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Highlights

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Jack Kilby, inventor of the integrated circuit, has died aged 81

Kilby's invention of the monolithic integrated circuit - the microchip - some 45 years ago at Texas Instruments (TI) laid the conceptual and technical foundation for the entire field of modern microelectronics. It was this breakthrough that made possible the sophisticated high-speed computers and large-capacity semiconductor memories of today's information age.

From Kansas, with B.S. and M.S. degrees in electrical engineering he began his career in 1947 with the Centralab Division of Globe Union Inc. in Milwaukee, developing ceramic-base, silk-screen circuits for consumer electronic products. In 1958, he joined TI in Dallas. He built the first electronic circuit in which all of the components, both active and passive, were fabricated in a single piece of semiconductor material half the size of a paper clip. The successful laboratory demonstration of that first simple microchip on September 12, 1958, made history. Kilby headed teams that built both the first military system and the first computer incorporating integrated circuits. He later co-invented both the hand-held calculator and the thermal printer that was used in portable data terminals. From 1978 to 1984, he held the position of Distinguished Professor of Electrical Engineering at Texas A&M University

In 1982, he was inducted into the National Inventors Hall of Fame, taking his place alongside Henry Ford, Thomas Edison, and the Wright Brothers in the annals of American innovation. He holds over 60 U.S. patents. In 2000, Jack Kilby was awarded the Nobel Prize in Physics for his part in the invention of the integrated circuit. (*Texas Instruments*)

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Readers - what would you like to see in this magazine? Drop us a line and let us have your suggestions!

Newsbytes

Namco, Sony BMG settle Pac-Man lawsuit

Namco and Sony BMG today announced an out of court settlement that resolves an intellectual property rights lawsuit brought earlier by Namco.

Namco had claimed that Sony BMG artist Lil'Flip had swiped sounds from its arcade classic Pac-Man for use in "Game Over", a single off his 2004 double album *U Gotta Feel Me*.

Details of the settlement weren't released, but it was said to be an amicable resolution, and the companies jointly released the following statement: "Namco and Sony BMG are pleased to have resolved this matter and we look forward to continuing our business relationship in the spirit of our mutual respect for intellectual property."
(29/8/05 *Game Spot*).

New One Chip MSX computers for sale

The Dutch company Bazix, in co-operation with the Japanese companies ASCII and MSX Association, has started taking pre-orders on the One Chip MSX, a new computer system based on PLD technology. The core of the computer system is an Altera Cyclone FPGA chip, which can be reprogrammed to perform a wide variety of operations. The device comes with all I/O and A/V connectors needed to function as an ordinary home computer, either connected to a television or a VGA monitor.

By default, the One Chip MSX is configured as an MSX1 computer system. The MSX standard originates from a co-operation between ASCII and Microsoft, and was very popular in the eighties and early nineties. In this setting, all chips originally used in the MSX1 computer (Z80 CPU, TMS9918 VDP, etc.) are implemented in the Altera Cyclone FPGA chip, turning the One Chip MSX in a fully MSX1 compatible device. Out of the box, the One Chip computer can be used to play high quality retro games, but this is just a small part of its functionality.

Apart from being capable of operating as popular home computers and game consoles of the 20th century, the One Chip MSX can also be used to extend their capabilities, introducing new features or removing limitations. Once skilled enough, a VHDL developer could even develop his own computer system from scratch.

As of today Bazix is accepting pre-orders for the One Chip MSX. In order to start commercial production, Bazix and ASCII have to gather over 5,000 pre-orders combined.

In Japan alone, ASCII have already sold 2,000 One Chip MSX computers. Until

August 20th, 2005, the One Chip MSX can be pre-ordered at <http://www.bazix.nl/onechipmsx.html> for EUR 189,00 inc. VAT.
(Bill Loguidice;11/07/05)

Q-Bert Champ Seeks Perfect Score



Most video game champions end up retiring long before they get their first real job. However, *The Early Show* contributor Laurie Hibberd recently met a woman whose passion and skill for video games seems to only be improving with age. And, she's nearly 80. For the "Young at Heart" series, Hibberd went to the classic video game championships in Laconia, N.H., where gaming wizards from across the country gathered to bump, flip, and shoot their way into the record books. Among them was 79-year-old Doris Self of Fort Lauderdale, Fla. Her game of choice is Q-Bert. She tells Hibberd, "Some of the younger kids memorize patterns and all, but I just sort of go

with the flow."

Her technique may not be very complicated, but Self is no amateur. She's already listed among Q-Bert's top players in the official Video Game And Pinball Book Of World Records. Ranked No.1 in 1983, Self slipped to second just two years later. Now, after more than two decades, she's mounting a comeback.

The competitive spirit Self reveals in Q-Bert is more often seen during her card games. "The girls who I bridge with," she says, "think I'm nuts going down to the arcade to go play games with kids. 'What's the matter with you?'"

"My daughter took me to a movie. I didn't have much to do because I had taken care of him for a good year before he died," She says. "And she walks up to a machine. I had never seen an arcade game before, and she said 'Mom, come here. You'll get a kick out of this.' Famous last words — there I went."

Not only is Self still playing, but experts say she's at the top of her game.

"Doris is an exciting phenomenon," says classic video game scorekeeper, Walter Day. "Her skill set is even better. What she has done in practice has already been higher than 20-some years ago."

Back at the tournament, Self settled in for a long weekend, complete with snacks and a stuffed mascot by her side. Ultimately, there would be no new record.

"There were too many interruptions and too many distractions," she says. "I have a stand-up Q-Bert that I'm used to and they put me at a sit-down. They didn't have a stand up and we had to alternate chairs. I had a chair, then put a pillow on it; then I'd get used to the chair."

So is she done with Q-Bert? "No," she says. "Three o'clock in the morning, I come out and play Q-Bert. It's so relaxing and fun." And it's easy to play Q-Bert at 3 in the morning when there's one in the den.

"I knew it was her dream to own a machine," says Billy Mitchell, who delivered the Q-Bert to her home. A video gaming legend, Mitchell holds records on several classic games — including Pac-Man. Now, he's hoping to help Self regain her title.

"She was always so giving. So good-willed," he says. "So now it's time to come back to her a bit. Or so I hope." It seems like an unlikely friendship, but it works. "We have the same controlled obsession and passion to win at video games," he says.

And that passion to win has Self training for yet another tournament, this time in London in August — just one month shy of her 80th birthday. "It's a challenge," she says with a smile. "Why do I shoot craps? Why do I play poker? I play to win."

Self will travel with her friend Mitchell, who hopes to shield Self from the distractions that come with being such a prominent player.

Self already has beaten her old record on the machine in her home. So, if things don't work out in London, she can always go for another record right there in her den. *(CBS Aug 4, 2005)*

Clack clack ding! Typewriters writing a new chapter

Think typewriter. Think clunky, cobwebbed, obsolete? Think again.

In a culture focused on the smallest, quietest, quickest gadgets, the trusty manual typewriter is attracting an unlikely new fan club: 20- and 30-somethings who feel stifled by modern technology. Once doomed for dusty basements, the old manuals are ending up in the hands of people like Mariah Pospisil, 22, who pecks away on her 1960s Olympia in coffee shops or her back yard while her computer sits idle at home.

Sure, they practically grew up with Powerbooks and Palm Pilots, but some young adults find those sleek technologies unsatisfying when it's time to channel their inner novelist or correspondent. A typewriter -- hammers smacking the page, bells dinging at the end of each line -- feels more intimate than a blank screen and a blinking cursor, they say.

