

The Evolution of Television

From Spinning Discs To Glowing Crystals

by Suzanne Cushman,
The Bohle Company

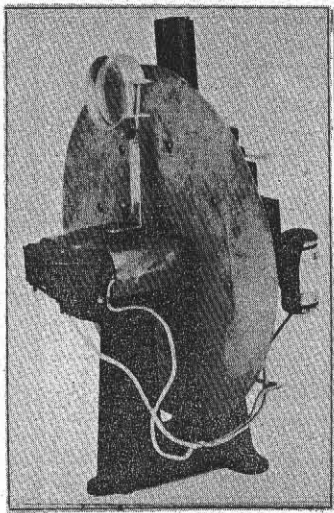
Although TV is often considered a modern phenomenon, today's sets trace their roots back to the 1920's and 1930's when TV's were usually sold as kits to be assembled on the kitchen table. It was a period known as TV's mechanical era because TV sets produced pictures by purely mechanical means.

With the introduction of the cathode ray (picture) tube in the late 1930's, the pre-World War II electronic era was initiated. The advanced technology developed during World War II created a third era, the post war electronic era. The Epson Elf represents the latest development in the fourth period, the first color flat screen LCD TV.

Just how far TV technology has progressed is exemplified by the 1928 Insuline Corporation of America kit from the mechanical era. The kit sold for \$37.50 and according to its advertising could be assembled in 15 minutes. The final product looked suspiciously like an electric fan!

In those days TV viewers, or "lookers-in" as they were called, were mostly electronics buffs and tinkerers. Sets of this era produced pictures by a combination of a spinning wheel with holes in it and glowing lights behind the wheel. Light flashing through holes in the spinning wheel produced an image.

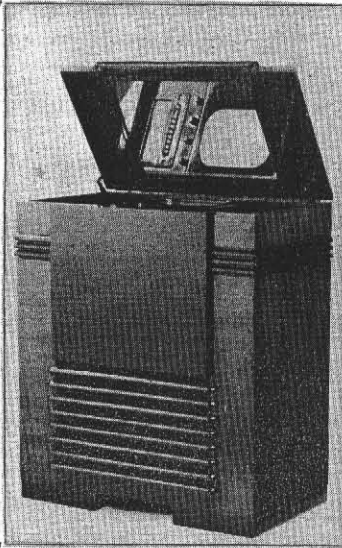
All sets of this time were television attachments for radios, called "radio-visor." In those infant



**MECHANICAL ERA, See-All
Telesvisor, 14"x12"x9", 1931**

days of TV, radio stations provided what few television broadcasts there were, transmitting the picture and sound portions separately.

Television made a great leap forward in the late 1930's when the first all-electronic sets hit the market. The first electronic sets were sold to the public in mid-1938, followed in December 1938 by the first factory assembled kit, the Dumont Model 180, a table top set with an 8 x 10-inch screen, which was one of the largest screen sizes offered to the public during the pre-war era.



**PRE-WAR ELECTRONIC ERA, RCA
TRK-12, 39"x34.5"x20", 1939**

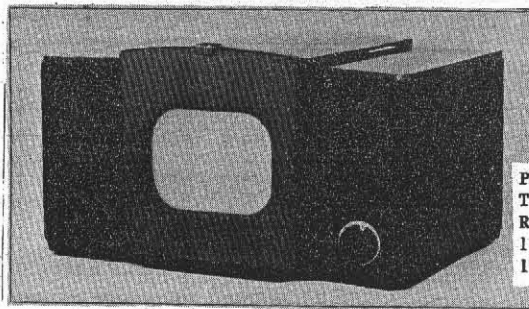
Viewing in those pre-war days was still very limited compared to today's era of constant programming.

"People were so fascinated by television that department store demonstrations caused near riots," says TV collector Arnold Chase of Hartford, Connecticut. "Often there was nothing to watch but test patterns, but people would watch them for hours."

Many viewers were purchasing attachments to be used with special "television-ready" radios.

"They viewed television as an accessory for radios," Chase explains. "And, in fact, television sets for the most part were featured as radio-television combinations. The first real hint of what television might become was at the New York World's Fair in 1939, when RCA exhibited its line of TV's following the start of daily public broadcasts and actually placed four models on sale."

Only 5,000 TV's were produced by over a dozen



**POST-WAR ELECTRONIC ERA,
RCA 630-TS,
13"x25"x18",
1946**

manufacturers between 1938 and 1941, including kits and radio attachments.

World War II intervened shortly after the World's Fair and interrupted television's progress. But the interruption turned out to be both the best and worst of fates for TV. On the one hand, development of TV's for the public virtually stopped. On the other hand, rapid advances during the war in radar and other branches of electronics set the stage for the next and, up until then, the greatest era in TV's evolution.

It was the post-war electronic era, ushered in by RCA in 1946 with its Model 630TS, known as the "Model T of the television industry." The 630TS was the first mass-produced television set. Priced at \$350, it featured a 10-inch picture tube, 13 channels and highly improved reception.

