

## MEASURING YOUR COLOR VISION WITH A GLENN COLORULE

MARY W. BALLARD

**ABSTRACT** – An informal survey of the color vision of the attendees of the Textiles Specialty Group Session in 2012 produced a well grouped cohort that compares favorably with other independent and more formal studies. The purpose of this poster was to alert colleagues to the possibility of color change due to age and due to alteration of the lens of the eye.

**RESUMEN** – Un estudio informal de la visión cromática de los asistentes a la Sesión Grupal Especial de Textiles de 2012 mostró una cohorte bien agrupada que se compara favorablemente con otros estudios independientes y más formales. El propósito de este póster fue alertar a los colegas sobre la posibilidad del cambio cromático ocasionado por la edad y por la alteración de las lentes oculares.

There are four components to color measurement, whether by eye or by equipment: a light source; an object upon which the light shines; a detector (eye or machine), which collects the wavelengths reflected by the object; and an evaluator (brain or meter), which processes the stimuli from the detector. Visual color matching is oftentimes efficient and effective. However, not everyone see colors the same way, even with the same light source, even with the object at the same angle. While we know to correct against the shortcomings of our visual acuity with glasses or contact lenses, our perception of color often changes with age unnoticed and unmonitored: the lens of the eye tends to yellow as we grow older. Generally the 18-30 year cohort falls in closer agreement than the 20-60 year age group (Billmeyer and Saltzman 1981 cite the definitive comparison of their data Billmeyer and Saltzman 1980 by Naldi, 1980). Men tend to have more yellowing sooner than women.

These differences make color matching difficult to effectuate and they were an impetus to develop objective instrumental measurement for industrial dyeing and apparel manufacture. Yet visual color matching remains the primary means of color measurement for textile conservation repairs of embroidery, tapestry, and other types of fine work. A vintage Glenn colorule (stored in the dark for many years) was brought to the AIC 41<sup>st</sup> Annual Meeting Textile Specialty Group session in Albuquerque, NM. The Glenn colorule is a slide rule with metameric matches that closely match one another at a certain point depending upon the light source. Keeping the light source and the angle of the colorule constant, participants measured their eyes and saw how their eyes compared to those of their colleagues. The results are replicated in Table 1.

Colleagues over 30 used pink chits, those under 30 used green, though no one was monitored or ask to show proof of age. The values are closely clustered and reflect well on the group's eyesight as a whole. Because this survey was carried out informally it is not clear whether the outliers did not understand the protocol, turned sideways and distorted the light falling on the colorule, or actually have a deteriorating condition. In the past, this procedure has detected the future need for cataract surgery. In the present circumstance, one or two conservators had already had cataract surgery, so that their chronological eye age was reset to 'below thirty.'

The Glenn Colorule and the Davidson & Hemmendinger colorules are no longer manufactured. A Farnsworth-Munsell 100 Hue Test kit is available through SDLAtlas ([www.sdlatlas.com](http://www.sdlatlas.com)) to test for color vision and color aptitude but it does not have the direct comparison of the slide rule format.

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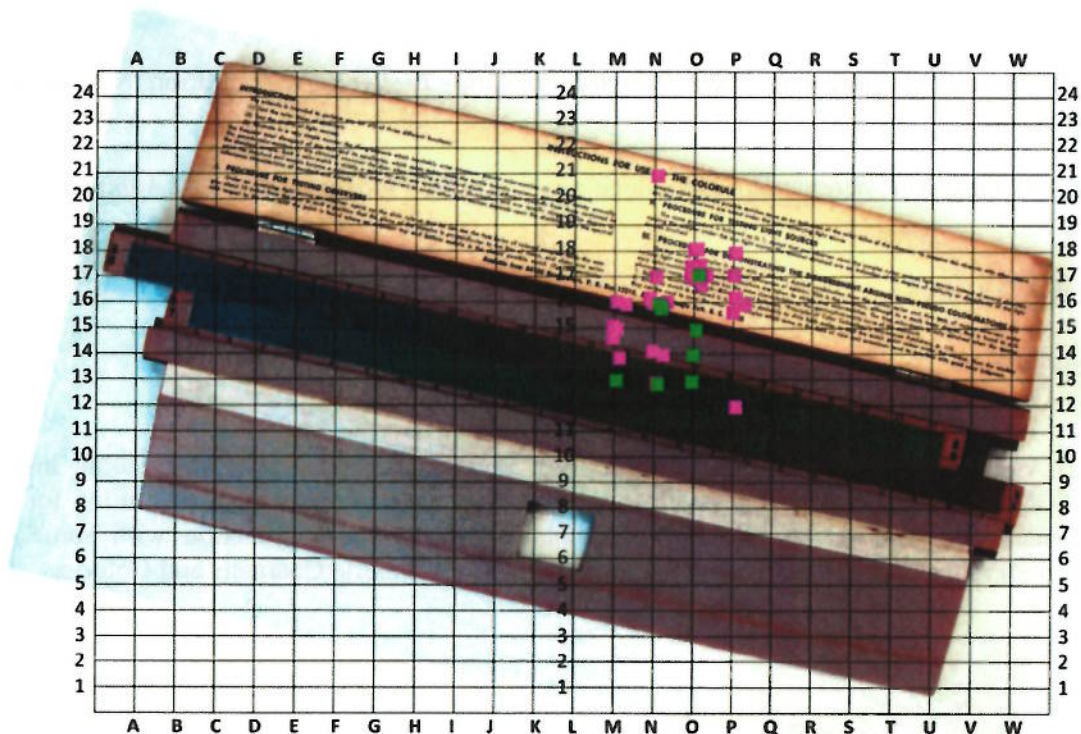


Table 1: Results of Informal Vision Measurement at the Textiles Specialty Group Session, American Institute for Conservation, 2011. Pink values are by 'over 30' and Green, for those 'under 30' years old. An actual Glenn colorule is seen in the background.

### NOTES

Values for Table 1:

Pink: 12P, 1 person; 13N, 1; 14M, 1; 14N, 2people; 15M, 3people; 16M, 2; 16N, 3; 16P, 3; 17N, 1; 17O,4 people; 17P, 1; 18O, 3 people; 18P, 2 people; and 21N, 1 person.

Green: 13N, 1 person; 14 M, 1; 14N, 1; 14O, 1; 15O, 1 person; 16N, 2 people; 17.5O, 1 person.

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### SOURCES OF MATERIAL

The Glenn colorule is no longer manufactured.

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