"It just seems like the computer and printer are too much of an intermediary between me and my writings," said Pospisil, of Los Altos, Calif.

It's tough to tell how many young people are buying typewriters. Some pick up restored Remingtons and Royals in retail shops, but others find them in flea

markets, at yard sales, on eBay or discarded on the street. Still, several Bay Area stores said they've seen a recent shift to younger customers, overtaking their traditional clientele of collectors and older folks who were never comfortable with computers.



More than two-thirds of customers for typewriters and ribbons at California customers for typewriters and ribbons at California Typewriter Co. in Berkeley are in their 20s and 30s, employee Carmen Permillion said.

"They're the writers, the artists," said Permillion, whose father has owned the store since 1981.

Popular wisdom would hold that typewriters are a dying breed, replaced by ever-faster personal computers that do far more than type text. Retailers that once specialized in typewriters have dropped the word from their names, and only one company -- Italy's Olivetti -- still makes manuals. Some shop owners lamented that the relics are all but gone.

Not so, said Peggy Tidwell, whose family has owned Los Altos Typewriter since 1967. While she hasn't seen sales grow in the past five years, recent college graduates and others younger than 30 have bought most of the store's refurbished typewriters.

"They have no feeling about their computer, but they like their charming little typewriter," Tidwell said. "It's got character, and it's more alive than a computer is."

For a generation raised with technologies that can be outdated within months, there's something impressively permanent about a typewriter. And for those used to computers that operate often mysteriously and practically in silence, it's refreshing to use a machine with visible working parts. It's similar to teens and 20-somethings choosing the hiss and pop of vinyl records over the clarity of mp3s, said Robert Thompson, a Syracuse University professor and popular culture expert.

"A lot of young people who only experienced in their early youth these types of digital, totally electronic experiences find the tactile, analog stuff very appealing," said Thompson, noting that a couple of his students have submitted typed papers. Young people who choose typewriters "are very careful about what they do" when they write, he said. "It doesn't seem as disposable and casual."

Some retailers are tapping into that market. Blue Moon Camera and Machine, a Portland-based shop that sells refurbished typewriters and film cameras, opened three years ago and promotes its products with the slogan: "The cure for modern machine angst resides within." An online gallery features photos of young models in retro dress holding shiny red, blue and green typewriters. "The computer's going to have to be swapped out every two years," Blue Moon owner Jake Shivery said. "The typewriter's more of a companion piece. It stays with you forever."

With a typewriter, Cupertino resident Heather Folsom said, writing is a sensory experience. Her "noiseless" Underwood portable makes a satisfying thwack when she taps the keys. She piles finished pages beside her. The ink has its own special smell.

And when things aren't going well, Folsom, 28, rips the paper from the machine and crumples it up. "I find that really satisfying," she said.

Some are drawn by the romantic notion that real writers -- like Hemingway and Hunter S. Thompson -- created their masterpieces on typewriters. Lai-san Seto, 27, said a teenage fascination with Raymond Chandler sparked her interest in the machines.

"I pictured myself clicking away at the typewriter, pounding out stories," said Seto, of Oakland, Calif., who now owns a black 1940s Remington.

Though several of Pospisil's friends also own typewriters, not everybody understands the appeal, she said. Her father thought she was crazy for bringing a typewriter home. "He said, 'What are you doing? Technology has come further!'" she said.

But not all advances have been good ones, Shivery said: "There is no button on a typewriter which will lose your document."

Score another point for the typewriter. (*Knight Ridder News Service*)

Phone handset offers a touch of retro

Nostalgia is wonderful, especially when it's applied to technology. More earpieces are being used with cellphones, especially the newer, wireless Bluetooth models that let you access the cellphone in your pocket. The coolest-looking models clip onto your ear and usually have a blue, glowing light.

Some even offer voice recognition so you can dial out and answer the phone without having to press anything. That's today's modern cellphone headset. And then there's the Retro Phone Handset.

Visualize the following: You're walking down a crowded street or sitting in a public venue such as a restaurant when your cellphone rings. You reach into your jacket pocket or your briefcase or your pocketbook to answer the phone.

But what you pull out isn't some sleek little cellphone or a tiny earpiece. No. You pull out a really big hunk of beautiful, hefty, jet-black moulded plastic that is a perfect production replica of the Western Electric 500-series model telephone handset complete with the black curly phone-line cord attached!

Just imagine the reactions you're going to get with this bad boy.

The Retro Phone Handset has been modified so that it will work with the headset jack of most cellphones or via a hands-free adapter kit that must be purchased separately. According to the instructions, the Retro Phone Handset will work with most cellphones that offer a 2.5-millimeter jack.

The unit comes with the handset and the classic curly phone cord with connector. Simply plug the handset into your cellphone and away you go. Just envision yourself walking along, talking on the phone with your cellphone in your pocket and the Retro Phone up to your ear.

Nostalgia aside, if you're the type who likes standing out in a crowd, if you want to dial to a different drummer, then this is going to do it for you. Maxwell Smart, eat your heart out.



The Retro Phone Handset is available online from Think Geek (www.thinkgeek.com) and sells for \$34.99. (*Knight Ridder Newspapers*)

Mainframes not yet relics of computer industry: IBM

MAINFRAME computers are not about to become relics of the computer industry.

Following a brief tour of the newly opened Ayala Museum featuring a diorama of Philippine history, IBM Philippine officials underscored the fact that the mainframe business remains strong in the Philippines. "That we still have customers is proof that the mainframe business is alive in the Philippines," said Ma. Delia Ventura-Villarino, country manager of IBM's mainframe brand -- the zSeries.

Declining to name them, the IBM executive said that Philippine mainframe customers include top Philippine banks, a utility company, an airline firm, and several government-owned and -operated corporations. Ventura-Villarino admitted however that IBM is still trying to convince prospective clients to switch to mainframe as the company develops proofs-of-concept for the local market.

IBM has spent a total of 1.2 billion dollars over the past three years enhancing the mainframe. Its new z9 mainframe promises to offer twice both the processing power and memory of this current top IBM mainframe. The price of one z9 mainframe starts at around a million dollars.

As consolidation becomes a buzzword among large organizations, IBM has timed the announcement of the z9 this week, hoping to attract newer customers interested in centralizing their computing environments.

Ventura-Villarino argues that the most compelling factor for Philippine companies to switch to mainframe is consolidation of server farms, which have grown larger and more complicated. About 70 percent of the mission-critical data worldwide reside in a mainframe, she adds. "Why do we still have independent software vendors developing for our mainframe?" she posed. "So far, IBM Philippines has been hitting its sales targets. We're now the top brand in the local subsidiary."

One enhancement introduced by the z9 is encryption of data. The IBM executive stressed that sensitive data previously stored and transmitted in clear text are now encrypted. This security flaw has been the focus of recent data attacks.

An industry report indicated that IBM's mainframe business accounts for about 25 percent of its total revenue. (*INQ7.net* 5/8/05)

Full text of 11 classic flight simulation books

FlightSimBooks.com is a new site that features the full text of eleven classic flight simulation books. More than 2,200 printed pages have been digitised into 800+ web pages. These books, published from 1985-1989, cover Microsoft Flight Simulator and Sublogic Flight Simulator software, plus other flight sim programs including F-15 Strike Eagle and Sublogic's Jet. Users who prefer more modern flight simulators will find that many of the techniques and situations described in these books, such as aerobatic manoeuvres and instrument flying techniques, remain relevant to newer flight simulators.

