. It was, and shall always be remembered, as a hallowed place. Respect your origins. -Joel West (arcade legend and column originator) R.I.P.**

The follow up to Namco's first major arcade hit, *Galaxian* (1979), the initial development of *Galaga* (1981) was in response to an excess number of *Galaxian* circuit boards. On task, Shigeru Yokoyama and his team switched gears and got to dream big when Namco's hardware research and development group convinced them to use their new enhanced board. The outcome: an arcade classic that's still going strong, with an unquenchable thirst for Washington's head. With over a dozen nostalgic throwback adaptations, including the popular Arcade1UP home arcade, the *Galaga* craze is being passed down throughout the generations.

Released by Midway Games in North America 1981, the object of *Galaga* is to survive as long as possible by destroying as many ships as possible while avoiding their attacks. As you eliminate a convoy of *Galaga* forces, the next wave of Grunts, Guards, and *Galaga* Bosses will be tougher than the last. Enemy ships equipped with tractor beams can capture your ship, taking a life. If you have additional ships, the seized starfighter can be rescued to fight by your side, doubling your firepower.

*Galaga's* arcade settings allow for several different playing formats: Tournament Settings (TGTS) (5 Lives, No Extra Ships, Rank D hardest setting), Marathon (3 Lives, Extra Ship @ 20k, 70k and every 70k thereafter, Rank D), and Rapid Fire (same as marathon settings with the addition of rapid fire). Rapid Fire is a fun way to blast alien foes out of the sky, but the highest honors amongst the community is given to those who can slay under Marathon or Tournament Settings (TGTS).

### The Players

The *Galaga* community is strong, with Starfighters sprinkled all throughout the globe. Congregating on GalagaForum.com, *Galaga* masters share strategies and encourage one another to strive on, ever driving the World Records up and up. Comparable to the Three Musketeers of the galaxy, *Galaga's* TOP 3 TGTS World Record holders

Armando Gonzalez, Mike Thompson, and Jordan Dorrington have all recently increased their personal bests / World Records. After 38 years, *Galaga* is still fresh on the scene with an ever-growing number of serious players. Of the GalagaForum.com's 165 count leader board (TGTS entries), many of the scores were record this year, including those of our heroic TOP 3.

**Armando Gonzalez, Los Angeles, CA (9,525,700 TGTS [#1 WR], 17,684,050 Marathon [#1 WR])**

Once known as the "Dark Horse", Armando is now the first ever to hold both the Marathon and TGTS World Records. Now saluted as the "Best *Galaga* Player on the Planet", his reputation as a true D'Artagnan is magnified through his compassion for the community. Amongst the founders of GalagaForum.com, Armando's efforts have helped to preserve *Galaga's* Top Score / World Record history, promoting good-natured competition to all generations.

A true gentleman, his wholesomeness will never overshadow his skill as a starfighter. During Armando's TGTS World Record run, he pushed his way to 6,119,450 before losing his first ship, an absolute jaw dropping accomplishment. His motivation gives us comfort, allowing us to sleep at night knowing the skies will be free of evil *Galaga* forces.

**Mike Thompson, Derry, NH (9,283,260 TGTS [#2])**

Master of precision, Mike "The Assassin" Thompson makes every shot count. His focus on composure and accuracy (Hit-Miss Ratio) has proven to work in his favor, maximizing his score per level. Thus giving him an advantage of carrying a higher score level to level when compared to our other starfighters. Mike proved he had what it takes when he traveled to Score Wars: *Galaga* World Championship at Meow Wolf (New Mexico, Aug. 2018), showing up unknown and registered in the 'amateur' class. Dominating in the early rounds, Mike attracted the attention of the event organizers along with *Galaga* legend Phil Day. He showed them he had what it takes and was asked to join the pro level tournament. Taking the first round, Mike went up against Armando for round two. In a match up that has now gone fable, Mike and Armando were both the first, two of four, to clear the 1,000,000 tournament milestone at Score Wars. Eventually defeated yet undiscouraged, Mike was now hooked on training and advancing his skills, eventually grabbing the Twin Galaxies World Record for a period of time.

Mike's first encounter with the *Galaga* forces was around the time of their initial invasion at his local grocery store. On the younger side, this Athos in-training had to keep up with the bigger kids, gaining respect with his early sharpshooting skills. As he waited in the lines created by the game's supreme popularity, Mike studied the ways others played, recognizing their mistakes, learning enemy flight patterns, and discovering tricks to becoming better. With a commitment so strong, during his teenage years Mike and his friends would hit the mall to meet girls, but would instead end up continuing his *Galaga* training for hours on end at the Aladdin's Castle.

### Jordan Dorrington, Cedar Rapids, IA (7,344,690 TGTS [#3])

"The Romantic", Jordan Dorrington's love of the game stems from his father's shared attraction for blasting alien bug ships out of the sky. As a kid, Jordan and his father couldn't walk by a *Galaga* machine without leaving heap of space debris. Now a decorated starfighter, Jordan stays active in the *Galaga* community, getting into every opportunity to share a drink and a battle story with his fellow pilots.

