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When High-Tech was Low-Tech : A Retrospective Look at Forward-Thinking Technologies [Multiple exhibits]

James Anthony Schnur,

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When High-Tech was Low-Tech

**A Retrospective Look at
Forward-Thinking Technologies**

Nelson Poynter Memorial Library
University of South Florida St. Petersburg

When High-Tech was Low-Tech

The development of transistors after World War II allowed manufacturers to build smaller, more sophisticated, and less expensive devices. No longer did consumers have to worry about purchasing expensive tubes for heavy, bulky radios and televisions. This “AM transistor radio” was purchased at Webb’s City, a famous St. Petersburg shopping center of the era, in June 1968 for under \$5.00.



Old-fashioned tube

When High-Tech was Low-Tech

By the late 1970s, early “personal computers” and game systems began to appear in homes. One of the most popular games of this period came from Atari. This Ultra-Pong console, released by Atari in 1977, included eight versions of “pong” and eight versions of “hockey.” Up to four players could compete by using the state-of-the-art paddles.



When High-Tech was Low-Tech

Before the widespread use of “floppy” disks (in both 5¼ and 8 inch formats), many early personal computers used tape drives. “Personal computer cassettes” usually held about 64,000 bytes of data and could take up to 30 minutes to load. Imagine waiting that long for your term paper to load!

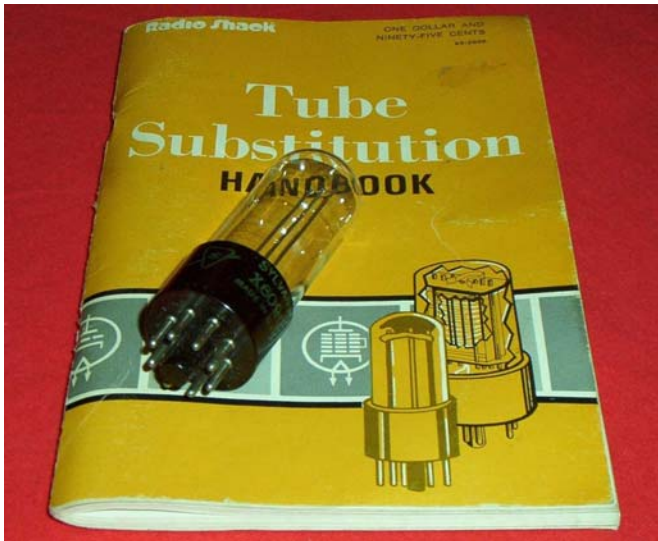


When High-Tech was Low-Tech

As more people bought personal computers, manufacturers responded by developing cartridges for popular software titles. Users placed these cartridges into the computer before turning them on and—if everything worked according to plan—they could enjoy their favorite games or use their favorite applications programs.

When High-Tech was Low-Tech

An important part of any “techie’s” library well into the 1960s, the ‘tube book’ helped consumers locate tubes for their radios, televisions, and other early electronic devices. As manufacturers released newer models, people with older devices had to track down substitute tubes to replace those no longer available. This could be difficult in the age before “toll-free” long-distance telephone numbers and the internet.



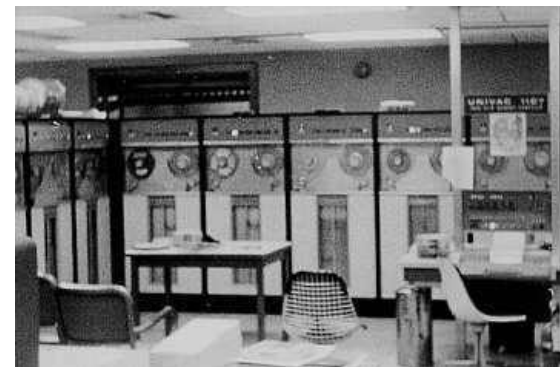
When High-Tech was Low-Tech

Before the late 1970s, few writers would have used the words “personal” and “computer” in the same sentence. Most computers occupied large, super-cooled rooms, worked slowly (if not methodically), consumed kilowatts of electricity, and required great technical sophistication to operate. Until the mid-1960s these binary-based behemoths were found only at government research facilities, large universities, and a handful of private companies.

In the early 1940s, during World War II, work began on ENIAC (Electrical Numerical Integrator and Calculator). When placed into operation, this machine required over 18,000 vacuum tubes and sat in a room larger than many homes (1800 square feet).

Later models, including UNIVAC, began to appear in the early 1950s as the first commercially available and programmable computers. Most of these early models performed mathematical calculations or “data processing” operations, such as payroll calculations, debiting and crediting of financial accounts. Word processing and web surfing came decades later.