Museum of Computing news

Calculator exhibition

The Museum will be holding a calculator exhibition early in 2006. The local Business Link has provided some financial assistance towards this and if anyone else wants to sponsor it they should contact us at info@museum-of-computing.org.uk

National publicity

The Independent produced a supplement listing museums in the UK, in which the Museum came 15th out of 3000.

Micromart also included the Museum in a "Computing Day Out" article.

Nintendo Gaming Day & exhibition

Held on the 6th August it was a great success. On display was the NES, SNES, N64, Gamecube, Gameboy and Game & Watch collection. There was also the rare Virtual Boy and a Nintendo PlayChoice 10 arcade machine - a big thanks to Oxford Exhibition for this. The mini exhibition charting the history of Nintendo will be on display until the end of September.

Links

The History of Computing group, based at Portsmouth University, is planning a European "network of excellence" in the History of Computing

Events

Global Events

Vintage Computer Festival 8.0

The eighth annual Vintage Computer Festival will be held on Saturday, November 5th through Sunday, November 6th, at the Computer History Museum in Mountain View, California.

The doors open at 9:30am each day. Speakers begin at 10:00am and end at 2:00pm. The Exhibit and Marketplace open at 2:00pm and end at 6:00pm.

Admission is \$15 per person per day for full access to Speakers, the Exhibition and the Marketplace, or \$8 per person per day for Exhibition and Marketplace access only. Kids 17 and under are admitted free of charge, and parking is free.

History Focus

The history of football video games

The story of sports gaming is the story of football gaming. Ever since the console and computer games industries got off the ground in the late 1970s, developers have been trying to build a better football title. No other sport was given the attention granted to the gridiron game. Even baseball, the national pastime for nearly a century and an apparent natural to be re-enacted on a TV screen or computer monitor, lacked the prestige of its younger brother.

Part of this was due to the way that the National Football League surged in popularity at the same time as the video game era dawned. Thanks to the efforts of commissioner Pete Rozelle and innovations like ABC TV executive Roone Arledge's Monday Night Football, the NFL was enjoying an unprecedented explosion in public support. So when the Atari 2600/Video Computer System (VCS) and Mattel's Intellivision brought video games to our living rooms in 1977 and 1979, respectively, there was really only one sport that people wanted to play on them. The idea that those little black boxes would be able to drag Sunday afternoon and Monday evening through the rest of the week was a huge selling point for the console systems.

Of course, reality didn't quite match expectations. Gameplay was generally very crude, even by the lowered standards of the time. In 1978, Atari's Football for the 2600 employed three-man teams consisting of players who looked like washing machines and a field that filled a single screen. You could call plays on both sides of the ball, but only basic ones that shifted receivers and backs from one side of the field to the other. They moved their way up and down a tiny vertical field without yardage markers, end zones, or goalposts. Aside from the four-down system, safeties, and the ability to punt, nothing of real football survived. There were no field goals or point-after-touchdown conversions. There were no interceptions, no fumbles, and no going out of bounds. Tackles were automatic on touching the ball carrier, the ball could be guided in flight on passing plays, play calling involved little more than slightly varied formations, and the lack of computer AI made two players a requirement.



Poor visuals affected play as well. Programming for the Atari 2600 was in its infancy, and little was known about how to push the system to its limits. As a result, even the rough graphics on display here suffered from problems with flickering players and ghost tackles. Stuttering animations turned plays into

strange crawls through which everything seemed to be happening in slow motion.

Intellivision's NFL Football arrived a little more than a year later with more sophistication, boasting five-man squads with players who had moving arms and legs and the ability to use elaborate formations. There were serious drawbacks, however, most notably molasses-slow animation and the complete absence of artificial intelligence that made two players a necessity. Still, the idea of "programming" players to run specific pass routes on offence or cover certain areas of the field on the other side of the ball was intriguing. And even somewhat advanced for the time, considering that the only real competition were handheld LED-based games like Coleco's popular Electronic Quarterback. Also interesting were two game options that let you call plays as a coach and then watch the computer carry them out on the field. Another good idea was Atari's placement of a line on the field, which showed where you needed to move the ball to collect that all-important first down. Other game designers took the better part of a decade to pick up on that innovation.



Intellivision's NFL Football was far more advanced than its Atari counterpart though. The chunky players of Atari's Football were replaced with models that looked more like real people, with arms and legs that moved and animation that mattered. Tackles weren't just automatic upon a brief touch of the ball carrier; here, you had to actually line the enemy up or risk having him scamper away. The field scrolled sideways, allowing a more realistic depiction of a regulation field that clocked in at the usual 100 yards and featured end zones. There were no goalposts, though field goals could still be kicked by booting the ball over the centre of the goal line. Players could go out of bounds, make interceptions, hammer the opposing ball carrier for a safety, punt on fourth down, and so on.

Play calling was equally ambitious. The Intellivision's numeric pad controllers were designed to allow for more intricate game play, and NFL Football benefited greatly from this. Plastic controller overlays and playbooks covered the nine offensive and nine defensive formations available in the game. Each was designed to stage or prevent specific plays and was very effective. Pull one over on the defence, and you could spring a long gainer. Pull a surprise on the offence, and you could be welcoming your opponent to sack city. About the only limitation was the lack of solo play against the computer.

Intellivision producer Mattel ported its NFL Football game to the rival system in 1982 with good results. The M-Network-labelled Super Challenge Football featured five-man teams with players that had actual moving arms and legs, along with a regulation 100-yard field complete with scrolling and yard markers. Play calling was far more interesting, as you could individually program each lineman with specific blocking instructions. Interceptions were also possible. But



that was about it in terms of sophistication--you couldn't play against the computer, you couldn't punt or kick field goals, and there was no going out of bounds. Even more strangely, you could run off one end of the field and reappear at the other. Players could have linebackers run in the opposite direction and emerge directly behind the opposing quarterback--and were actually advised to do so in the tips section of the game manual!

Atari responded to the Intellivision threat with the RealSports line in 1982. Overall game play wasn't as good as that provided by the rivals at Mattel, though you could at least play solo against the computer here. Teams consisted of five players each, but the visuals were crude and tended to flicker. The field, while regulation-size and of the same side-scrolling type introduced by Intellivision, lacked hash marks and sidelines. Plays were slightly more advanced versions of those found in Football, though field goals were finally possible.

When 1983 rolled around, the ColecoVision was rapidly becoming the top system for electronic athletes.

Coleco's "Super Action" series of sports games was anchored by Super Action Football. This title was intended to represent the next stage in football gaming, both as an arcade twitchfest and as a strategic experience. The look of the game was entirely new, shifting from the flat, straight-on camera angle of its rivals to a 3D isometric aspect that gave it more of a TV broadcast appearance. Players were drawn with multiple colours for the first time, and there were more of them than even before--a whopping eight on each side. It even included a little referee



in a striped shirt. All the standard football rules and conventions were there, from going out of bounds to kicking field goals and fumbling the ball.

But although Super Action Football looked very good, it wasn't very playable. For starters, it required an added investment in the Super

Action Controllers that came with Super Action Baseball. These huge and rather expensive devices were a compromise between the traditional, Atari-inspired joystick and the Intellivision-like standard Coleco gamepad, with a big red knob, a trackball roller, and a keypad topping a base with four trigger buttons. Many found these controllers unwieldy--too large and awkward to properly use. Even those who liked the devices didn't appreciate being forced to buy a separate controller just to play one or two sports titles.