Recently, this Aramis-like marksman traveled to Brisbane, Australia to represent the Northern Hemisphere in a jet-lagged showdown to dominate the world. Regardless of fighting alongside Mike and other legends like Phil Day, John McAllister and Dwayne Richard, they looked to have been over taken by the Coriolis Effect and these heroes of the North could not clench the title. Honored by the opportunity, Jordan walks with his head high and continues to gain traction verses the *Galaga* forces.

### Pro Tips

Gearing up for any news regarding the *Galaga* Chronicles, we reached out to these three *Galaga* Masters for their insights on spacecraft maneuvering, gunning, and training along with plenty of enemy exploits. Hoping to hear back from at least one champion, the stars aligned and we have been bestowed tactics and strategies from all three Masters.

• Make the red moths a priority; kill as many as you can.

• When the Green Galaga is about to capture you, shoot him once to turn him purple. That way, you only have to shoot at him once and minimize the chances of killing your captured ship.

• Develop a pattern for the three waves. You can use the same pattern on the first and third waves. The second wave, which is harder, will be a different pattern.

• At the beginning of each wave, you should fire a test shot to see where your missiles are lining up. You should use "HIGH SCORE" to line up your shots. For example - the first wave I like to shoot at the G in HIGH, the second wave (hardest stage) I shoot at the first H in HIGH, and then the third wave I shoot again at the G in High. I will always fire a missile at the beginning of each wave to make sure I'm lined up correctly to attack the enemy.

• Try to clear one side or the other side. You cannot have bees and moths on both sides.

• Try to stay in the middle. If you are pushed to the side, try to push the enemies back and then pull back.

### Armando Gonzalez

@apokz24 found on Twitter and Instagram

Look for Todd Friedman's recent in-depth interview with Armando on TheWalterDayCollection.com

• Relax. While the game may at first appear fast and chaotic, causing you to want to shoot like crazy, you will do best if you can stay calm and control your shots and movements.

• Master the challenging stages. Half or more of the points in the game come from the challenging stages. These are also good opportunities for you to practice your accuracy and controlling your fire.

• Develop patterns for each stage. After the first 10-20 stages (depends upon difficulty setting) there are only three unique stages that repeat themselves between challenging stages. If you're already decent (scoring, say, 300k+) and want to be an expert, you should be getting 'perfect' most of the time.

• When enemies are entering the stage, it is often advantageous to let some of the kamikaze bugs (those that attack you while entering the stage) fly off-screen without killing them. Since the next wave of bugs will not enter the stage until the previous entry wave is completely killed, has taken formation, or flown off stage, letting some of the kamikaze bugs fly off-screen can provide you time to get into a better position for the next entry wave or time to kill off some of the bugs that have already taken formation.

• Improve your accuracy. The top players can all score above 90% HMR. The more accurate you are, the fewer errant shots you'll take and thus the more likely you will have shots available when under attack. You'll also do better on challenging stages - free points.

• Develop a cadence to your firing. Since you can only fire two shots at once, you need to develop a pattern to your shots. It's usually best to double-tap most of your shots except for when the bugs are close, and you can then fire quickly at will. The early easy stages and the challenging stages are good opportunities to practice this.

• Learn from others. I learned watching others play live at the arcade. While that was great at the time, it's not the same as having countless hours of videos on the internet of the best players in the world. Study these to see how they handle the above techniques and scenarios.

**Mike Thompson**

https://www.youtube.com/channel/UCLEYMgl6Zf7KqnjIHA-PaMA

• Try to shoot all the bugs except for the *Galaga* Bosses when they enter the screen at the beginning of every stage. You don't need to shoot them right away because they do not swarm at you until much later in the stage. Not worrying about the Galaga Bosses will give you the advantage of getting rid of the other bugs first, which will make it much easier to finish the level.

• Enemy Exploit: All bugs will stop shooting on the screen for a spit second when your kill a *Galaga* Boss that is swarming you.

• Filming your game and watching your mistakes is a great way to improve your game play. If you understand the mistakes you're making and how to prevent them, you will greatly improve your gameplay.

**Jordan Dorrington**

Twitch.tv/JDGalaga

Look for Jordan's recent *Galaga* strategies video on the YouTube channel Tim's Tiny Arcade.

**Steve DeLuca** - A father, drummer, electronic engineer and a right-handed old school gamer, Steve still finds time to run his website TotalRadNES.com, help with the Classic Tetris World Series and recently kicked off a nonprofit called Radically Achieving Dreams (501 (c)(3)).

# Let's Go to the Videotape

By Leonard Herman
The Father of Video Game History

THE GAME SCHOLAR

**Video game software can reside on many different types of media. In the early dedicated consoles of the seventies, the games were built into the consoles themselves. The introduction of cartridges in 1976 eventually gave way to CDs in 1988 and DVDs in 2000.**

Magnetic media also found its way to consoles in 1982, when Arcadia (later renamed Starpath) released the SuperCharger, which used cassette tapes to download games to the Atari VCS. Nintendo followed suit in 1986 by using floppy discs for its Famicom Disc System (and again in 1997 for its N64DD), but these units were only peripherals for existing consoles. No console had ever been designed around magnetic media. Well, at least not until September 1987, when toy company Worlds of Wonder released its Action Max.