RCA was the only company producing TV's when it introduced the 630TS, but the new set caught on so quickly that more than 100 companies had entered the field a year later. Sales climbed to 50,000 by mid-1947 and more than 150,000 by the end of the year.

In what would be known today as "an industry shake-out," the number of companies dropped to a few dozen at the end of 1948. But sales figures rose to four million in 1949 and 10 million in 1950.

The post-war electronics era has also been responsible for some of the least successful and most bizarre television sets. CBS/Columbia, for example, introduced the first color set available to the public with its Columbia 12CC2 in 1951. The set relied on an internal spinning wheel to generate colors.

Unlike today's "compatible" color system, the CBS system's color broadcast could only be received by the handful of color sets sold. The millions of black and white sets in use at the time were unable to receive color shows as they do today. After a few disappointing months of sales, production of the sets stop-

ped, as did the color broadcasts. The sets that had been sold were reportedly recalled and destroyed. Only two known sets survived.

Another distinguishing failure was the Col-R-Te Adapter of 1955. It enabled a black and white set to receive broadcasts in full color through addition of a spinning wheel much like that of the unsuccessful Columbia set. Some viewer said the huge, loud spinning wheel was more entertaining than some of the TV programs, and the set sold poorly. The manufacturer Color Converter, Inc., went out of business after year.

One of the oddest looking sets was the Phil Predicta of 1958, which looked like a water cooler with a detached picture tube perched on top of a short pole neck. The Predicta played well and was considered by many to be technically superior to other TV's of the time, but the public didn't accept its peculiar appearance so the set was taken off the market.

Variations since the have included hosts of changes in the styling of accessories of television TV's have been combined with stereos, AM-FM radios, videotape recorders and other accoutrements; the have been built smaller for portability and larger for mass viewing.

Chase considers the first flat-screen color TV with its advanced LCD technology, to be a breakthrough.

Whereas conventional sets rely on the bulk cathode ray tube to create an image, the Epson Elf uses a wafer-thin panel of liquid crystals sandwiched between glass.

To create the set, Epson engineers had to develop both a new type of liquid crystals that would receive color broadcasts and a process for incorporating thin film transistor (TFT's) into the same panel with the liquid crystals. The glowing liquid crystal of the Epson Elf produces sharp color image on a se-

THE EVOLUTION OF TV



LCD ERA, Epson Rlf, 3.15x6.3x1.22, 1984

over an inch thick -- using considerably less electrical power than is required by a cathode ray

"Flat-screen sets have the dream of television viewers, who for decades wanted to escape from bulky size and large power requirements of older ray tubes," Chase. "This new LCD technology is the answer to their needs."

ANOTHER SECURE INSTALLATION

One of our readers has reported an interesting incident which we shall relate as told to us.

In rural New Kent County, Virginia, about 20 miles east of Richmond, the Norfolk Railroad crosses Pamunkey River (which meets the York River downstream).

A historical site known as the White House marks a station which is the birthplace of Martha Washington. Later on the same day, General George B. Meade repelled the British Army en route to Richmond.

Now, the expense is reduced with an array of antennas and closely guarded security personnel. A clearly advised, "Propaganda of U.S. Government--no passing."

Our intrepid reporter attempted to take some snapshots of the installation but was abruptly halted by armed guard demanding the camera and its operator should depart immediately from the premises or be explaining to a local judge why he was arrested in taking photos of government installation.

Any of our readers know the identity and use of this intriguing site?

AIRFONE: Disconnected

There is a mad scramble among investors to get a piece of the emerging 800 MHz band. One fortune hunter was Airfone, whose air-to-ground payphone looked like a sure thing until the FCC announced very recently that the system was a luxury, not a necessity.

Airfone may continue to use the system in keeping with their experimental license on board those airlines on which it has been installed for the remainder of their one-year license.

With a multimillion dollar investment, Airfone is expected to push for the service but it would appear that the 800 MHz airline pay telephone service has been grounded.



AIRFONE: No more smiles across the miles.

SWL HEADQUARTERS

NATIONS LEADING SHORTWAVE EQUIPMENT SUPPLIER

ICOM R71A SPECIAL

EEB IS ICOM'S #1 RECEIVER DEALER AND THERE'S GOOD REASON

- EEB does 100% QC, including 24 hour bench test and complete alignment.
- EEB offers more options and modifications to tailor your receiver to your needs.
- EEB's skilled technicians know the R71A inside and out, and offer many optional improvements.
- EEB doubles your warranty, 90 days ICOM/90 days EEB, so you are covered a full 6 months!
- EEB is an authorized ICOM Service center. We take better care of you.



