Steve Wozniak

Brief Biography

Cathal Byrne – 18328661

For this assignment I have chosen to investigate the life and work of Apple cofounder Steve Wozniak. While his partner Steve Jobs may have been one of the most famous men on the planet, often Wozniak’s genius goes somewhat uncredited and he’s perhaps not as well known as he ought to be. As an iPhone owner I cannot help but marvel in what Apple has been able to accomplish since its founding in 1976 and Wozniak’s ethos of keeping it simple really strikes a chord with me. In an interview with the Henry Ford Youtube channel Wozniak said that he’d much rather build something that completes the job doing only 20 things instead of 500, and this approach to keeping it simple and keeping the user in control of the machine echoes the way I try to program.

Steve Wozniak was born 11th August 1950 in San Jose, California. From an early age he displayed an inert talent for tinkering and engineering, and throughout his life claimed that professional training or funds wasn’t necessary to succeed. One of Wozniak’s early displays of technological prowess was his interest in “phreaking” phones i.e. the manipulation of telephone call routing. Wozniak’s blue box design, essentially allowing him to make calls for free earned him the name Berkeley Blue in the phreaking community (Dayal, 2013). After being expelled from the University of Colorado Boulder for hacking the college’s computer system and sending prank messages on it, Wozniak eventually wound up in University of California, Berkley creating his own computer as a self-taught side project in 1971.

The computer that him and his friend Bill Hernandez created was dubbed “Cream Soda” after a beverage they both liked. Wozniak stated that the computer was a “good prelude to my thinking 5 years later with the Apple I and Apple II computers” (Pradhan, 2014). Wozniak dropped out of Berkley and worked for Hewlett-Packard designing calculators before Hernandez introduced him to Steve Jobs, who Hernandez had been in high school with in 1971. They soon began their first business venture, which entailed Jobs selling Wozniak’s blue boxes for $150 dollars each to allow users to make phone calls for free. Throughout both their careers, Jobs was often seen as more marketer than engineer while Wozniak was a far more proficient programmer than public figure. Their next step together came while Jobs was working at Atari in 1973 when he was assigned to create a circuit board for their arcade game Breakout. Atari gave Jobs the incentive of $100 (adjusted for inflation ~= $580). Jobs had limited knowledge of circuit boards so deferred the job to Wozniak on the basis that any bonuses would be split evenly. Wozniak successfully reduced the number of chips by 50, but since Atari couldn’t use RAM at the time the prototype couldn’t be used. Atari still payed the bonus in full, but Jobs let on that he’d only received $700 (Woz.com, 2011. Now accessible through web.archive.org)

In 1975, Wozniak began to design and develop the computer that would begin the meteoric rise of Apple, the Apple I. One of the main reasons I chose Wozniak was because of his contribution to the way user experience has evolved over the years. The Apple I was the first home computer in history to display a character on a TV screen. The Apple I largely existed as a project to impress members of the Homebrew Computer Club, a group of electronics hobbyists that shared a common interest in computing. On 1st April 1976, Jobs and Wozniak formed Apple Computer Company and shortly after they presented the Apple I to the Homebrew Computer Club, who believed that they’d made an exceptional product. One of the Homebrew members, Paul Terrell, told Jobs and Wozniak that he’d like to order 50 units of the Apple I to sell in his computer shop in Mountain View, California.

Wozniak’s design was quite similar to the Altair 8800, the first commercially available microcomputer, save for that the Altair 8800 could be configured with expansion cards to be attached to a terminal and be programmed in BASIC. Wozniak’s creation featured a MOS 6502 for a CPU on a single circuit board with 256 bytes of Read Only Memory, 4K or 8K bytes of Random Access Memory, and a 40-character x 24-row display controller. All peripherals and components, like a power supply, keyboard and display all had to be provided by the user. It was a modest beginning to an industry and world changing company. According to a 1984 article from BYTE magazine, about 200 units of the Apple I would eventually be manufactured and sold.

Arguably Wozniak’s greatest contribution to the world of computing and software engineering came with the Apple II. This next design was the first personal computer with the ability to display colour graphics, and have BASIC built in. Wozniak ingeniously found a way to put colours into the NTSC system by using a chip that at the time only cost $1, while per a 2012 Forbes article colours in the PAL system were achieved accidentally when a dot occurs on a line, to this day Wozniak claims he has no idea how it works. During the design process of the Apple II, Jobs and Wozniak came to argue over the amount of expansion slots needed. Jobs claimed two was sufficient (printer and modem), while Wozniak wanted eight. Since Wozniak was the chief engineer, he essentially took a “my way or the highway” approach and told Jobs to get on board or get another computer. It’s widely believed now that this exchange led Jobs to much more actively pursue the closed source approach that Apple is infamous for today. The Apple II was introduced in April 1977 at the West Coast Computer Faire.

Wozniak had a heavy design influence over the early development phase of the original Macintosh following the failure of the Apple III. Later named the Macintosh 128K, it would go on to become the first mass-market personal computer featuring an integral GUI and mouse. The mac would also go on to introduce the desktop publishing industry with the addition of the Apple LaserWriter, which was the first ever laser printer to feature vector graphics.

Wozniak pioneered the early successes of Apple but didn’t stick around to see it more or less take over the world for a variety of reasons. Following a plane crash in 1981 where Wozniak was piloting (and not qualified to operate) a Beechcraft Bonanza A36TC that stalled while climbing, crashing and injuring the 4 passengers, Wozniak suffered from anterograde amnesia. This affliction is the inability to create new memories and Wozniak had no memory of the crash, and for a time afterwards he couldn’t remember his name nor the things he was doing. Per an article from Byte magazine, Wozniak has stated that Apple II computer games were what helped him regain his memory.

In the years following, Wozniak increasingly fell out of love with Apple and in early 1985 he left the company entirely. His relationship with Jobs was a tempestuous one, as Jobs became increasingly power hungry and dismissive of Wozniak’s Apple II, given the increasing success of the Macintosh. An anecdote that shows Wozniak’s frustration came when Jobs refused to mention the Apple II division or its employees in a January 1985 annual meeting (Infoworld 1985).

The life and work of Steve Wozniak is incredibly intriguing for me as his demeanour and approach to software engineering heavily echoes my own, in that he above all else wants to keep it simple and the desire to create was always ahead of the desire to be wealthy. One of the bones of contention between Jobs and Wozniak was that Jobs hated the idea that people could use Apple products outside of ways that Jobs had intended, whereas Wozniak was fully for the idea of open source and allowing hobbyists the chance to use Apple products the way they wanted. Wozniak’s genius cannot be understated, as his work essentially popularized the visual style of point and click home computing that is the norm today, and without Steve Wozniak there would be no Apple, no iPhone and potentially no Steve Jobs.

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