It seemed like a good idea in theory, although it was really a throwback to 1972, when Magnavox issued screen overlays to simulate attractive graphics. In this case, a live-action movie would play on the screen and provide the backdrop to the game.

The Action Max retailed for $99, which wasn't a whole lot of money for a new console. However, unlike conventional consoles, it didn't hook up to a television. Unlike the conventional consoles that directly accepted the media, the VHS-tape games for the Action Max had to obviously be inserted into a VCR (or Video Cassette player). The system was packaged with one light gun, headphones, a red light and one game on tape. The gun and red light plugged into the console. A suction cup on the back of the light was used to attach it to the lower right corner of the television set. It flashed on and off whenever a target appeared on the screen. The games themselves were primitive. Shoot at the targets and try to get the highest possible number of hits. An LED on the console kept track of the hits.

Five 'games' on videotape were released for the Action Max. While the theme of each game was different (for example, *38 Ambush Alley* takes place on a police target range and *Hydrosub: 2021* is set underwater), the gameplay is the same on all of them; amassing points by hitting as many targets as possible. This could get monotonous after a while, especially since games on videotape were linear and were exactly the same every time the videotape was played.

The Action Max was not available in Japan. Japanese consumers, however, could purchase a similar unit called the Video Challenger, which was issued in Japan by a toy company called Takara

**Worlds of Wonder Action Max**


Console photos by Leonard Herman


**Takara Video Challenger**

(now called Takara Tomy). Like the Action Max, the Video Challenger also used a gun (a "Challenge Blaster") that gamers aimed and fired at the TV screen, but in this case, the gun was the console. It also displayed a score that increased every time the player successfully shot an on-screen target. However, the player also had to avoid being shot from the on-screen characters or else the tally would decrease. Games for the Video Challenger were designed by key video game developers such as Sega, Data East and Konami. Despite this, the Video Challenger suffered the same fate as the Action Max. It simply couldn't compete against mainstream video game consoles like the Famicom. Due to the sequential nature of tapes, each game was repetitive and players simply lost interest after just a few plays.

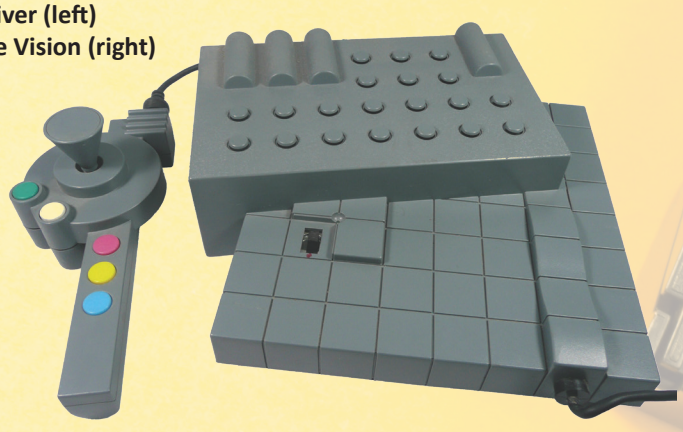
If videotape was not the perfect medium for action games, perhaps it would work for educational games. That was the hope of View-Master/Ideal with their Interactive Vision that they launched in 1988.

There was a more important difference between the Interactive Vision and the videotape systems that preceded it. The Action Max and Video Challenger could not generate any computer images onto the screen. The videotapes for the Interactive Vision had actual computer data encoded onto a track that downloaded to the console while it played on a VCR. The result was a hybrid system that was a mix between a videotape game player and a true video game console. While images from the videotape would always appear the same on repeated viewings, the games themselves were computer generated and therefore would differ on repeated plays. This was a huge advantage over the Action Max and Video Challenger, which would always be the same every time they were played. View-Master/Ideal even worked so that the portion from the videotape was not the same every time they were viewed. The tapes themselves featured two audio tracks, and the player selected which soundtrack would be used while playing.

The Interactive Vision had been designed for children between the ages of three and eight. The unit utilized a controller that featured five color-coded buttons and a joystick, so children could highlight certain on-screen objects. Despite being named Game of the Year at one of the toy fairs where it was displayed, the system did not sell well. Thanks to poor marketing few potential buyers even knew about it. Those who were aware of it refused to pay $130 for an educational product that only appealed to a very narrow target audience. The system was only released in North America with only seven tapes available for it. All of them were licensed by either Disney or Sesame Street.

Only one videotape-based console was manufactured by an actual videogame company and that was the Video Driver which came out in 1988. This stand-alone unit looked remarkably like the Racing Wheel Steering Handle controller that was used with the Sega Japanese SG-1000 console. It consisted of a steering wheel and a gear shift.

The small console, which in the United States was distributed by Tyco and cost approximately $70, attached to a horizontal sensor that sat in front of a 13 through 20-inch television set. A small plastic racing car sat atop the sensor facing the television set and it could be moved left or right by turning the wheel. The object of the game was to avoid the cars on the screen, which was essentially a film of cars travelling down various roads. The unit was bundled with a video cassette that featured two games, *California Chase* and *Road Race*. As with the videotape-based consoles that

**Sega Video Driver (left)**
**Viewmaster Inactive Vision (right)**

preceded, the allure of Video Driver wore out quickly and the system was discontinued within a year of its debut.