The advertisement on the right touts the computing capability of the NCR 390 computer, a popular model for large businesses in the early 1960s. NCR began as a company that manufactured cash registers. By the 1960s, this company entered the mainframe computer market with large machines like this one. Note the keyboard with paper printer (no video monitor!). The large vertical box on the left was the tape drive, and the horizontal box was the computer’s processor. Most home computers in use today have more computing power than this machine did!



Early UNIVAC computer, late 1950s

As more people bought personal computers, manufacturers responded by developing cartridges for popular software titles. Users placed these cartridges into the computer before turning them on and—if everything worked according to plan—they could enjoy their favorite games or use their favorite applications programs.

Apple computers become very popular during the 1980s. Many early models, including the Apple II and Apple IIe, found their way into countless schools and classrooms. By the late 1980s, the Macintosh introduced users to mouse-clicking, easy-to-use software programs, and an aesthetically pleasing graphical interface. Many enhancements to later generations of personal computers tried to emulate Apple's early accomplishments.

Many innovations in technology correspond with changes in the consumer marketplace. The growing popularity—and subsequent demise—of reel-to-reel tape, 8-track cartridges, and phonographic records occurred as people searched for more convenient ways to store and retrieve information. Twenty or thirty years from now, this display might include such “antique” and “outdated” technologies as audiocassettes, DVDs, CDs, PDAs, pagers, and cell phones.

With technology, little is certain except for the planned obsolescence of the items used and the danger of losing the data those items contain. Today's data may be tomorrow's dust in the wind!

Manuals for programmers helped to demystify the operations of early personal computers. Many enthusiastic “techies” learned to use machine language instructions and other low-level languages to develop software programs. Most general users did their “programming” in the BASIC (Beginner’s All-purpose Symbolic Instruction Code) language, which used syntax like this:

```
10  REM**  CALCULATE SQUARE ROOT
20  INPUT "PLEASE ENTER A NUMBER"; N
30  IF N<= 0 THEN GOTO 80
40  PRINT "THE SQUARE ROOT =" SQR(N)
50  INPUT "ANOTHER? 'Y' OR 'N'"; D$
60  IF D$= "N" THEN GOTO 100
70  GOTO 20
80  PRINT "NUMBER MUST BE GREATER THAN 0"
90  GOTO 20
100 END
```

This device for the Commodore 64 computer allowed users to plug multiple cartridges into their computer and toggle between programs. The red button was used to reset and restart the computer.

Publishers responded to the personal computer craze of the early 1980s by launching a number of magazines for both the novice and expert user. Many magazines included software and hardware reviews, as well as tips and shortcuts for programmers.

Guides such as this 1982 publication offered hints and suggestions for playing many of the popular video games of the time.

For most college students who attended classes before the 1990s, the “word processor” was called a “typewriter.”

The price of computer memory has dropped dramatically since the early 1980s. Today, most computers contain gigabytes (billions of bytes) of information. This expansion cartridge added up to 24,576 bytes (about 0.000023 of a gigabyte) of extra memory for the Commodore Vic-20 computer.

The cost in 1982 for this 24 kilobyte expansion cartridge was \$100.00. By comparison, if the cost for computer memory was the same today as in 1982, the cost of a 40 gigabyte disk drive today for a standard personal computer would be an astonishing \$4,369,066.67!

Popular personal computers during the 1980s included the following brands:

Apple II, Apple II+, Apple IIC, Apple IIE, Apple IIGS, Apple III, Macintosh

Atari 400, Atari 800, Atari 1200XL, Atari 1400XL

Coleco Adam (Coleco was once known as the Connecticut Leather Company!)

Commodore Vic-20 (with about 3,800 bytes of free memory), Commodore PET, Commodore 16, Commodore Plus-4, Commodore 64, Commodore 128, and Commodore Amiga

Tandy (Radio Shack) TRS 80

Texas Instruments TI 99-2, TI 99-4A

Timex-Sinclair 1000, Timex-Sinclair 1500

The availability of personal computers in home and office has changed the way we work, play, and live. This computer, a Commodore Vic-20, cost nearly \$400 in 1982.

Software and tutorial programs for early personal computers.

Just as historians and anthropologists study long-forgotten languages and cultures, the ever-changing landscape of technology has left computer scientists with the formidable task of documenting and preserving knowledge of older machines and programming languages. While many business students still learn COBOL (Common Business Oriented Language) and engineers and scientists use machine and assembly languages, other programming languages have all but disappeared.

COBOL programming template used in the 1970s.

This COBOL program was used to calculate sales commissions on an old mainframe computer.

Some of the dead and dying computer languages are:

Ada
ALGOL
APL
BASIC
Forth
FORTRAN
LISP
LOGO
Pascal
PL/I
Prolog

Before educational software, reading students used filmstrip machines like this to improve reading speed and comprehension.