

# RANZCO Museum



The original Gullstrand slitlamp used by Ida Mann in her Bunbury practice in Western Australia has been restored and is on display in the Ida Mann room at the RANZCO offices in Sydney.

RANZCO Past President Dr Andrew Stewart took over Ida Mann's practice and donated the slitlamp to the RANZCO Museum.

*This photo was taken at the Inauguration of Ophthalmic Research Institute of Australia (1954).*

*FRONT ROW: Walter Lockhart Gibson, John Pockley, Dame Ida Mann, Archie Anderson, Arthur Joyce, AL Tostevin.*

*BACK ROW: Hugh Ryan, Kelvin Ledgett, Ron Lowe, Bruce Hamilton, W Deane-Butcher, Sir Norman Gregg.*

## DAME IDA MANN -1893-1983

Graduating in medicine, Ida Mann subsequently published a DSc thesis on the development of the human eye. This was soon followed by congenital defects of the eye in 1937. Both of these publications were trail blazing and definitive texts of embryology.

Ida's wide interests included comparative anatomy. She established the first contact lens clinic in London prior to the First World War and researched mustard gas keratitis and thyroid eye disease.

Appointed as Assistant Surgeon to the Central London Hospital, Ida became the first female consultant to the Royal London Ophthalmic Hospital, later known as Moorfields. She was subsequently appointed as Senior Surgeon.

Oxford University appointed her Margaret Ogilvie's reader in

ophthalmology and she subsequently gained a personal chair, which was the first in Britain for a woman to hold the title of professor at Oxford.

She was honoured with the Doyné lecture in 1928 and the Harrison Gale lecture in 1929. Other notable lectures were the Nettleship medal and the Montgomery lecture in 1935.

In 1949 her husband Bill Gye, a cancer researcher, became ill and they both travelled to Australia to escape the bleak climate of post war Britain. They settled in Perth, with her husband continuing his research into viruses and cancer. Ida set up an ophthalmic practice with her original Gullstrand slit lamp, which was eventually passed on to Andrew Stewart, Past President of RANZCO.

Ida met up with Father Frank Flynn, a Catholic priest and ophthalmologist who had been Ida's House Surgeon

at Moorfields some 20 years earlier. He introduced her to trachoma, something she had not encountered in the United Kingdom. This led to an investigation, lasting four years, documenting the cause of the high rate of blindness among the Aboriginal population of the Kimberley and Western Desert. This highlighted the prevalence of a disease ignored by governments in Australia.

Ida travelled incessantly over the next 20 years in outback Western Australia, between times maintaining her small city practice in Dalkeith and the coastal town of Busselton until her retirement in 1976.

Ida was honoured for her many contributions to ophthalmology, becoming a Commander of the British Empire (CBE) in 1950 and Dame (DBE) in 1980.



## The molecular biography of John Dalton

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### Background

John Dalton's contribution to the theory and molecular makeup of colour blindness has continued well beyond his last published work in the nineteenth century. We review his original theories and recent developments.

### John Dalton

6 Sep 1766 – 27 Jul 1844

John Dalton was a celebrated chemist, scientist and meteorologist most well known for his physics theories:

- Dalton's Law of Partial Pressures

$$P_{total} = P_1 + P_2 + P_3 + \dots$$

- Atomic Theory 



### Observations on colour blindness

In 1794, John Dalton described his own colour blindness in a lecture to the Manchester Literary and Philosophical Society.<sup>1</sup>

Red sealing wax appeared nearly identical to the leaf of the English laurel (*Prunus laurocerasus*).



The pink flower of the cranesbill (*Pelargonium zonale*) appeared sky blue in the daylight, but red by candle-light.

Dalton distinguished only two kinds of hue:

- Yellow, corresponding to the normal person's red, orange, yellow, and green
- Blue, corresponding to blue and purple



### An inherited anomaly

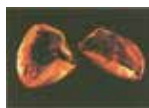
Dalton observed similar colour deficiency in up to 20 family members and friends, including his brother. Colour blindness only seemed to occur in **males**, the first clue of a sex-linked inheritance.

### Post-mortem

Dalton proposed the distortion of colour was due to a **blue-tinted vitreous**.<sup>1</sup>

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.<sup>2</sup> 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.

George Palmer later proposed three types of molecule in the retina.<sup>3</sup> Thomas Young postulated Dalton's colour blindness arose from a lack of "fibres of the retina, which are calculated to perceive red", what is now known as protanopia.<sup>4</sup>

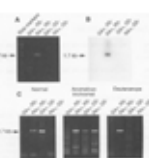


Dalton's preserved eyes<sup>5</sup>

### 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.<sup>5</sup>



### References

1. Dalton J. Extraordinary facts relating to the Vision of Colours: with Observations. Edinb J Sci 1831;5:88-98
2. Henry WC. Memoirs of the Life and Scientific Researches of John Dalton. London: Cavendish Society, 1854
3. Mollon JD. 'aus dreyerley Arten von Membranen oder Molekülen': George Palmer's legacy. In: Cavonius CR, ed. Colour vision deficiencies XIII. Amsterdam: Kluwer Academic Publishers, 1997
4. Young T. A Course of Lectures on Natural Philosophy and the Mechanical Arts. London: J. Johnson, 1807
5. Hunt DM, Dulai KS, Bowmaker JK, Mollon JD. The chemistry of John Dalton's color blindness. Science 1995;267(5200):984-8

The molecular biography of John Dalton was the winner of the Jim Martin prize for the Best Historical Poster at the 2016 RANZCO Annual Scientific Congress in Melbourne.

Produced by Enis Kocak, an Alfred Hospital resident, it describes the extraordinary observations of scientist John Dalton on colour vision.

To read in more detail, visit the RANZCO Museum website and click on 'Presentations' for information on Ida Mann and John Dalton.

## New Acquisitions

New acquisitions for the RANZCO Museum include a unique radio interview of Dr Hugh Ryan in 1948 with recollections of early contact lens use at Moorfields and the quaint but brutal examination system in the UK at that time.

The interview is under 'memories' on the RANZCO Museum website ([www.ranzco.edu/museum](http://www.ranzco.edu/museum))

