RANZCO Eye Museum

Modelling the Eye

To educate patients and colleagues, many model eyes have evolved from the Middle Ages. Complemented by artists' rendition of the eye, early concepts lacked precise understanding of anatomy and function.

The RANZCO Eye Museum is fortunate to have items such as the Zick model eye from 1790 to working models showing the function of the extraocular muscles from the 19th century.

Surgical practice for Graefe cataract sections utilised the ophthalmophanotome, an adjustable metal face holding animal eyes, as an 18th century predecessor of the modern computed systems teaching phacoemulsification cataract surgery.

The Knapp style ophthalmotrope was used to demonstrate the actions of the eye muscles, where strings stimulated the actions of the extraocular muscles and are attached to weights. Pulling the weight moved the model eye, showing eye movement disorders to patients and students. This was made of brass, wood and string.

The Zick family in Neuremburg produced anatomical models from 1721.

Pictured is a rare 1750 model is in a carved walnut case, in excellent condition and was probably displayed in a 'cabinet of curiosities'. At the time, owners of models such as this may not have had anatomical knowledge but often had these as conversation pieces.

It was made of ivory, tortoiseshell and glass and the sclera and lids made of carved ivory. The eye is disassembled into the uveal tract, lens and hand polished glass vitreous. The retina in ivory has the vasculature painted on a fine stalk of optic nerve passes through carved walnut choroid with an outer ivory scleral shell.

In Louis Auzoux's Workshop in Paris in the late 19th century, a paper mache showing the eye and orbit opening to reveal the internal structures was made of layers of flour glue, oakum and cork, and the blood vessels were painted wire.

Dr David Kaufman
Curator, RANZCO Museum

Ophthalmotrope - mid. 19th century – RANZCO McAllister Collection

Orbital anatomical model

Zick model eye – RANZCO McAllister Collection

ophthalmophanotome