

THE HUMAN EYES ARE COLOR BLIND AT NIGHT: TWO VIEWS OF THE MILKY WAY

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The photoreceptors neurons in the retina comprise rods and cones. They are capable of transforming light stimulus into a nerve impulse, which subsequently conducted by the optic nerve to the occipital cortex. The rods function only in dim light and are not sensitive to colour whereas the cones respond well to bright light and are sensitive to colour.

The macula is responsible for best visual acuity and for colour vision; most of its photoreceptors are cones. Rods are absent at the centre of the macula, it is situated more at the peripheral and the primary function of the rods is for peripheral and night vision.¹

This night vision is primarily mediated by the rods, in which varying degrees of gray are seen but unable to distinguish the color spectrum, therefore most of the dim objects

appear as monochrome. It is also important to note that looking at a dim object with direct vision will resulting in central blind spot at night because the central part of the macula is absent of rods.² At night if one were to gaze at the sky, the dim celestial objects such as distance stars, Milky Way and galaxies appears as monochrome. (Figure 1) The actual colour of the sky can be recorded using colour sensor device such as a digital colour imager. (Figure 2) Therefore our retina is actually colour blind under dim light especially at night.

REFERENCES

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Figure 1: The summer Milky Way through naked eyes Figure 2: The summer Milky Way photographed using Canon Digital SLR 300D (exposure 60s).