

July 14, 2006

To: John Elbert

From: William Brookshier

John, I appreciate your interest and concern about identifying the color TV projection system described on the web site www.earlytelevision.org as the one I assembled in the mid-50's. If the ownership can be traced back to Garry Hicks then it surely is mine. I have enclosed the only two photographs I have of the system, taken in 1963.

I have also included a copy of the circuit diagrams and service information--35 plus pages. This should provide definite proof whether it is or is not the same system to anyone willing to compare the tube lineups and other details against these circuit diagrams.

In case anyone is interested, here is some background information about my system.

In the early 50's the largest available size for a black and white TV set was about 16 inches. Sometime between 1950 and 1955 North American Phillips brought to market a system that produced a high quality projected black and white image up to about 4 feet in size. It was not a complete system. Their unit was contained in a decorative wood cabinet measuring 26W x 20D x 23H, and contained a 3NP4 projection crt, optical system, and a small amount of electronics. It was necessary for the consumer to place a conventional TV set on top of this cabinet and have it interconnected with a dozen or so connections by a suitably talented technician. The TV set supplied the signals to the magnetic deflection coils of the 3NP4, and a video signal. A switch on the front allowed the user to switch between the projection system and direct viewing of the TV set.

At that time the 16 inch TV's were priced at about \$200. For another \$200, the price of the projection add-on system, the consumer could jump up from 16 inches to about 48 inches.

The projection system was not a commercial success. By 1955 these projection systems were being offered as surplus items for \$50--by Allied Radio if my memory is correct. Since color was in its infancy at that time, the thought of using three of these units with color filters to produce a projected color picture was likely to occur to anyone interested in TV.

In 1955 I started to assemble the system in a basement workshop. By 1957 most of the major bugs had been worked out, and the system was transferred to the living room and put into use. I continued to make minor changes and improvements over the next 10 years.

The low brightness level of the projected image required the room to be almost completely darkened. Initially the projection screen was just a surface painted in flat white. It was then replaced with a lenticular screen intended for home movie use, that conserved the reflected light by a suitably shaped reflection pattern. Unfortunately that produced a picture that was much brighter at the top of the screen than at the bottom, when viewed from a normal viewing height. The lenticular screen material was then cut into narrow horizontal strips and glued into position with wedge-shaped supports that tilted the reflection lobes upward from the screen bottom. The angle of the wedge supports tapered from an initial value of a few degrees at screen bottom to zero at the top. This special screen did increase the brightness level significantly, but there was still a need for a further increase.

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During the quest for increased brightness, I saw an article in an electronics trade magazine indicating that North American Phillips had manufactured some 3NP- projection CRT's with individual color phosphors instead of the standard P4 white phosphor. The use of such phosphors in lieu of color filters in front of the P4 phosphors would undoubtedly have increased the brightness level greatly. They must have been considering the production of a similar color projection system. If so, they wisely decided against it. The difficulty of correcting the three projected images for keystone distortion and converging them--and keeping them converged--constituted a strong argument, among many others, against commercial practicality.

I made a number of inquiries to see if I could obtain these special projection CRT's. I was told by several sales reps that no such creatures ever existed--while I was looking at a photograph that showed them in the trade magazine article. I finally wrote to the president of North American Phillips. In his curt response he admitted that such CRT's had been manufactured, but were no longer available. That ended that quest.

If the system is mine, it would be nice to have my name mentioned, and the fact that that I was an Electronics Engineer in the Electronics Division at Argonne at the time. I see no need to include any further personal information. Again I thank you for your interest. You have my phone number if there are any more questions.

William K. Brooks