Videogame history has been chronicled by many respectable historians among them Lenny Herman, David Winter, Steven Kent, Mark Wolf, J.F. Wiliams, Rusel DeMaria and others including myself. When I worked on "Videogames: In the Beginning", I relied mainly on written documents that David Winter and I were lucky enough to rescue from legal storage where they had been quietly moldering for decades. I learned many years ago that relying on memory is just not good enough. Human memory is like a piece of information that starts out on the web, already flawed and continues to show up under different headings in an ever-increasing number of sites and so becomes the accepted wisdom.

In chronicling videogame history in my book "Videogames: In the Beginning", I also had to rely on many anecdotal bits and pieces that were given to me verbally or which I collected from various sources, knowing that only some of it might reflect what actually happened.

Among those sources of information were numerous recordings on audio tape, VHS videotape, CD's and DVDs which immortalize the sage pronouncements of industry maven's, engineers, programmers and other seminal players. Many of these individuals have played important, even pivotal, roles in moving videogames along in the early days of that industry. Some recordings were made during their appearances at CGExpo or similar retro-game shows; or they were part of interviews that later appeared on Public Television or on game networks.

Nobody watching these productions critically can be under the illusion that what you see and hear is a factual revelation from an unimpeachable source. Much of the stuff that passes for bona fide recollections is so fatally flawed as to boggle the mind.

Case in Point: The Magnavox Patent Infringement Lawsuits

Let's examine the numerous stories floating around about the various videogame patent infringement lawsuits that were carried on by Magnavox and Sanders starting in the mid-seventies through the 1990's, the last of which for past infringement only, since the patents had long since lapsed. Bally, Seeburg, Mattel, Activision, Nintendo, Data East, Taito and others fought lengthy legal battles against the Magnavox/Sanders team in an effort to avoid having to pay license fees.

Such technically knowledgeable individuals as members of the original MIT team of Space War hackers were repeatedly called on to appear for depositions or to serve as fact or expert witnesses during actual trials. Some of the individuals involved in the fascinating creation of the original Atari company made similar appearances. In most – maybe all - cases it can be assumed that they testified to what they believed to be true. In any event, many assertions they made way back then have become dogma through endless repetitions over the years.

Here is the background: By 1971 the Magnavox Company in Ft. Wayne, Indiana had acquired exclusive rights to the Baer, Rusch and Harrison patents assigned to Sanders Associates. Under the Sanders-Magnavox license agreement it was Magnavox' responsibility to get all infringers of those patents under license through litigation or to negotiate license agreements with firms that did not challenge the patents.

The first Odyssey Model 1TL200 videogame (then called a TV game) was first demonstrated to public in July and October of 1971 during a series of market tests. Groups of individuals were asked to play the games and express their preferences. After several changes, Odyssey was officially demonstrated to the press and released to the public in May of 1972. It went into

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distribution starting in the summer of 1972. Circuit-wise, the Odyssey game was nearly identical with the Baer/Harrison Brown Box of 1968. It played a variety of games, most importantly two-player sports games such as ping-pong and handball.

The first generation of ping-pong-like arcade games were designed, built and distributed in November of 1972, Atari's Pong game being the first of many similar games. They all were variations of basic two-player ball games. Therefore, they all had manually controlled paddles and a machine-controlled ball. In later versions the paddles became "soccer players" kicking a "football" around or they were "hockey players" with sticks hitting a puck. Same game, different graphics plus minor changes in crude screen graphics like the goals.

No matter what has been said or written about what the patents supposedly covered and how they were infringed, it all comes down to this simple definition:

THE LAWSUITS WERE MAINLY ABOUT INFRINGING ON THOSE CLAIMS IN OUR PATENTS THAT DEALT WITH THE INTERACTION BETWEEN MACHINE-CONTROLLED AND MANUALLY CONTROLLED SYMBOLS ON SCREEN. IF THERE WAS A CHANGE IN THE PATH, DIRECTION OR VELOCITY OF THE MACHINE CONTROLLED SYMBOL IMMEDIATELY AFTER "CONTACTING" – i.e. COMING INTO COINCIDENCE WITH ONE OF THE MANUALLY CONTROLLED SYMBOLS ON SCREEN, THEN THE GAME EXHIBITING THESE FUNCTIONS INFRINGED.

That's it! That's all there was to it. The two operative Claims in one of the patents containing those constraints were potent because just about every videogame on the market during the years of 1972 through about 1976 depended on those game elements.

You would never know that simple, basic fact by listening to what all those individuals claim they remembered.

