

# POPULAR SCIENCE

MONTHLY

MECHANICS - AUTOS - HOMEBUILDING

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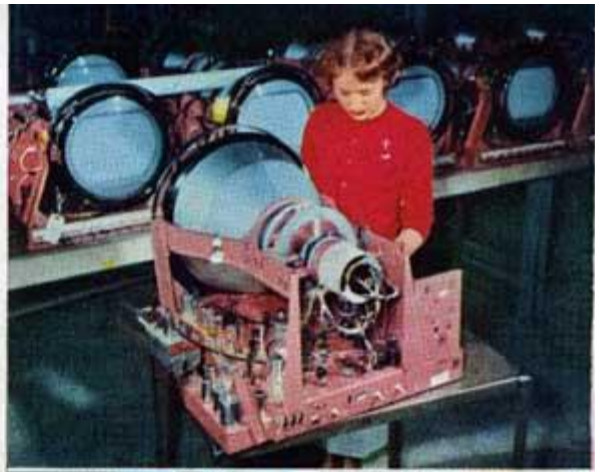
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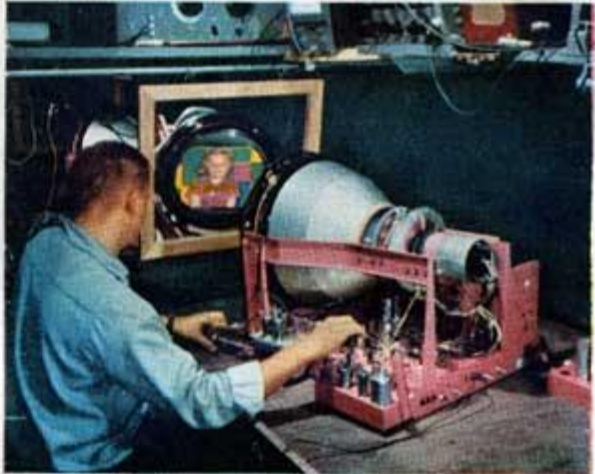


## He Rides a Kite

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*From horse opera to Carmen, color TV has already run the gamut of video entertainment. NBC has done regular color shows one at a time, while CBS has concentrated on a weekly variety program. More ambitious schedules are in the works.*



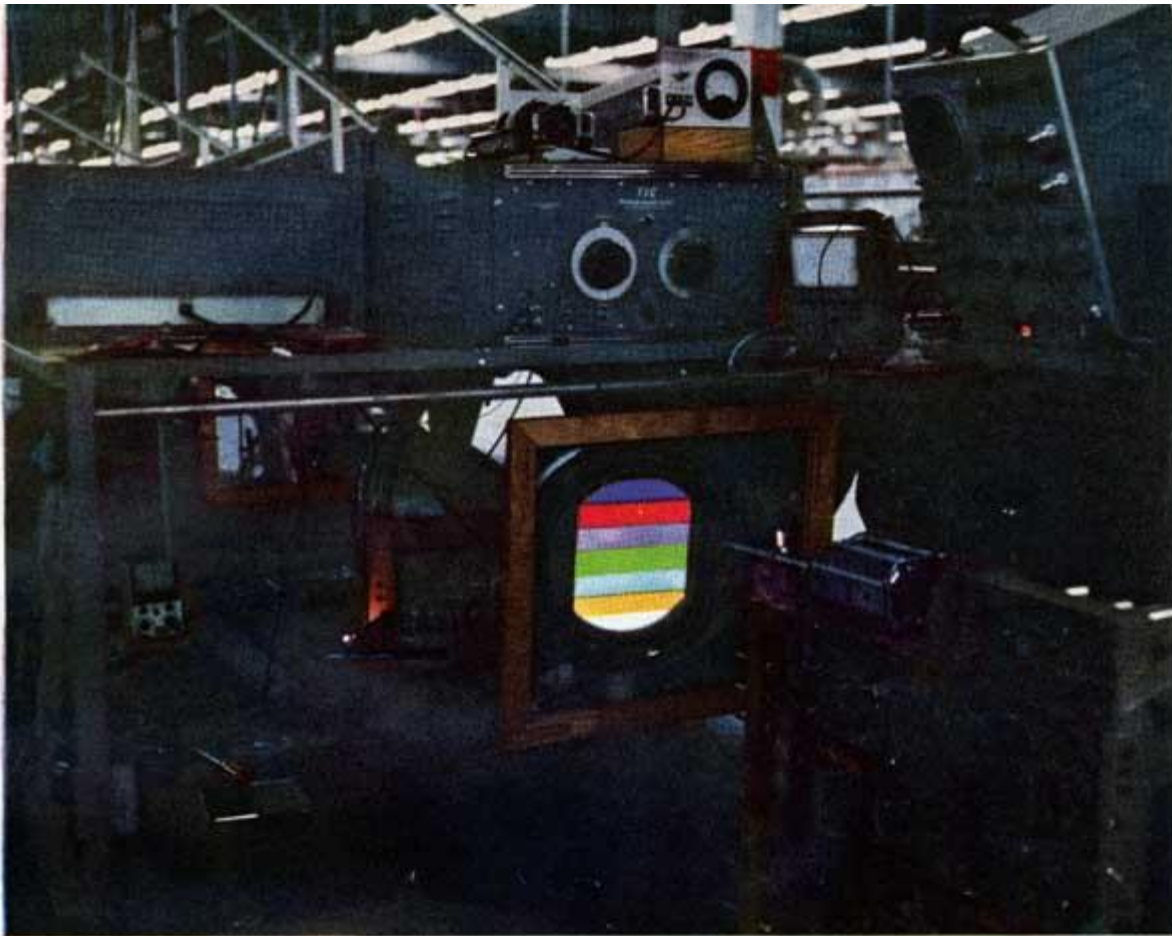
**COLOR SETS** are in the stores now but are still costly (around \$1,000). They must be care-



*Jabberwocky? No, these are just the*

**ABC's**





fully checked, as shown at left above in Westinghouse's Metuchen, N. J., factory.