No matter what you thought of the controllers, opinion was generally negative on Super Action Football. Although there were more players on the field, you could control only three of them, as linemen were nothing but immobile blocking dummies. Programmers seemed to have bitten off more than they could chew with the overall visual design, as animation was slow and stuttery. Movement was so clumsy that you spent much of each game wondering if the game was actually responding to how you yanked that Super Action joystick back and forth. To make a running back or receiver run faster, you actually had to spin the roller at the same time that you pushed the stick. It wasn't exactly very easy on the hands. Calling a play was roughly equivalent to that seen in Intellivision's NFL Football--with individual patterns for most players--though the poor controls and animations challenged your patience every time you ran one.

When the Commodore 64 became fashionable as a gaming machine in 1984, football game development kicked into high gear. These early computer football efforts were generally more complex than their console cousins, even simplistic fare like Gamestar's On-Field Football. All of the basic rules of the game were respected, although there was the expected reduction in the number of players on each side. Teams were made up of just four players per side, though a certain amount of intrigue and longevity was provided by the ability to choose a starter from the two names listed beside each position. These players were rated in different skill categories that showed up in how they performed on the field, adding an element of simulation to each contest. Play calling was quite intricate for the time. The many different formations and routes assigned to each player represented sort of a middle ground between the crude efforts of the early 1980s and the more ambitious titles (like 4th and Inches, covered below) coming down the road in a few years.

Visuals were fairly good, but they were still limited in that peculiar way that defines all games designed for the Commodore 64 in the early 1980s. Like the other Gamestar sports titles, On-Field Football used small players drawn with a minimum number of sprites so that animation would be quick and smooth. The overall effect was something that was a long way from lifelike in terms of appearance but somewhat closer to reality in the way that it moved. One of the benefits of this approach was that the models were obviously abstract representations of real football players. Unlike other football games, On-Field Football never attempted to look like the real thing, so the fact that it didn't wasn't so jarring. The setting was equally artificial, albeit in a good way that included

stands filled with flashing colours, serving as spectators. A regulation-length field scrolled up and down and included goalposts. On-Field Football served as a nice bridge between the likes of NFL Football for the Intellivision and later games such as Gamestar's own Touchdown Football and GFL Championship Football (which included a revolutionary first-person camera mode and was also released for the Atari ST), as well as Accolade's 4th and Inches (see below). Its numerous innovations, most notably the incorporation of players with variable skill levels, set a standard that would be followed for the remainder of the decade. This also represented a more commercially viable blend between the popular arcade approach to football and the management-style simulations that began to show up for the Commodore 64 and other computer systems around the same time. Titles such as SSI's Computer Quarterback and Avalon Hill's Football Strategy blazed a trail that is still being followed today with the likes of Front Office Football and Action! PC Football.

Some could still be categorized as rather advanced simulations. 4th and Inches from Accolade was published in 1987, yet it remains playable today as an arcade experience with a little bit of depth. Design evolutions, along with advancements in technology and programming skill (a lot more could be jammed into an Atari 2600 cartridge in 1984 than in 1980), were increasingly seen through the end of the decade on both consoles and computer systems.

Good or bad, football games were popular in the 1970s and 1980s. Even though they were simplistic in comparison with the real thing, football titles asked more of the gamer than those depicting the other big three North American sports. Being required to outwit your opponent as well as outplay him provided football gaming with an added strategic element that couldn't be matched by baseball, basketball, or hockey. Play calling may have been rudimentary, but it was still there, and it gave players an extra dimension that was more interesting than the simplistic arcade challenge of hitting a ball, sinking a basket, or scoring a goal. It may be strange to think of a small playbook and stick-figure players as being representative of any great depth, but they seemed almost unbelievably refined in comparison with their rivals.

Sega developed Great Football which wasn't much fun to play. Twelve teams from two different conferences were available to choose from, but they differed only in their names and the colour of their uniforms. There were numerous passing formations, but no actual plays other than simple runs and passes. Making plays was nearly impossible, due to the speed of the play and the strange control system. All computer defenders could move at the approximate speed of Ben Johnson before that urine test in Seoul, with the ability to catch ball carriers who were as much as 10 yards downfield. Passing was equally strange. There seemed to be no way to properly aim the ball, so making a simple completion was a struggle all by itself. The developers apparently faked their way through the design process, emblazoning the centre of the field with an American eagle as if to hide the fact that they just didn't get what football was all about.

Sega released a second enhanced version of Great Football around the same time. Sports Pad Football offered slightly improved game play due to the requirement of special sports pad controllers, though it still wasn't worth the added investment. The sports pad idea died a quick death. Much like the earlier ColecoVision Super Action Controllers, consumers weren't interested in buying special hardware just to play one or two titles.

Along with the rest of the gaming world, the football game came of age in the 1990s. For the first time, steadily advancing technology freed designers to catch up with our imaginations. The immediate result: games that looked and played in a more realistic fashion than ever before.

In an attempt to further cement the reputation of the Sega Genesis as the best platform for sports games, Sega introduced Joe Montana Football in 1990. Early releases in this series offered a cruder version of football than that offered by Madden, though the quality did improve over time. It was also one of the first sports series to offer a lot of bells and whistles. Joe Montana II: Sports Talk Football and NFL Sports Talk Football 93 Starring Joe Montana included rudimentary commentary for the first time in a console football title. The latter boasted more than 500 separate one-liners, a remarkable achievement in the 16-bit era. Sega even branched out into college ball, adapting the Montana engine for use in the Bill Walsh College Football line.

John Madden Football--with a full 11 players per side--was released in 1989 for the Apple II computer. This first game served as a launching point that soon propelled the series to other, more enduring platforms such as the Sega Genesis and the PC. Game play was rather simplistic at first. Although John didn't want to compromise the number of players on the field, his first game included just 16 of the 28 NFL teams in existence at the time. Most of the heavy hitters were there, the line-up including traditional powers such as Dallas, Washington, San Francisco, Denver, and Miami and dropping weak sisters such as Tampa Bay and San Diego. But the absence of NFL and NFL Players Association licenses meant that these teams lacked the proper nicknames, logos, and players. Playbooks were basic affairs with elementary formations based on the situation (goal line, long, short, special teams, and so on) and just a few plays available for each--although the "ABC" window still in use today was present right from the start. Just three game play modes were featured, although these included an intriguing season option and a sudden-death game perfect for multiplayer fun or a quick time killer against the computer.

Madden and GameDay seemed content to share the football gaming crown, although they still showed continual subtle improvement to fend off challengers like Acclaim's NFL Quarterback Club. There were some major advancements in the early to mid-1990s, but these were mostly registered on the PC side of

things. The full sophistication of the NFL came through for the first time with Sierra's revolutionary Front Page Sports: Football. This series brought the virtual gridiron to a new height, thanks to complex playbooks, exhaustive stat tracking, and the ability to set up customized career leagues with drafts, trades, and retirements. Arcade play on the field was seamlessly blended with management responsibilities.

This raised the bar for everyone. New computer football titles like Accolade's NFL Legends Football 98 and Total Control Football tried to take the idea of a complete football game even further with frills such as historical play and financial management. An audience was also developed for pure management games such as Front Office Football and PC Action! Football. Perhaps more importantly, however, Madden and GameDay extended the simulation aspects of their games and soon added franchise play to their repertoires. That philosophy has taken us right up to the present. As football games have evolved, they've certainly piled on the features. New football games released in the past few years have incorporated everything but Don Shula's kitchen sink.