The first lawsuits which Magnavox and Sanders initiated were directed against Atari, Bally, Seeburg and others that were joined in an effort to get our patents invalidated. I met Nolan Bushnell, then Atari's chairman, and his lawyer, on the steps of Chicago's Federal District Court a few days before the action started. Bushnell had a subsequent meeting with Tom Briody, Magnavox' director of patents; at that meeting Bushnell decided to opt out of the impending suit. His company became our first licensee right then and there. He felt it would even the playing field and he got an attractive paid-up license. The suit went forward against the other firms. They lost.

Why?

That first lawsuit (as well as all of the subsequent ones) dragged on for several weeks. I spent an entire week on the stand as a fact witness in most of this and the later cases. Invariably I found myself being exercised through every scrap of documentation we had ever generated in the lab during the 1960's. There were about ten linear feet of those. A huge amount of time was spent bringing the judge up to speed on electronics basics and on television technology in particular. Details of the circuitry we used in designing the Brown Box and subsequently used in the Odyssey game were belabored at infinitum. Circuitry we had designed to play our so-called de/dt games were given much undeserved attention. Some of that was an effort to befuddle the court with emphasis on the differences in hardware design approaches and to deflect him from sticking to basics: Did the accused games have manually-controlled symbols on screen and did they react in one way or another upon coincidence with machine-controlled symbols on screen. Period!

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I invariably had all of my 1960's hardware on display in the court room, starting with the earliest TV Game on through the Brown Box – TV Game No.7 – Also on display was an add-on game system to the Brown Box – our TV Game No.8 - that Harrison and I had started to develop in 1969. That unit was supposed to play a hockey game in which the puck on screen moved dynamically, i.e. with a velocity and in a direction related to how it was "hit" and how hard it was hit. We called that type of game a de/dt game, because the puck's velocity was the derivative of the voltage generated by the joystick controlling the hockey-stick's motion. Since that ball circuitry was designed to differentiate the analog joystick's output voltage, the opposition lawyers spent an inordinate amount of time yammering about the analog nature of our circuitry versus the vaunted "digital" nature of the circuitry in their accused arcade games.

Analog vs. Digital Circuitry

All of those arguments had absolutely nothing to do with the price of tea in China. The lawsuits were not about "de/dt" games in the first place; the operative Claims of our patents were those dealing with the interaction of manually controlled symbols and machine controlled symbols... all totally independent of what circuit type might have been chosen to create the displayed symbols, or to detect their coincidence and cause their reaction to each other. On top of all that, most of the circuitry we designed to accomplish those requirements was undeniably digital.

But once the seed is planted, the tree may decide to grow and grow, no matter the weather. There is a long trail of misinformation circulating to this day which came out of those weeks of garbled testimony in the courtroom. Both Mr. Bushnell appearing as a witness as well as others seemed to have been primed by the lawyers to make a big deal of the supposed fact that Odyssey's circuitry was "analog" and their arcade games were designed and built with TTL digital logic IC's. To this day I do not understand why our lawyers didn't cut off that line of attack early on. Consider this: The Brown Box and, therefore, the Odyssey unit uses flip-flops for the reversal of the ball after coincidence. Both systems generate a digital coincidence (rail-to-rail) signal by AND-ing the rail-to-rail ball and paddle signals in diode AND gates. These are all DIGITAL circuits - no ifs, ands and buts about it. Yes, these digital circuits were built with discrete components: transistors, diodes, resistors and capacitors. That was the only cost-effective way to go in the mid-sixties. We tried early TTL Integrated Circuits but they were too expensive and power hungry. In my book I have reproduced the schematic of the digital I.C. design we came up with and abandoned.

Furthermore, the ball and the paddle symbol generators consist of four one-shots, two for horizontal and vertical positioning of a displayed spot on screen, and two for establishing the width and height of the symbols. Those are hybrid pulse-and-digital circuits and not analog circuits by anybody's definition.

There was a Channel 3 or 4 oscillator which was modulated by the sync and video signal of those machines. That was analog. What of it ? Every home videogame used an r.f. oscillator-modulator module for the next thirty years. It's just another thing I pioneered along with the use of joysticks, plug-in game cards and light-guns for videogames, or the use of digitized faces as well as interactive games using graphics and data living happily on shiny 12 inch discs and, eventually on five inch shiny discs!

There is more: The vertical and horizontal sync generator circuits were free-running multi-vibrators rather than the crystal-controlled oscillator-divider chains used in arcade games. The latter required a large number of IC's just for the job of sync generation, an option that was not

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open to us who had to design a cost-effective consumer product with mid-1960's components. Those multi-vibrators are pulse circuits, not analog circuits.