Video Driver was the last videotape-based system to be produced, but there was almost another.

Control-Vision was conceived in 1985 by Tom Zito of Nolan Bushnell's company, Axlon. Zito had been a film major at New York University before he became Axlon's Vice President of Marketing. His idea was to create interactive games combined with video footage, an approach that was closer to the path that View-master eventually took with its Interactive Vision. Zito's idea was to have the computer create images over the live-action movie background.

After Bushnell approved the project, Zito assembled a team of video game dignitaries, which included Steve Russell, David Crane and Rob Fulop. Zito calculated that they would need seven million dollars to finance the project, an amount that Axlon simply didn't have. Hasbro, the world's largest toy company, which until that point had stayed away from video games, stepped in with the needed funding in exchange for the exclusive rights to manufacture and distribute the console. Axlon developed a compression routine, wherein five full-motion video tracks and sixteen digital audio tracks could be crammed together on one videotape without any loss of quality. The system could also switch back and forth between the 21 tracks instantaneously. In addition to the video and audio, the videotape would also contain the program code. Hasbro claimed that the new system would be a cross between a movie and a videogame. Two movie/games, *Night Trap* and *Sewer Shark*, were produced at a cost of $4.5 million, and more games were scheduled to follow. The $200 system was scheduled to appear on store shelves in early 1989, and retailers had pre-ordered 250,000 units. Unfortunately, a sudden demand for Video RAM (VRAM), which the Control-Vision used extensively, caused the price of the chips to jump from $30 to $80 each, which increased the wholesale price of the console from $105 to $155. Few retailers were willing to purchase the console at the higher price. Rather than selling the consoles at a loss to the retailers, Hasbro simply scrapped the project altogether.

With the death of the Control-Vision, videotape-based video games finally became history.

**Leonard Herman** – Regarded as one of the earliest and most respected video game historians, his book Phoenix: The Fall & Rise of Home Videogames is considered to be the first comprehensive book about the history of video games. In 2003, Mr. Herman received a Classic Gaming Expo Achievement Award in recognition for his accomplishments in documenting game history.

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# MOON PATROL

by Michael Thomasson

## Luna City Police Department Seeks Trigger-Happy Hero. Apply Within.

**Created by Irem and co-published with Williams Electronics, *Moon Patrol* was one of the premiere side-scrolling video games. It is recognized as the first arcade game with parallax scrolling, a computer graphics technique where foreground images move past the camera faster than the background images, generating a rich illusion of depth.**

When you signed up with the Luna City Police Department, who would have thought that you'd be assigned to Sector Nine - home of the toughest thugs in the galaxy?

Your beat is divided into two courses: BEGINNER and CHAMPION. Each course is divided into 26 segments, marked by points A- Z. The gauge at the top of the screen indicates your location. The gauge is divided into five sections: A-E, F-J, K-O, P-T, and U-Z. At the end of each section, you're awarded bonus points based on your travel time. The faster you complete a section, the more points you'll score.

**Sure, you've got the finest moon buggy on the force - complete with anti-gravity jump buttons and laser bullets - but in the rough terrain of Sector Nine, you need more than fancy equipment to survive.**

Your enforcement vehicle is stacked! There are super absorbent shocks installed on all three axles providing the moon buggy with a smooth ride and the ability to hop lunar pits and land mines. A roof-mounted

anti-aircraft gun can spray up to four bullets upward in tandem, while the forward cannon fires a single blast at boulders and oncoming assailants.

**Just evading huge craters and moon rocks is hard enough without having to deal with hostile**


**UFOs and enemy landmines and tanks.**

UFOs come in many dangerous flavors, with the most common willing to nosedive in kamikaze fashion. The elliptical aircraft drop deadly bombs, while the tri-orb craft hurl terrain-deforming grenades ahead of your patrol car.

**Getting through your patrol in one piece is almost impossible!**

On the surface, tanks, rocket cars, and overly zealous space vegetation all pose their own unique challenges and dangers to your moon buggy.

### WANNA PLAY AT HOME?

*Moon Patrol* was ported to the Apple II, Atari 2600, Atari 5200, Atari 8-bit and ST, VIC-20, Commodore 64, MSX, IBM PC, TI-99/4a, TRS-80 CoCo, and unofficially, the Colecovision. *Moon Patrol* was also released as part of a compilation on the Game Boy Color, Sega Dreamcast, and Sony's Playstation.

## HINTS FOR ROOKIE DRIVERS

- The greater your speed, the farther your patrol car will jump.
- Adjust your speed when an alien ship hovers above you to avoid being bombed.

- Two closely positioned impediments can be skirted in a single jump.

- Learn to recognize the specific UFOs that drop crater-forming missiles and purge them with haste!

