An inherited anomaly

Dalton observed similar colour deficiency in up to 20 family members and friends, including his brother. Colour blindness only seemed to occur in males, the first clue of a sex-linked inheritance.

Post-mortem

Dalton proposed the distortion of colour was due to a blue-tinted vitreous.1 His foresight to preserve his own eyes following his death resulted in his theory being disproven. Post-mortem examination by his assistant, Joseph Ransome, found his vitreous to be perfectly clear.2 Ransome left the other eye intact, removed the posterior pole and observed that red or green objects were not distorted when viewed through the eye. Ransome proposed Dalton's colour blindness arose from a cortical defect.

DNA from a shrivelled eye has the right gene

Dalton's eyes remained preserved until samples were taken in 1995 for DNA analysis. PCR showed that Dalton lacked the middle wave length (530 nm) cone opsin gene, corresponding to deuteranopia and matching his historical descriptions of colour defect.5

References