AS LOW AS \$659 list \$799

- 100KHz-30MHz
- Keyboard Entry
- 32 Memories
- Memory Back-Up
- Scanning Frequencies & Memories
- Passband & Notch Tuning
- Wide Dynamic Range

Add \$7.00 UPS

OPTIONS

- CK-70 12 Volt DC Kit \$9.95
- CR-64 High Stability Osc. \$56.00
- EX-310 Voice Synthesizer \$39.95
- EX-257 FM Unit (10K Hz) \$36.00
- FL-32 CW filter 300KHz 9MHz \$59.50
- FL-46 2.4KHz 45KHz SSB Crystal Filter \$150.00
- FL-63 CW filter 250Hz 9MHz \$48.50
- RC-11 Remote Control \$59.95

INSTALLATION... options can be installed by a skilled user/owner. EEB will do it for you!

- 1-3 options \$35
- 4 and up \$45

EEB OPTIONS INSTALLED

- Mechanical 2.4KHz filter--replaces stock ceramic filter--improves SSB. ECSS, AM narrow selectivity. \$95
- Front end upgrade--improves dynamic range (plus) pre-amp enable below 1600KHz. \$35
- 4KHz filter replaces stock 6KHz wide filter. Improves AM selectivity. \$50
- ICOM ICR71A with full EEB service. Factory and extended warranty tested and aligned. \$699
- ICOM ICR71A with full factory warranty but without EEB's extra service/no installed options. \$659

KENWOOD R-2000



- 100 KHz to 30 MHz
- All mode AM-CW-SSB-FM
- 10 memories (memorizes mode)
- Memory backup
- Memory scan
- Programmable band scan
- 24-hour clock-timer
- VC-10 VHF converter 118-174 MHz \$139

Sale \$499 List \$599.95

- R-2000 \$589.95 SALE \$499
- R-1000 \$499.95 SALE \$429
- R-600 \$399.95 SALE \$329

ADD \$6.50 UPS

YAESU FRG-7700



Sale \$399

- 150 KHz-30MHz
- All mode AM-CW-SSB-FM
- Digital frequency and clock

SPECIAL PACKAGE DEAL \$799 MU707 FRA7100 \$499

- Options:
- FRA-7700 active antenna \$59
- MU-7700 12 channel memory \$135
- FRF-7700 antenna tuner \$59
- FF-5 VLF low pass filter \$20
- DC-7700 12 VDC kit \$8
- FRV-7700 VHF converter \$135

ADD \$6.50 UPS

G.E. WORLD MONITOR



Sale \$169 List \$229.95 (\$4.00 UPS)

- Digital readout, wide and narrow selectivity BFO for SSB & CW.
- 3.5-31 MHz SW/MW/FM
- 120V/220V or battery

PANASONIC RF-B600



Sale \$429 List \$595 (\$6.00 UPS)

- 1.6 to 30 MHz, FM/LW/MW/SW
- Micro computer multi tuning system
- 9 memory stations, scan
- Slow Fast rotary tuning
- 10 key direct access tuning
- Universal voltage

- RF-9 \$399.95 SALE \$289.00
- RF-B50 \$159.95 SALE \$129.00
- RF-685 CLOSE OUT \$49.95
- RF-B300 \$249.95 SALE \$209
- RF-B100 \$379.95 SALE \$279

ADD \$4.00 UPS

UNIDEN CR 2021

Sale \$149.95 List \$229.00



- Uniden's Worldwide Radio is among the finest multi-purpose available anywhere. It features a triple conversion receiver that precisely locates weak, distant signals automatically. It locks the precise stations in for perfect reception.
- 12 Channel Programmable Memory
- Dual Power AC or DC
- Micro-processor
- Triple Conversion Receiver
- Keyboard Channel Selector
- LCD Readout
- Preset Channels \$4.00 UPS.

SONY ICF-2002

Introductory Special \$229 List \$249.95

- Features: Ten memory channels • 12/24 hour quartz clock/PLL tuning for drift free performance • Dual conversion Super-heterodyne for high sensitivity • SSB/CW

- ICR-4800 \$99.95 SALE \$69.95
- ICF-6500W \$199.95 SALE \$99.95
- ICF-8800W \$699.95 SALE \$549
- ICF-7600A \$169.95 SALE \$139

ADD \$4.00 UPS

NEW From SONY AN-1 WORLD BAND ANTENNA

- Telescoping 59" stainless steel whip
- 100KHz to 30MHz
- Antenna coupler and special induction module supplied
- Control module features attenuator, frequency selector, and battery power

EEB tests indicate AN-1 to work as well as other antennas costing twice as much and less susceptible to overload from strong signals.

- Optional AC adapter AC-160 \$14.95
- EEB AC Adapter 9.95
- Add \$9.50 UPS

FREE CATALOG

EEB We ship worldwide • Shipping charges not included • Prices & specifications subject to change without notice • Canadian Orders: VISA, MC or POSTAL MAIL ORDERS ONLY

VISA 10 Miles West of Washington, D.C. • Sales • No COD'S • 10 24 hrs. • Mon-Fri 10-9 Thursdays 10-4 Saturdays • Closed Sundays and Mondays

Electronic Equipment Bank 516 Mill Street N.E. Vienna, Virginia 22180 • **Order Toll Free 800-368-3270** Virginia 703-938-3350

EEB

www.monitoringtimes.com