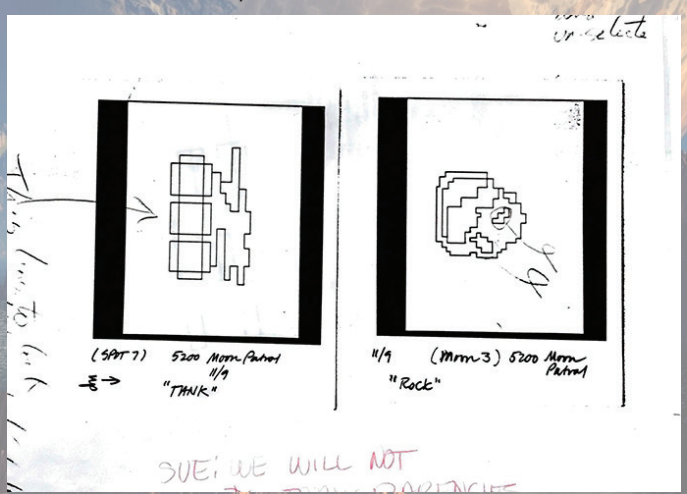
- Jump in the reverse direction to avoid projectiles approaching from behind.

- When a rocket car or enemy missile appears from behind, jump over it, then blast it when it's in front of you.

- Unlike the beginner course that is always different, the championship course is always the same and can be memorized.

## REJECTED, DEJECTED, AND UNSELECTED

This archived document shows designs for Atari's 5200 conversion of *Moon Patrol* that were abandoned for not looking enough like an armored tank. Circa November 9, 1982.




**Michael Thomasson** teaches multiple college level videogame courses, and has contributed to dozens of gaming texts and television shows. In 2014, The Guinness Book of World Records declared that Thomasson had "The Largest Videogame Collection" in the world.

Pictures by Michael Thomasson

INTELLIVISION® Amico™

Want to patrol at home on Mother Earth? You can catch a glimpse of *Moon Patrol* watching the cult-classic coming-of-age flick *Joysticks*, as well as alongside Ralph Macchio in the *Karate Kid*. Better yet, a new updated *Moon Patrol* will launch with the new Intellivision Amico. Expect more of Sector Nine on October 10, 2020!


You want UFOs? Oh, we got UFOs... and all these UFOs want is your head mounted on their dashboard! Who knew outer space could be so exciting?


Jumping, shooting, and fighting for your life is the order of the day. Wish those folks up on Earth knew how tough it was being in the *Moon Patrol!*


# THE MAKE TRAX WORLD CHAMPIONSHIP

## A legendary arcade game finally wins some respect

**By Walter Day - the Man, the Myth, the Legend!**

**Walter Day always had a dream to organize a *Make Trax* World Championship. He had been the world record holder of the game during the 1982-1983 period and it was a dream that circled in his mind for nearly 40 years, looking for a place to land. *Make Trax* is considered by many to be one of the harder maze games created during the early 1980s. Produced by Williams Electronics in 1981, the makers of the game believed it would be their answer to the success of *Pac-Man* and expected the game to be the successor to *Pac-Man*'s dominance. Though it was an intriguing game and easy to understand, it never caught on, presumably because of its difficulty.**


Fast forward nearly 40 years later; who could believe that Walter Day would meet James, of DJ's Arcade near Winnipeg, at a local arcade party in Portland during the weekend of the 2019 Portland Retro Gaming Expo? Much to Walter's surprise, James was the current owner of the mint condition Make Trax machine that Walter had signed at the NW Gameroom & Arcade Show back in 2009. At that time, it was a new-in-the-box machine that was taken out of the box for the sole purpose of having Walter play a few games on it and then autograph the side of the machine.

It turned out that James (and his wife) owned an arcade back in Grand Marais, a summer vacation hot spot near Winnipeg, Manitoba, Canada. The arcade had been founded in 1975, making it one of the earliest vintage neighborhood arcades in the world. Day decided on the spot that trading cards should be made to honor the legacy of this arcade as well as honor the owners.

James, however, was more interested in talking about *Make Trax*. He had a machine set up in his arcade and he and the young customers were avid *Make Trax* players. Yes, they were all vying for the in-house high score. After Walter showed James many tricks that guaranteed that his high score would soar upwards, Walter began to reflect on his ages-old desire to create a *Make Trax* World Championship.

Without a moment's hesitation, James said "Let's do it. I'll bring my machine down to Ottumwa along with many more *Make Trax* cabinets that I can buy from a local collector and I'll loan all the games to the


Ottumwa Video Game Capital of the World Interactive Museum for the contest."

Walter didn't really expect to hear from James again until he got an excited message from James, who was in British Columbia picking up a truckload of *Make Trax* games. "I told you that I don't just talk," the message stated. "Here I am with the machines and I am on my way."

As you can see from the photos, James managed to dig up 5-6 *Make Trax* machines, with four of them being new in the box, unplayed.

Picking up the games included a journey that bordered on the miraculous. It was a 10-day trip, with lots of mechanical breakdowns, including a failure of his brakes that seemed more typical of a Tom Cruise action movie than a normal buyer's trip for your average arcade collector. The highlight of the adventure happened when his truck's brakes failed, and he had to coast for many miles down a steep mountain highway in British Columbia.

Then he drove back home through a snowstorm, but finally, James regrouped at his Grand Marais home base before heading out to Ottumwa.