All this had nothing to do with the Claims which everybody infringed. It was just a red herring. The opposition lawyers probably understood the nature and function of these elementary, early circuits. Conceivably, they dragged in all of that stuff simply to snow the judge. How their well-prepared and often technically very astute technical expert witnesses could have been misled into repeating the evident nonsense, that beats me. I have heard straight arrows like Alan Alcorn and others repeat some of this stuff just recently. Bad information never dies.

After Bally et al lost that first lawsuit in Chicago, the case went to the Court of Appeals where the verdict was upheld and a lot of money changed hands, including substantial penalties. Mattel was next in the barrel, also in the Chicago court but with a different judge who had to be educated in the technology elements all over again. We won, they lost. The case went to appeal and they lost again. Something like sixteen million dollars (in 1970's money) changed hands.

After that it was Activision's turn in the barrel with the same result in San Francisco Federal Court and, later, in the Court of Appeals. Unfortunately, Activision went broke in the early eighties before we could collect.

We also had no problem convincing the Canadian patent system and a London judge that were entitled to royalties from infringers in Canada and Great Britain. Remarkably, they did not need anywhere near as much dancing around the analog vs. digital smoke screen to come to a conclusion. I got several largely enjoyable trips out of those proceedings.

It wasn't all fun and games. More than once, my Brown Box would quit working just before I was to give a demonstration to the judge and I had to run out during lunch recess to buy some tools and fix the darn thing. All that moving around from place to place didn't do the old girl any good. I barely beat the judge's return to the court room in Chicago on one such occasion and had a similar tight squeeze in San Francisco and in Ottowa.

Who really invented the Home Videogame?

Also at issue but not of major importance during the lawsuits was the opposition's attempt to show that prior art negated my claims to have invented home TV games. As a matter of historical fact, my major contribution to the then non-existing videogame business in 1966 was the concept of making the home TV set into an interactive game terminal, though we certainly did not call it that. We just called it "TV games", which it was. The lawsuits had only a minor relationship to that basic invention. Those lawsuits were all about infringing the so-called "hit" and "hitting" symbols and their interaction upon coincidence, which was covered by those two claims in our patents. I was pleased, however, to have Federal Circuit Judge Grady describe my '480 patent as the Pioneer Patent of the videogame industry when he read his decision from the bench at the conclusion of the first trial. His decision, including that remark, appears in 201-USPQ, a page of which is reproduced below.

A recent article re. 201-USPQ Magnavox vs. Activision appeared in Gamer: Aviator on August 15, 2005. Anyone interested in more detail on the court fights might go to:
http://www.patentarcade.com/2005/08/case-magnavox-v-activision-nd-cal-1985.html

Having explained what the lawsuits were really all about, let me sneak in and debunk another myth about the alleged superiority of the digital design used in early Pong-type arcade games

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versus those supposedly poor, unreliable, unstable and uncontrollable analog circuits in the Brown Box and in the Odyssey game. These myths have been kicked around for decades like a soccer ball that never touches ground long enough for anyone to notice that it is full of hot air. When reminded of the fact that the concept for Pong was lifted from the ping-pong game which Nolan Bushnell played at a Magnavox dealership demo in May of 1972, there is this typical rebuttal: Yes, maybe playing the Odyssey game had something to do with Pong, but the Odyssey was a poor game by comparison: It was unstable; it was boring; the controls were unresponsive. It usually goes on from there and heads towards the digital-versus-analog bogeyman.

Anyone who has actually played an Odyssey ping-pong game knows that it is totally stable and challenging on several levels: First of all, the use of its "English" controls allows both players to make life tough for their opponent by controlling the vertical path of the "ball" that just left their "paddle". Secondly, there is a variable-speed control that allows the contestants to select any speed which they think they can handle. The same thing goes for the rest of the "ball" games. It is those two features which make an Odyssey ping-pong game challenging. As to the lack of scoring: Tennis and ping-pong games have been scored by shouting out the score since time immemorial so why bother with expensive on-screen scoring? We actually had rudimentary scoring in TV Game No.2. It used a thermometer-like bar and a graduated overlay but did away with that scheme in the Brown Box. As to the lack of sound: That was something else: We just didn't think of it. Everything is obvious in hindsight.

So much for the vaunted deficiencies of the first home videogame. It would be nice if this trip through videogame history might clear the air about certain events that took place way back when. Hope springs eternal.

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