Vertical-bar test pattern shows up horizontal (above) because receiver is on its side.

# of Color Television

*You, too, can tell a matrix from a killer with this glossary of the strange jargon that color TV is adding to our language.*

**By Martin Mann**

**G**HOST, snow and channel do not necessarily refer, anymore, to the supernatural, precipitation or waterways. Television has given these words new meanings. And more such changes in our language are coming, for color TV brings its own lively jargon. Some are new words, others just new meanings. But all are fun to know—and help show

how this latest miracle of electronic entertainment is achieved.

**Additive:** Colors are created on a television screen by *adding* together different proportions of primary-colored lights. Red light plus green light gives yellow, for example. The lights are tiny dots of glowing colored phosphors on the face of the tube. This additive method is the opposite of the *subtractive* one used on

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### **ABC's of Color Television**

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magazine covers. There, pigments subtract various parts from white light to create the desired shade.

**Back porch:** Part of the color TV wave that carries the color sync signal, which synchronizes receivers with the transmitter.

**Chroma control:** The knob that lets you adjust the vividness, or saturation, of the color picture. It doesn't alter the actual brightness of the image, or change colors, but will vary the intensity from pale pastels to deep shades.

**Decoder:** The primary-colored lights on the viewing screen that create the color image are controlled by primary-colored signals (red, green and blue). These, however, are not transmitted as such in the color TV wave. Instead they are scrambled into a code. It is the job of the decoder circuits in the receiver to unscramble the wave into the red, green and blue signals that the picture tube needs.

**Electron gun:** The phosphors on a viewing screen glow when struck by electrons, which come from a gun located at the other end of the picture tube.

**Frequency interlace:** The color TV wave carries about twice the load—information—that the black-and-white wave has. Yet it must fit into the same radio space—band width. This is accomplished by frequency interlace: the color signals are interleaved into spaces left empty in a black-and-white wave.

**Green video voltage:** The signal coming from the green camera tube or going to the green gun in the viewing tube. It corresponds to the green part of the picture.

**Hue control:** A receiver knob that helps keep red red, green green, and so on. It sets only the basic color and does not affect shading or brightness.

**I signal:** One of the three signals in the color-television wave as it is actually transmitted through the air. It is a code

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made by mixing certain proportions of the red, green and blue signals from the camera. It contains information needed to reproduce colors ranging from bluish green to orange.

**Jack:** Socket on electronic equipment for plugging in test instruments or accessories.

**Killer:** Color sets can also receive black-and-white shows, but to do so properly their color circuits must be switched off. The killer tube does this automatically, being triggered when the incoming wave lacks a color sync signal.

**Luminance:** Technical term for brightness—how light or dark (not how pale or deep in color) the picture is.

**Matrix:** A circuit in the camera that mixes the red, green and blue signals from the camera tubes to create the I, Q and Y code signals to be sent through the air. A similar matrix in the receiver unscrambles the I, Q and Y signals back into the red, green and blue signals for the viewing tube.

**NTSC:** National Television System Committee, the electronics-industry group that worked out and gave its name to the present color-television standards.

**Oscillator, subcarrier:** A precisely controlled circuit in the receiver that governs the handling of the color signals.

**Purity coils:** Electromagnets on the color-picture tube that keep the three electron beams aimed correctly. Even a slight misalignment would cause the beams to hit the wrong color phosphor dots on the viewing screen, since these are very tiny and very close together. The result might be a green sky and red grass.

**Q signal:** One of the three signals in the color television wave as sent through the air. It is a mixture of the red, green and blue signals from the camera and contains information needed to reproduce yellowish green to purple.

**Red video voltage:** The signal coming from the red camera tube or going to

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the red gun of the receiver picture tube. It corresponds to the red part of the image.

**Saturation:** Technical term for vividness of a color—scarlet is more saturated than pink, for example, although both are the same *hue* (red) and could be the same brightness. The chroma control on the color receiver adjusts saturation.

**Three-gun tube:** Most of the color picture tubes now being made have three electron guns, one for each primary color. Single-gun tubes are also being developed.

**UHF:** A band of TV frequencies, recently authorized, with 70 channels and ranging from 470 to 890 megacycles.

**VHF:** A band of television frequencies, in use since 1946, containing channels 2 through 13 and ranging from 54 to 216 megacycles.

**White level:** Part of the television wave that limits the "whitest" white the picture can reproduce. The black level sets a similar limit to the "blackest" black.

**XMTR:** Abbreviation for transmitter.

**Y signal:** One of the three signals in the color-television wave as sent through the air. It is a mixture of the red, green and blue camera signals, but so proportioned that it contains brightness information rather than color information. It is almost identical to the standard black-and-white TV signal. When ordinary black-and-white receivers are tuned to a color telecast, they use the Y signal (disregarding the I and Q signals) to reproduce an excellent black-and-white image of the color picture. This is what makes the system compatible.

**Zero reference:** A point from which measurements are made. The color sync signal, for example, is zero reference for setting the I and Q signals. END