Meanwhile, Jerry Byrum, head of the Ottumwa Video Game Capital of the World Interactive Museum, had become very excited at this development. He realized that with the two *Make Trax* machines the Museum already had, there were enough machines to make a well-run contest. "We plan on making this a major classic arcade event every year," he explained. "We are now planning the dates and the contest format."


**As these posters reveal, Walter Day has been thinking about a Make Trax World Championship for a long, long time.**

Walter Day sees this as his opportunity to inspire gamers to start playing *Make Trax*. "It is such a good game - though challenging," he admits. He thinks it could enjoy new-found popularity, so he wants to get everybody involved with the game. Therefore, he wants the contest structure to support four different championship categories: Adult Men, Adult Women, Boys and Girls.

Meanwhile, the legendary Billy Mitchell, always a visionary leader of the gaming culture, sees this as an event that could be expanded upon. He thinks it should also include championships on classic arcade titles like *Popeye* and *Rally-X* held at the same time.

With the *Make Trax* World Championship now looking like a certainty, Day agrees that *Popeye* and *Rally-X* would be wonderful additions to the event and it is hoped that readers might step forward and help Ottumwa round up some *Popeye* and *Rally-X* machines for the event.

**Walter Day -** As the founder of Twin Galaxies, the oldest video game scorekeeping and adjudication service in history, Walter Day is known as the creator of e-sports and has often been called The Patron Saint of Video Games. His remarkable efforts to find, verify and catalog video game world records has led to a decades-long partnership with The Guinness Book of World Records.



## WALTER'S WORDS TO THE WISE!

**To help everybody get ready for the imminent *Make Trax* World Championship, here are a few game-playing tips from Walter Day that will help you boost your score higher and higher.**

**1. Avoid using the vertical roller. It is harder to control and the "Goldfish" will trap you too often.**

**2. Use the horizontal roller to go back and forth until you "group" the two goldfish on top of each other. You are always safer when you have the two of them together — it is easier to keep track of one enemy instead of two.**

**3. Once you group the goldfish, start painting the maze while keeping the two goldfish just a little ways behind you as they follow your moves. This way you will always know where they are and they will have little opportunity to trap you.**

**4. Ignore all the characters when they come out to leave footprints. If you pursue them, you will eventually be caught by the goldfish. The characters generate very few points and you must avoid losing your men.**

Photos: Walter Day and The International Arcade Museum

# 2020 OSG EVENTS CALENDAR

STAY TUNED...WE ARE WORKING ON MORE 2020 DATES

2020

**APRIL 3-5, 2020**
Milwaukee, WI • Midwest Gaming Classic • *midwestgamingclassic.com*

**APRIL 9-11, 2020**
Los Angeles, CA • E3 • *e3expo.com*

**JULY 10-12, 2020**
Atlanta, GA • Southern Fried Gaming Expo • *southernfriedgamingexpo.com*

**JULY 9-12, 2020**
Pittsburg, PA • ReplayFX • *replayfx.org*

**JULY 25, 2020**
Cleveland, OH • CCAG • *ccagshow.com*

**JULY 25-26, 2020**
Austin, TX • Classic Game Fest • *classicgamefest.com*

**AUGUST 7-9**
PHOENIX, AZ • Game On Expo • *gameonexpo.com*

**AUGUST 8-9**
GARDEN CITY, NY • Long Island Retro Gaming Expo • *liretro.com*

**AUGUST 14-16**
Portland, OR • Portland Retro Gaming Expo • *retrogamingexpo.com*

**OCTOBER 14-17**
CHICAGO, IL • Pinball Expo '20 • *pinballexpo.com*

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# GAME GEAR

MODERN REVIEWS BY OLD SCHOOL GAMER STAFF

## HeadColors HS One-UP Nes Arcade Stick By Mike Mertes

As a child growing up in the 80s, my beloved video game console of choice was the Nintendo Entertainment System. Despite all the different controller options that came out for the system, like the NES Advantage arcade stick, I've always gravitated towards the stock NES controllers that came with it. As cool as the NES Advantage looked, I found it cumbersome to use and have stayed away from arcade sticks on the console ever since. When the opportunity came to review the HC One-Up, a custom arcade stick from HeadcolorsVG, I decided to try playing NES games with a joystick one more shot.

Equipped with a Sanwa JLF ball top joystick and four Industrias Lorenzo pushbuttons, this eloquently designed joystick looks tremendous in any game room and can plug into any device that utilizes an NES controller port. I tested the unit on an NES, Famicom AV, and RetroUSB AVS and experienced no compatibility issues. For those wanting to look "under the hood" of the joystick, pulling up on the front portion of the panel will open it to reveal its electric guts. The construction of the inside of the stick is very tidy, with clean wire runs and circuit board mounting. Rest assured, this stick is just as beautiful inside as it is outside. The joystick has some weight to it, but it is not overly heavy. The entire unit can sit comfortably on your lap, thanks to the added cushioning on the bottom of it.