Over the past four years, the quality of football games has improved, thanks in equal parts to improving technology, innovation, and, at least up until recently, competition. The brave new landscape of football video games has taken a sharp turn, with all eyes focused on EA Sports and its stable of officially licensed football products. Thanks to its savvy business tactics, EA will be the defining voice of NFL games for the next next-generation consoles. You wonder how gamers five years from now--at the tail end of the historic EA-NFL deal--will look back and reflect on this era that arguably began with the Dreamcast and ended in late 2004 and early 2005. The last five or six years have been among the best, most competitive, and innovative in the entire history of football video games. The upcoming era, which encompasses the next five or six years, will be unique for its singular focus on the Madden series as the torchbearer for NFL games, as well as for how the other football publishers will respond to increasingly hostile competition.

(Brett Todd, Gamespot)

Computers in film

Film and automatic computation were in the same place at the dawn of the twentieth century: each relied on hand-cranked monstrosities that had a tendency to jam when used too quickly. Both also showed signs that they were about to change the world. Few could have known how much each would influence the other as time passed. While film hit the limelight (literally) much faster than computers, computers would quickly become a favourite subject and character in many movies. Perhaps the reason why so many computers have

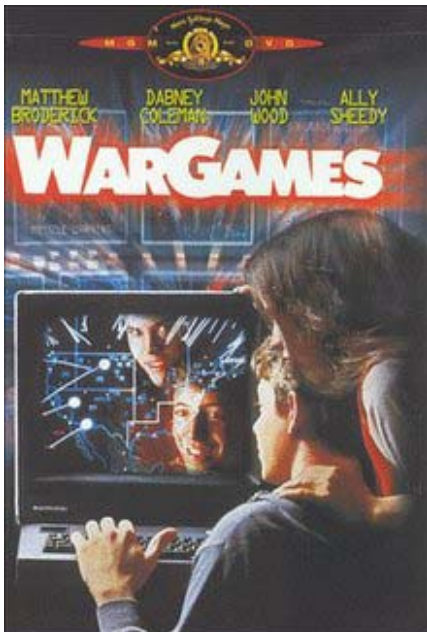
ended up with roles on screen is that early science fiction authors so frequently used them in their stories.

E.E. “Doc” Smith’s *Grey Lensman* featured a computer so large and hot that it required a piece of Antarctica to cool it. There were dozens of computers of various types in the olden days of Sensational Stories and the like, and since many of the filmmakers who began to make films in the 1950s and 60s were science fiction readers from youth, it’s easy to see why so many computers began to pop up as props and set pieces. At first, spaceships were populated with pieces of plywood with lights stuck in them and tape drives that spun as the computer was “thinking”. This image continues playing even today on television and in many non-science fiction films that used large computers as a plot device (with *Jumping Jack Flash* being one of the big offenders of the 1980s) From *Forbidden Planet* (MGM, 1956) to many of the *James Bond* films, these fake computers were very cheap and easy to construct.

Some films wanted a better sense of reality and used real computers for texture. *Our Man Flint* (Fox, 1965), starring James Coburn, features pieces of the SAGE computer and a large bank of IBM tape drives. A similar set-up was used in the time travel preparation scene in *Austin Powers: The Spy Who Shagged Me* (New Line Cinema, 1997). *The Angry Red Planet* (MGM, 1960) featured the Burroughs ElectroData computer that is currently on display in visible storage at The Computer History Museum.

Even the blaxploitation classic *Scream, Blackula, Scream* (MGM, 1973) featured close-ups of an IBM 7000-series computer which was being used in the creation of a new monster.

As time passed, computers started to play larger and larger roles before actually becoming characters. In Walter Lang’s film *Desk Set* (Fox, 1957), Katherine Hepburn and Spencer Tracy face off over the integration of a computer, EMERAC, into the corporate library. While the computer has a big board which is reminiscent of the number calling service used at most pharmacies, the computer really isn’t a character. The film, while sold as a quirky story of office romance, really dealt with the perception that computers would put great numbers of people out of work. The result is funny, and it shows that people were beginning to think of computers as a part of the future, and not just on space ships.



In the 1980s, computers became more and more visible in film, and more identified with the computers on *War Games* with younger hobbyists. Films such *Weird Science* Electric

Dreams (MGM/UA, 1983), (Universal, 1985), and (Warner Bros., 1984) all feature high school or college kids using computers to do all sorts of wacky things, like trying to blow up the world, direct a satellite to cause a house to fill with popcorn, or to create a beautiful woman. The image of the teen 'hacker' was solidified with these films and the image continues through to today.

Even today, computers play a very significant part of the tone for many films. Apple][s and TRS-80s in *The Royal Tennenbaums* (Buena Vista, 2002) and the Mac SE in *The House of Sand and Fog* (Dreamworks, 2003) as set pieces set the films at a specific point in time. In the rave film *Groove* (Columbia Tri-Star, 2000), a cop and a man posing as the owner of a new internet start-up are touring an office full of original IBM PCs. The cop says 'you'll probably want to upgrade these computers, too', which led the character to know that the gig was up.

As the 1960s rolled on, we were treated to more films that used computers as more than just another prop on a set. Robots were first, arriving in 1897 with George Melies' *The Clown and the Automaton*. They began showing up as friendly helpers to young heroes with nothing but their wits and a highly sophisticated piece of machinery to defend themselves. Robots were much easier to connect with than traditional computers, but by the late 1960s, a computer became, arguably, the central character in a film. The film was Stanley Kubrick's *2001: A Space Odyssey* (Warner Bros., 1968) and the computer was HAL.

The HAL 9000, loosely based on the research surrounding IBM's Stretch, was a self-aware computer that sustained life on the USS Discovery. HAL begins to malfunction, something no 9000-series computer has ever done, and as it becomes apparent that he is not working properly, he starts to defend himself by killing the crew. There are many examples as to the ways that Kubrick made HAL more human so that he could be the central character. HAL spoke instead of using a traditional keyboard, and he used human syntax and had a real voice. In another way, HAL was made to be more than human, and in fact, was almost God-like in that he decided who lived and died.

If HAL is God, then the computer Proteus IV of *Demon Seed* (MGM, 1977) is Satan himself. Proteus refuses to help the human strip mine the oceans, claiming that would merely help in the destruction of the planet. Proteus has other thoughts, like escaping his electronic prison, or getting 'out of the box'. Proteus comes up with a plan: impregnate the wife of his inventor and then escape through that child. Perhaps the first instance of computer rape, *Demon Seed* shows a computer playing evil not out of self-preservation, which was HAL's greatest crime, but out of lust for life. Proteus uses an electronic voice as well, that of Robert Vaughn.

Another, very important fact is that networks began to immerse throughout films, and almost universally they were thought of as evil. In *Colossus: The Forbin Project* (Universal, 1970), Colossus is given power over all of the US military defenses in an effort to show the Russians that they are incapable of attack since the bombs are under the watchful eye of the Computer. As Colossus comes on-line, he detects another computer, the Russian Guardian, which has been built for the same purpose. The two are linked and when the link is broken, both supercomputers launch missiles towards the other country. They are reconnected, but the computer continues to act on the paranoia of the situation. Perhaps the most interesting part of the film is the fact that an IBM 1620 played the role of the input section of Colossus. The Computer History Museum got one back up and working in 1999.



