

CBS MAKES LIVE PICK-UP IN COLOR TELEVISION



"Engineers'-eye view" of CBS studio during a color television program. This shows rear of apparatus. Insert is front view of equipment, as seen by person being televised.



Upper left—the color filter drum which forms the heart of the CBS television scanner. Upper right—the drum in position around the orthicon. Lower left—control bench. Center—the amplifier rack, with CR tube for monitoring programs. Lower right—the film scanner for color television. Note: The receiver looks just like any black and white receiver from the outside, but inside there is a color filter wheel about twice the diameter of the viewing screen. This was described in a previous issue of RADIO & TELEVISION.

The first public showing of color television in which the program material consisted of *direct pick-ups* using the CBS system designed by Dr. Peter C. Goldmark, the company's chief television engineer, was made for the New York convention of the Institute of Radio Engineers. The transmitter was located on the fifth floor of the CBS building and the images were trans-

mitted by co-axial cable across the street to the basement of another Columbia building. Three receivers were used—a special large table model with a built-in Goldmark color wheel, a standard console model with the wheel installed as an accessory, and a standard black and white model. A 9-inch C.-R. tube was used in each set.

As standard black-and-white pick-ups generally require illumination of 800 to 1200 foot-candles on the subject, some television engineers believed that so much heat would be generated in providing enough light for color television that actors would find it unbearable. Nevertheless, it was stated by persons in charge of the demonstration that the illumination used for the color transmission ranged only from *110 to 200 foot-candles*. This was explained as being made possible by the use of an orthicon tube. Specially sensitive orthicons, to require even less light, are in the process of development, according to CBS informants.

The specially designed and constructed table model receiver incorporates two important features not previously demonstrated to the public. The first of these is a method of synchronizing the color disk in the receiver with the color disk in the studio by the synchronizing impulses ordinarily transmitted. This means it is no longer necessary to rely upon 60-cycle current for synchronizing the disks, and permits reception of color pictures when a receiver and transmitter operate from different power supplies.

This receiver also has a simple method of phasing the color disk so that the colors shown at the receiver can be "locked" to the colors being picked up. The viewer at home has only to push a button on the cabinet's side until the picture appears in

were developed in the Columbia Broadcasting System television laboratories.

The demonstration showed substantial progress along new fronts such as: direct pick-up itself; synchronization of color disks; phasing of color disks, and new lighting methods for color television.

Among the material televised was a test chart, maps and globes of the world, fabrics, sheer stockings, confetti, a pair of gloves (1 green and 1 lavender glove were worn by the model—the fact that they did not match could not be observed on the black and white image tube), an ink chart, an experiment in dyeing, a magician's trick in which silks changed colors as they were drawn through the performer's hand, a kitchen scene with a salad being mixed, and a girl's head. Various color effects were introduced on the latter.

In conclusion Dr. Goldmark stated: "The results, thus far, in all phases of color television are most encouraging and it would appear that an answer has been found to every fundamental problem. From now on, I think, we can progress steadily, even if we have nothing more than straightforward engineering effort looking toward commercial application. Today color television is in the laboratory, but with the co-operation of the industry, I do not think it will be there long."