Beauty aside, I wanted to put this stick through its paces, utilizing it with games that I would typically only play with a standard control pad. Starting with *Contra*, I was dazzled with how easily I was able to aim my gun diagonally using the stick. My button presses for shots, and jumps were accurate, and I was able to finish the game without having to use a continue. *Punch-Out!!!* was the next game I played, as it requires a quick response time from the player,


HeadcolorsVG's HC One-Up retails for $219.00 and can purchased here: **https://www.etsy.com/shop/HeadcolorsVG**

Photos by Mike Mertes

and the display and controller you are using. The HC One-Up exhibited no controller latency and took me to the "Dream Fight" with Mike Tyson. Impressed, I played *Ninja Gaiden, Life Force, Batman,* and *Castlevania 3* and got just as far as I would using a stock NES controller pad.

The only hassle I experienced with the arcade stick is that its cable length runs 6 feet, which is slightly shorter than an NES controller's length of around 7.5 feet. I have some distance from my AVS from where I sit, so I had to move a little closer to my system to use the joystick. For those that are interested in the HC One-Up and want a longer cable, HeadColors can make arrangements to get an extension made. While not a necessity, I think the inclusion of turbo button functionality would have been great for those games that require rapid-fire shots. The HC One-Up's solid construction and precision have honestly changed my stance on using an arcade stick on the NES. It certainly proved itself in all my aspects of testing.

**etsy.com/shop/HeadcolorsVG**

## HDTV Cable for Saturn by Hyperkin
### By Mike Mertes

For a console that just recently had its 25th anniversary, there is certainly no shortage of accessories coming out for the Sega Saturn. It's never been a better time to be Saturn owner, as many of these new accessories give the system new quality of life upgrades. Hyperkin's brand new HDTV cable for the console gives you the ability to ditch the low-quality composite cables the console shipped with and plug the Saturn into an HDMI capable television, monitor, or projector.

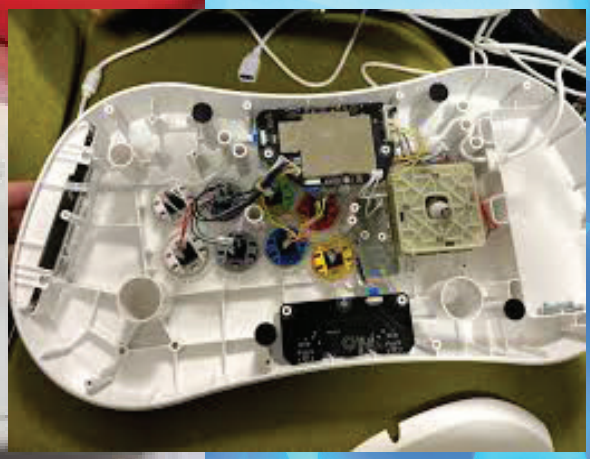
Retailing for $29.99, this 7-foot Saturn display cable takes the 240P video resolution of the console and upscales it to 720P. For the cable to perform this process, it requires a power supply, separate from the console's power. To power the cable, Hyperkin includes a 6-foot micro USB cable that can plug into a 5V 1A power supply, which is not provided. Most cell phones and tablets come with 5V 1A adapters to charge your phone, so you can utilize one of those to power up the Hyperkin cable. As a precaution, be sure


to verify the voltage of the power adapter is correct and that the cable is plugged into the Saturn and television before connecting the cable to power. Hyperkin has also included a switch on the cable that provides users the option to output the Saturn's video signal at the standard 4:3 aspect ratio or stretch the picture to fill your TV screen at 16:9.

I connected both my American and Japanese Saturn consoles using this cable to a variety of televisions and projectors and encountered no compatibility issues, even when utilizing the cable on a 4K TV. I did experience an instance on both consoles where the full-color spectrum of the system was not displaying correctly. This was due to the connector that connects to the Saturn, not having a secure connection, and I had to push the cable in harder into the console to fix it. In terms of video quality, this is absolutely a step up from using the included composite cable that comes with the system, but it is not perfect. I tested a variety of 2D games and experienced a very noticeable shimmering and blurring effect when the in-game action scrolled from left to right. On 3D games, the effect wasn't as adverse, but I did notice some slight washing out of colors.

Retro console enthusiasts, who use a Framemeister or OSSC video upscaler for that perfect picture will want to pass on this cable. For entry-level Saturn fans looking to get their Saturn working quickly on a modern TV, this cable is a great start, especially at its price point.

**hyperkin.com**



## Neo Geo Arcade Stick Pro
## by Michael Thomasson

It feels so good in your hands! I'm talking about the Neo Geo Arcade Stick Pro, of course! This beast of a controller is truly a MONSTER! Weighing in at a hefty four pounds, this behemoth measures 16" x 8.5" x 4.8", and fits perfectly on your lap. The sturdy buttons and joystick give off a satisfying "click" from the microswitches, proving a solid design built to last.

Fans of SNK will quickly recognize that the device is reminiscent of the Neo Geo CD controller released in the nineties. Looks can be deceiving, as this gadget is not only a controller, but also a plug-and-play standalone console. It is loaded with twenty classic fighting games, although three versions of World Heroes and six installments of The King of Fighters account for nearly half the library. The system can be expanded to add additional titles such as the popular Metal Slug series, and more.