While God and the Devil are merely two parts, there is also the category of sidekick. Michael Knight is the hero of the television *Knight Rider*, but his car, KITT, is his plucky, computerized vehicular partner, voiced by William Daniels. Other computers such as Max from *Flight of the Navigator* (Disney, 1986) also fall into this category.

There is also a small, but always growing, sub genre where a human is imbued with the powers of a computer. In *The Computer Wore Tennis Shoes* (Disney, 1969), Kurt Russell's character, Dexter Riley, is in the computer lab one night when it is struck by lightning. This somehow fuses him and the computer, giving him all sorts of information...including the entire rumpus on what the local crime lord, played by Cesar Romero.

Once we have seen that computers can become characters, it is not that big a leap to use a computer as the full setting for a film. It took a large step in the development of science fiction for that to be possible. That invention was cyberspace, a concept used to great effect by author such as William Gibson and Bruce Sterling.

While there have been many films that have used simulations of life in computers, *Star Trek: The Next Generation* featured the Holodeck, a computer generated environment that the humans on the show were able to interact with. The concept of donning helmets to enter cyberspace is almost ancient, dating back to the 1960s, at roughly the same time serious research into helmet-based systems seriously began. *The Lawnmower Man* (New Line, 1992), starring Jeff Fahey, also allowed a real character to enter cyberspace and become more intelligent. The cyber setting is much more interesting than the real setting in this case. *Overdrawn at the Memory Bank* (1985), a Canadian / PBS co-production, features a non-conformist, played by Raul Julia, whose personality is transferred into a giant computer and continually replays scenes from *Casablanca*.

A famous early exploration of computer generated film graphics for a computer world was the Disney film *Tron* (Disney, 1980). In *Tron*, a User, Kevin Flynn, is brought into the computer by the Master Control Program, or MCP. As Clu, he fights alongside Yori and others in an attempt to overthrow the MCP and install *Tron*, a security program, in its place. The world that the film inhabits is amazing, with giant floating tanks and light cycles that leave walls behind. At times, it seems almost as if it were written to be made into a video game, of which it later spawned several.

Perhaps the best-known case of a film where the world is merely an illusion of ones and zeroes is the *Matrix* series (Warner Bros., 1999-2003). The *Matrix* is a computer-generated world that is powered by, and populated with, human beings. Most people live their entire lives there and don't know it. This allows for those who escape to pass through the *Matrix* and perform acts that are far beyond the possibilities of those who are trapped within.

The computer as setting is still being explored. The UPN animated series *Game Over* was about the life of video game characters when they are not being played. This may be the first instance of a television series that takes place completely in a computer world

As computer graphic technologies improve, so will their application in film. The long-standing concept of films created entirely on computer using the manipulated images of real actors (as in Mickey Spillane's *Mike Danger* comic book series) has come up again and again. While films such as *Forest Gump* (Paramount, 1994) have used this technique to a limited degree, there is talk that we are just two years away from being able to have a feature film starring the image and voices of Marilyn Monroe and James Dean on the screen together. As technology speeds up, so will the stories that make use of these enigmatic machines.

(By The Drink Tank Issue 29; Christopher J. Garcia)

Book review

Collectible Microcomputers

By Michael Nadeau



This comprehensive field guide is invaluable for identifying and pricing more than 700 microcomputers made worldwide between 1971 and 1993. It's filled with over 340 photos and up-to-date information for collectors who want to fully enjoy this rapidly emerging hobby. Featured are early hobbyist computers, desktop business/professional computers, home computers, PC-compatibles, transportable computers, laptops, and notebook computers. They're all arranged alphabetically by manufacturer to aid in quick identification. Fascinating historical notes and anecdotes make this book a great read! Collectors will find advice for locating and evaluating micros, a glossary of computing terms, and a great list of resources. A must-have for everyone interested in vintage computers! Price: £24.95

Industry interviews

Interview with Mike Matson, the creator of BBC game *Granny's Garden*.

It's 1982, and the BBC has just made Acorn's new computer the official BBC Microcomputer which gave the chunky cream box an easy ride straight into schools up and down the UK. Some classroom BBC Model Bs were ignored by suspicious luddite teachers; others had passionate lunchtime 'Computer Clubs' form around them. But, for some inexplicable reason, seemingly all of them -- every single BBC Model B in the whole of Britain -- had *Granny's Garden*.



Mike Matson was a Devonshire teacher, specialising in geography, when he created the witch, the woodcutter's cottage, the talking mushroom and the perplexing four-dragons puzzle, all of which will forever bounce around the brains of any UK citizen now approaching their 30th birthday.

How did you get into computing?

In the early '80s I spent the weekend with a friend of mine who worked at Hewlett Packard, and he'd got this huge computer with a tiny little green screen, text-only. He asked me to come and have a look. So I sat down -- and I was there glued to it the whole weekend. It was the original Adventure -- gold nuggets, diamonds, dwarves -- and it absolutely hooked me. This tiny little screen, no bigger than six inches, just *got* me. It was wonderful.

So what made you a programmer?

Around 1983, I was deputy head at a school in Devon. At an evening meeting I persuaded the Parent-Teacher's Association to buy a computer for the school. The next day, the rest of the staff went ape. They were thinking about how many football shirts they could have bought with the money.

From then on, the pressure was on to prove that this thing was worth having.

I looked at the software out there, and it was all written by people who had no idea how to motivate kids. So I got hold of my own BBC B, two weeks before the school, and decided to teach myself how to program. Just so there'd have some decent stuff ready for when the school's computer arrived. That was how it started.

Which led to Granny's Garden...

Well, *Granny's Garden* basically came about because the UK government pledged a half-price computer to any school that had at least two members of staff trained to use it. I got a job with Devonshire County Council as an Advisory Teacher for Computers -- which meant travelling around the 400 schools in Devon, giving computer courses for teachers who really didn't want to know. One-hour tutorials where 30 minutes was spent loading a game in off cassette tape, and then watching this awful rubbish on the screen. It was horrible.

I thought: I need to show them something more exciting. An actual adventure. 250 hours later, I had *Granny's Garden*. I wanted to create something that was a starting point for children, something that would get them enthusiastic and using their imagination. Because back then you had just one computer *for a whole school*. So a game had to be designed for use in groups, 10-15 minutes each.

Did you send the finished product off to any publishers?

I was actually thinking about it, but there weren't that many out there at the time who knew what they were doing. In the end a friend of mine, Neil Souch -- who was looking for a way out of the fire service -- said, "If you write this stuff, I'll sell it." So we set up 4Mation between us. And it's still going!

Do you remember how many copies you sold?

I think we lost count at around 20,000. Of course, most copies of *Granny's Garden* were ripped off.

I'm sure the illegal copies outnumbered the legal ones.

It really surprised me that so many people liked it. I think *Granny's Garden* scored because it was so different to the other software that was around the time. It's value was in -- sounds a bit grand this --- giving the world a pointer, an idea of how computers could be used. In the same way that Adventure sparked off my imagination, *Granny's Garden* sparked off other people's.

Did you receive any feedback from the millions of kids who played and loved the game?

Yeah, I used to get letters from kids -- from whole classes of kids -- and I'd try to reply to them all. It was a huge success in Australia and New Zealand, and I got to visit a school in Tasmania and see the kids' *Granny's Garden* work on the wall. I got a real buzz out of that.

