MILWAUKEE SCHOOL OF ENGINEERING

Radio and Television services

1025 North Milwaukee Street, Milwaukee 1, Wisconsin

1961-1962 SOUNDS OF ENGINEERING SCIENCE - WISN and MSOE RADIO PROGRAM

Saturday, 12:25 and 8:25 p.m., Sunday, 8:25 p.m.

PROGRAM #6 - October 28-29, THE STORY BEHIND COLOR TV - William C. Winn

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(15 seconds musical introduction)

LAMBERT: (Introduces the guest as Mr. William C. Winn, an instructor in the Department of Electrical Engineering at the Milwaukee School of Engineering. The subject of today's discussion is COLOR TELEVISION.)

Mr. Winn, would you please explain the electronic process of transmitting color to our television sets?

WINN: Since color comes to us in the form of light, let me establish a foundation for this discussion by pointing out the theory of light and vision. You see, light is a form of energy which travels through the air in the form of light waves. They are picked up by the human eye and relayed to our brain by our nerve system. And it is here---in the brain---where the sensation of light is produced. Since all light waves have different characteristics, it is the quality of the light which helps our brain distinguish colors.

LAMBERT: Just what is it that determines the difference in light waves? That is, what makes one object appear blue and another white?

WINN: The color of an object is determined by the light waves it reflects. Take a tulip, for example. If a tulip reflects only the red light waves and absorbs the others, it will appear red. If it reflects the blue light waves and absorbs the others, it will appear blue. Now, if an object, like a shirt, reflects all light waves, it will be white... on the other hand, if it absorbs all the colors, it will be black.

LAMBERT: Now what about color TV?

WINN: Well, Tom, the most important piece of equipment in televising a show in color is the camera itself. The color TV camera is actually three cameras in one. That is, one unit contains a red filter to admit only red light...another has a green filter to admit only green light... and a third has a blue filter to admit only blue light. The transmitter sends these three colors to the receiver in your home where they are picked up by thousands of tiny dots on your screen. When the transmitter sends a red signal to your home, the red dots on your screen light up and you see red. When the transmitter sends a blue signal, the blue dots on your screen light up and you see blue...and so on down the line. I'd like to point out here that all colors you see on TV are a mixture of red, blue and green. These are the only three color signals sent to your receiver.

LAMBERT: What is the biggest problem involved in transmitting color?

WINN: Technically, it's the problem of superimposing the red, green and blue pictures directly over each other so that one picture is produced from the three different TV cameras. But actually this problem has been resolved by recent engineering developments. Actually, one of the biggest drawbacks to color TV today is its high cost. The reason why color TV sets are so much more expensive than black and white is because the picture tube required is actually three black and white tubes combined. However, mass production should soon bring down the prices.

LAMBERT: What is the most common problem experienced by owners of color TV sets?

WINN: Receiving unnatural color. It can be very frustrating when a beautiful blond appears on the screen as a green monster. The best thing we can do when this happens is to keep our hands off the controls. Sometimes the fault may be in the transmission of the picture...and constant meddling with the controls could lead to trouble. To anyone purchasing a color set, I suggest they decide in advance where the set will be used so it won't have to be moved. When the set is moved from one side of the room to another, it may be necessary to have a serviceman readjust it.

LAMBERT: (CLOSING)