Of course, fighting games really shine when played with a friend – or foe! Either way, the unit has two USB-C ports for opponents to plug in a Neo Geo gamepad for intense two-player action.

While a welcome addition to any home arcade, it could have offered a higher resolution than 720p. Of course, that exceeds the original arcade coin-op resolution, and is pixel-perfect. Three scanline options are available, as well as a smoothing filter - if such choices excite you.

The games default to the "bouncier" Japanese "blood-soaked" region setting, but most can be switched to their censored English language equivalents. The games load quickly and can be changed on the fly. In addition, save states are supported, buttons can be mapped per each game, and there is a turbo option. A standard 3.5mm headphone jack allows those in the room, not so keen to the sounds of battle, to tune out.

A few accessories are already available for the device, including silicone covers for the entire unit, including the balltop. You can even pimp it out with various sticker buttons available with different themes.

Have a Neo Geo Mini console from 2018? This bad boy can be plugged into the miniature arcade, allowing traditional joystick control or allowing a second player to join the fun, although using such a massive controller to play a game on a tiny 3.5-inch screen seems a bit over-the-top!

Better yet, you can connect this arcade stick to your computer or an Android device to maximize its functionality. The 'Gamelinq,' an extra adapter sold separately, allows the Neo Geo Arcade Stick Pro to work with Sony's Playstation 3 and 4, as well as the Nintendo Switch. Sadly, Microsoft's proprietary eXtended ID (XID) prevents you from using the device on an Xbox console.

In the end, the controller emulates the classic SNK arcade cabinet controls very closely. In the words of SNL's old 90's slogan, the Neo Geo Arcade Stick Pro is, "BIGGER, BADDER, BETTER!"

# BLEEPS ON WAX

by Mike Mertes

**Over the last few years vinyl records certainly seem to be making a large scale come back, and stores like Wal-Mart and Target have the latest music releases predominantly displayed on their shelves in the format. Along with this resurgence, several labels have been bringing a genre of music not often seen in the West in the form of a 12-inch record: Video Game soundtracks.**

In Japan, video game soundtracks have always been widely available in a variety of formats, including vinyl. Trying to track down the original Japanese releases can be difficult and expensive, so it is great to see that game soundtracks in this format are now more accessible. If you don't have a turntable and want to collect these releases anyway, the good news is that most of them come with codes for a digital MP3 download. Some great releases have been put out by several companies, so let's look at some of the labels behind these video game soundtracks on vinyl.

## Data Discs - www.data-discs.com

The United Kingdom based Data Discs has set the standard in presentation and quality for their vinyl releases since 2015. Over the past few years, they have released the soundtracks for some of Sega's most significant 80s arcade releases, including *Space Harrier, OutRun, Super Hang-On,* and *Afterburner II.* The look and sturdy design of the record jackets are awe-inspiring and feature high-quality artwork from the original arcade games for the cover art. On some occasions, Data Discs will also include a poster with the release to add to the overall package. The vinyl records themselves are also uniquely presented in a variety of colors that often match the colors of the game artwork. The most crucial aspect of any vinyl record release is how the record sounds when played, and Data Discs ensures that this is met to satisfaction. I have many Data Discs releases in my collection and have yet to be disappointed.

## OUT RUN



## AFTERBURNER II



## SPACE HARRIER


## Mondo - www.mondotees.com

Mondo also carries a variety of both modern and classic video game soundtracks on vinyl in their catalog. *Castlevania* and *Contra* are some of the most famous game franchises for which they have released soundtracks thus far. For *Castlevania* and *Castlevania 2*, Mondo opted for special 10-inch vinyl releases as opposed to 12-inch. Mixing and mastering for these releases have improved with each subsequent release and sometimes feature a different version of the soundtrack. Did you know the music of *Castlevania 2* sounds very different when comparing its original Famicom Disk System release to the NES version? Mondo allows you to hear both versions as they are featured on each side of the record. Most recently, Mondo has released the MSX2 and NES soundtracks to the original *Metal Gear*.



### But That's Not All...

The above companies are just a few of many that are putting out some fantastic releases. Check out the rest of these companies that are sure to scratch your video game soundtrack itch. Just don't scratch your records, please.

## Ship to Shore Phono Co - www.shiptoshore-media.com

Some of Ship to Shore's most significant releases include *Mother (Earthbound Origins)* and the *Gradius* series. Like Mondo, Ship to Shore also gives listeners a great example of how soundtracks could differ from port to port, as evident in their release of the *Gradius 2* soundtrack. Side A of the record contains the Nintendo Famicom tracks, while Side B includes tracks from the MSX version of the game.


## BraveWave Productions - www.bravewave.net

While BraveWave focuses more on video game soundtracks from the 1990s era, I would be remiss if I didn't mention the one title that falls under the 1980s timeline: *Ninja Gaiden*. In the case of *Ninja Gaiden*, Brave Wave worked with music composers Keiji Yamagishi, Mikio Saito, and Ryuichi Nitta to ensure the most accurate representation of the music from both the NES and arcade versions of the game were pressed to vinyl. Also, a large-sized booklet is included with the release that shows archival art and contains interviews with the music composers.


**Links:**

www.lacedrecords.com
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