And I still bump into people who remember the game. Over Christmas we had my wife's nephew over for the day, and he brought his girlfriend with him. She's 31 and a teacher. He asked her if she'd ever heard of *Granny's Garden*, then told her she was sitting right next to the bloke who wrote it. Her face lit up!

What are you up to now?

I'm 58 now, and I still haven't decided what I want to do when I grow up. I spent around 13 years making education software, then left 4Mation to do some web stuff, and worked for Apple as a Quicktime consultant. More recently I got into doing video, including quite a lot of stuff at a polo club - - so I got to point the camera at a number of celebrities like Prince Charles and Esther Rantzen.

Wait a minute... Esther? She was one of the six children you had to rescue in Granny's Garden...

Yes, the first two children -- Tom and Esther -- are my own kids. They're all grown-up now, but they were tiny at the time. Another two were Neil Souch's kids... and I can't remember where the names for the final two sprang from.

(By Redkeyreddoor)

Interview with Tilly Blythe – Curator of Computing and Information at the Science Museum, London

How long have you been curator at the Science Museum for?

I became the Curator of Computing and Information at the Science Museum in April 2004, so 15 months

How did you get the job of curator of the computing collection at the science museum?

I saw it advertised, applied for it and got it!

Do you collect any digital history artefacts as a hobby?

I have a few bits and pieces, but it's not a coherent collection. My favourite things include a first edition of Ted Nelson's 1974 classic 'Computer Lib/Dream Machines'. It's an astonishingly prescient book where Nelson uses cartoons and links between pages of the book to develop the idea of cyber culture and hypertext. The book was originally brought directly from the Whole Earth Catalogue. Looking through it today you can see that Nelson was a real trailblazer in relation to the culture and networking of computers.

What interests you the most about your job?

I'm in the enviable position of being able to identify and acquire significant computing items for the National Collection, but that also means you have to develop a strong sense of items that are culturally and socially important, not just technological firsts or breakthroughs. It's fascinating to try and identify contemporary items - be those computers, portable devices or software - that will engage our audiences and evoke meaning and stories from them in the future.

What in the collection is your favourite exhibit?

I love our clone of a Sinclair Spectrum created in Siberia and acquired by the museum in 1985. It's a wonderful example of the global computer industry and the development of Eastern block clone machines during the micro computer 'revolution'. It's also a beautiful piece of industrial design; made out of white plastic its more reminiscent of today's Apple machines than the original Spectrum machine.

What do visitors like to see the most?

Many of our visitors come to see Charles Babbage's Difference Engine No. 2. This was the machine that Babbage designed between 1847 and 1849 to automatically calculate mathematical tables. He wanted to create mathematical tables that were much more accurate than the hand-produced versions available to Victorian engineers, scientists and navigators. The machine was never completed by Babbage himself, but in 1985 the Science Museum decided to build the machine using Babbage's original designs and materials and techniques that would have been available in Babbage's time. The great number cruncher was brought to life in 1991 when it completed its first error free calculation. Today, the noise of the engine as the handle is turned is one of the most emotive sounds in the museum.

Which exhibit do you think is the most important?

Our collections are one of the most important computing collections in the world. They represent the very earliest pre-history of computers, business machines, valve machines and early personal computers such as the Altair 8800 and the Apple 1. Their importance is as a coherent collection and I simply couldn't choose just one machine. That said, one of the most loved exhibits is the Pilot ACE computer that was designed and built by the National Physical Laboratory in Teddington in 1950. The design for ACE embodied the original ideas of the mathematician Alan Turing. It reflects his pre-war theoretical work on computation and his conceptual discovery of the Universal Turing Machine - a computer that is not structured to carry out particular tasks, but can perform any task specified by programming instructions. The machine is on display in our *Making the Modern World* gallery and had over 800 valves and two mercury delay lines for storing information.

What sort of visitors do you get to the collection? Are there many computer history students about?

Our galleries at the museum attract around 2 million visitors a year. This includes families and children, adults enthusiasts, school parties and young adults. Our tours of the computing collection in the stores attract a number of more specialist enthusiasts. Some are people who have worked in the computing industry for a long time, some have started their own collection of items and a few are studying computer science and want some historical perspective. We've even had a number of artists who are fascinated in Britain's digital heritage. Computer history students tend to come from Manchester University, but anyone with an interest in maths and programming can, and does, find themselves drawn in!

Do you think that the history of computing reflects what might happen in the future - for instance rate of progress?

I think we need to be wary of believing the rate of change, and indeed technological progress, has significantly increased since the advent of the computer. There is one thing that occurs to me when I'm in our *Making the Modern World* gallery and am faced with 250 years of technological change. And that is that many of our *claims* for technological innovation haven't changed during that period, at all. From 1750 to the current day, humans have depended on the same arguments for understanding and contextualising the change around us. We have *repeatedly* claimed that technology is revolutionising our everyday lives and that we are subjected to a rate of change never previously experienced. The Victorians had an insatiable belief in steam, and they visibly transformed landscapes by building canals, railways, bridges and water schemes, leading to a transformation across the globe. Our era is defined by computers - but let's not believe that we are unique in rapidly transforming the world around us.

Do you try and restore broken machines? If so, how do you find people with the necessary skills/knowledge.

We are lucky enough to have a strong group of volunteers from the Computer Conservation Society. Their help is invaluable to us as many of them have the skills, knowledge and enthusiasm to maintain our early machines. We currently display one of the oldest working computers, the Ferranti Pegasus machine from 1956, and have this running on gallery every other week on a Thursday. We are also working with the Elliot 401 working party who are trying to restore the 1953 machine that was used at the Roth Amsted Experimental Station.

Is there any machine/artefact that you don't have but which you would like to acquire for the collection?

We would love to acquire a Alto machine developed at Xerox PARC in the 1970s, as it was the first to develop a WIMP (Windows, Icon, Menu, Pointer) interface and set the standard for the type of Graphical User Interface we expect today. Unfortunately they are very rare, but we keep hoping for a kind donor!

(Abi Waddell)

Nostalgia

Computer time sharing

"On January 26th 1967 in the middle of Winter in New England I was dragged screaming and kicking into the computer age. I was just completing GE's Manufacturing Management Program (for graduates) and had just spent two days trying to find a relationship explaining why Power Transformers failed the radio noise test on final inspection. My boss called me

over and suggested that I use the new Computer Time-Sharing terminal in the high voltage lab.

So, clutching a telephone number (for the computer) and a user number (to allow access) I walked in trepidation to use the *Computer Time-Sharing*. I dialed and following a high-pitched scream (the computer responding rather than me) pressed the online button. The computer responded and asked me my user name that I entered - I was online! Next I called up one of the library programs -SIXCUR\$ - to do the necessary calculations. A few minutes later and after eleven seconds of processor time the calculations were complete! It had done MORE work than I had done in the previous TWO days. And, I had survived my first encounter.

A few weeks later, I finished the GE program and moved on to work on developing a computerised manufacturing system. My first task was to design a short-term forecasting system. The only way I could see to do this was to try out different approaches on real sales data - a huge computational task! Happily, the GE business that I was now working for also had GE's Mark 1 Time-Sharing. And so, over the next six weeks, I taught myself to program in BASIC and had developed the forecasting system. I also had blown the whole annual budget for Time-Sharing (about \$400). But as the budget had been a guess and I had done *impressive work* (my boss's view) I was not castigated and never had *any* budget constraints on further use!

By the end of the summer I had my own Time-Sharing terminal by my desk. Not yet on the desk as Teletypes were just too large for that. Also, during that time I estimated that I had saved myself *five man-years* of time (I kept the record in case of budget constraints).

The main reason that I had my own terminal was that facing a two year wait for the in-house computerised manufacturing system to be completed, my boss's boss's boss asked whether it would be possible to develop an interim system on Time-Sharing. (In case "boss's boss's boss" is confusing, I meant that the guy who asked the question was at the top of the organisation - three levels up).

Although the interim system only managed a few of the materials these were the key ones and so had a major impact on the business. (Also, the interim system only took a few days to develop!) Each month, the current inventory and schedule was punched as data statements off-line onto paper tape. Next the computer was dialled and the program loaded (from paper tape). Next the inventory and schedule tapes were loaded. The program was run and the schedule printed out (at 10 characters a second). Finally, a series of paper tapes were punched to be used to Telex suppliers the new schedules (remember the terminal was a standard Telex machine and so fully compatible). Not bad for August/September 1967!

Unfortunately, it soon became apparent that the scheduling logic was flawed and we were just not reducing inventory levels as forecast. This produced lengthy discussions about the scheduling logic. Ultimately (spring 1968), it was decided that the only way to resolve the issue was to create a computerised model of the supply chain and simulate. This was done. The model was developed in BASIC and run many times to test out different assumptions and lead to a change to the scheduling logic. (A paper on this work was presented in the UK in the early 1970s and published in the US in 1975 - see reference.)

My work in manufacturing was being noted in the other functions and led to the accounts department coming to me to see if they could speed up their monthly budgetary reporting

process. As the accountant to do the work was a gorgeous southern bell (unfortunately very married), I was happy to help. After a few days we had a budget model up and running. A model that would do all the calculations (including data entry) in about half an hour in contrast to the two and a half days that the manual calculations took. Also, the monthly use of the computer could be done by a junior staff member rather than a senior accountant (as previously). Finally, the time saving gave time for everyone to come up with excuses before the budget meeting!

That January afternoon in 1967 changed my life. I was such an enthusiast for Computer Time-Sharing that I changed my career and moved back to the UK to work for the GE subsidiary selling their Time-Sharing service. My role was to market the use of the service for business planning and reporting. As part of that work I launched the first interactive modelling package and developed my first business simulation for managerial learning in 1970. But this is perhaps the topic for a future article.”

(By Jeremy J. S. B. Hall)

Atari 400

“It’s difficult to appreciate in hindsight just how expensive computers were back then compared to an average wage. I bought an upgraded 32K Atari 400, a 410 cassette deck, one game (Voodoo Castle, a Scott Adams text adventure) and thus spent almost 4 months wages in one exhilarating hit.

Back home, the Atari was reverentially plugged in, powered up and gawped up as a white text on blue screen came up with the word ‘READY’. And I was, ready for the future. This was a *computer*. It could do *anything*.

I started to load the game. After almost 20 minutes of burbling and screeching, the message ‘BOOT ERROR’ appeared. A second go worked though and I was launched in to gaming heaven. Not only was I immersed in my first text adventure, it even had a modified character set to look like ye olde writing. As the game unfolded I found myself starting to get nervous after typing each command in fear of something horrible happening. Such was the power of the text adventure and a fired up teenagers mind.

The next day I decided to see if I could write my own games so I booted to Basic and started tapping away. An hour or so later I had come to the conclusion one needed to know a bit about computers as everything I typed just got echoed back to me preceded by the friendly message ‘ERROR’. One quick phone call and my ETI magazine owning friend turned up. He now had experience of computers from college. With an almost Roger Moore like knowing expression he cryptically advised ‘you program them using peek and poke’. He then started to type in various poke commands. Most did nothing although a couple crashed the Atari. The fact that they even crashed it struck me as ultimate wisdom. This man was a God. I had to learn the things he knew.

The following week I picked up the very first issue of Computer and Video Games magazine and a book on Atari Basic. Over the next few weeks I read the book and typed in the Atari game from C&VG called Trench. Needless to say, my typing was left than perfect and it took several days before I could get the game working but it had taught me a lot. Every time I ran it and something went wrong, I scoured the printout in the magazine to see where my typing

differed. When a new typo was found, I realised that line of code must be related to what was happening on screen. The fact that I was even able to make a game appear on the screen by typing in commands myself and then have colours, sounds and a game was an awesome thing to behold. As each new issue of C&VG came out, another listing was duly typed in, debugged and as a result, my skills improved.

In the meanwhile, I had been making regular trips to Maplins. The Saturday boy was still there along with an increasingly tempting array of goodies. The boy himself was usually engrossed in writing his own software using the Macro Assembler. To see a mortal produce colours and movement on the screen using such low level and arcane methods whetted my appetite. It was one thing for the gurus at Atari to write games this way but for a kid in a shop in Essex? I bought the Assembler/Edit cartridge and a 6502 programming book and rushed home.

I always had a soft spot for the Assembler/Edit manual. On page one it proudly proclaimed that it had been extensively proof read and that if any example programs didn't work, it was the reader's fault, not Atari's. The fact that *two* listings actually had the word 'ERROR' on some lines, indicating a syntax error was to me quite amusing.

After a few false starts I was soon using a mixture of Basic and assembler to put together games and utilities. I also started picking up the American magazines Analog and Antec which specialised in Atari computers. Apart from the copious and useful listings, they had reviews of stuff not yet available in the UK. Speech synthesizers, databases, digitising tablets, new programming languages and more left me envious as did the prices Stateside.

It was around this time I joined the big boys and bought a floppy disk drive. The Atari 810 held a massive 88k and cost a mere £350. Just two months salary by then. It revolutionised things. Suddenly games loaded in fifteen seconds, not twenty minutes. My programs could save data to random access files. I could also start to buy the more sophisticated software that only came on floppy disk. As most of these needed 48K, I had the Atari 400 upgraded. For a mere £100, Maplins took the old 32K card and replaced it with a 48K one. Now I could play the state of the art games such as Choplifter.

The 810 also allowed me to start working on my dream project of writing a set of software tools for my then favourite RPG game, Traveller. The character generator I wrote in Atari Basic only just fitted in the available memory and used every RAM saving trick in the Atari book. One of my favourite tweaks was using variables for common numbers.

By then, the first stage of my computing life was starting to come to a close. Within the year my Atari 400 was replaced first by An Atari 800 as they were being phased out and could be picked up cheaply, and then shortly after by an Atari 130XE (128k of RAM) and a 1050 disk drive. The 1050 was quickly enhanced by an internal board that sped up disk reading and writing, increased capacity and *copied protected games*.

Since then I have owned an Atari, an Atari Ste (4 megabytes!), a Mega Ste (a hard drive!) and finally an Atari Falcon before succumbing to the PC and the world of Windows. I now have broadband, a photo printer, a web cam, wireless and wired LANs linking 4 PCs around the house and a silly amount of hard disk space. I watch movies, listen to radio, program, browse the web, store all my data, process my photos and much more all on this beige box.

I still miss my 32K Atari 400 and that READY prompt though.”

Market place

We need your help!

The Museum will be interested in receiving donations of old technology items including computers, electronic games, books, publications, computer peripherals, software and other related ephemera. We cannot promise we will be able to accommodate everything but please ask if you are in doubt.

We are particularly keen to receive donations of A2 and A3 laminators and printers.