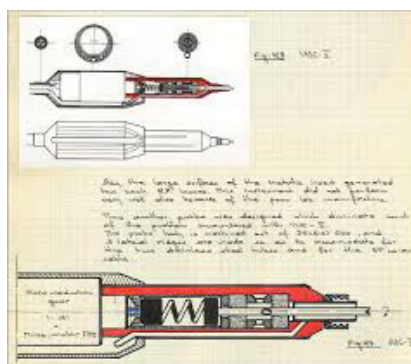


Crossing the Frontier – Development of Vitrectomy

Some 50 years ago, Prof Gerard Crock in the Melbourne University Department of Ophthalmology worked with the innovative and brilliant engineers Dr Jean-Marie Parel and Ljubomir Pericec and developed the prototype vitrectomy device: the Vitreous Infusion Suction Cutter (VISC 1) which was designed to cut membranes and blood from the vitreous via a pars plana approach.

Prior to this, attempts to dissolve blood in the vitreous pharmacologically with urokinase and alpha chymotrypsin failed. Many surgeons had tried manual removal of the vitreous and injected various replacements. Anton Banko patented a vitreous cutter that was never commercialised. Prof Crock's team had been working on automated intraocular micro instruments since 1968 with Geoffrey Sutherland. The first instruments were designed and fashioned on experience in microvascular surgery. Dr Parel then returned to work with Dr Robert Machemer at Bascombe Palmer in Miami where further models were made and distributed.

The remarkable transoceanic collaboration between MUDO and Bascombe Palmer continued via mail and Parel's temporary return to Melbourne to enhance the technology transfer.



Visc

The successful birth of vitrectomy depended on the development of illumination, visualisation and the technology of fluidics and mechanics evolving simultaneously.

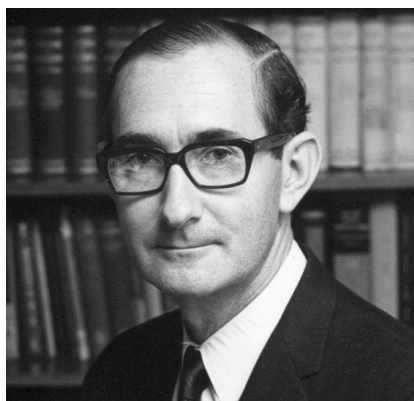
VISC 1 was a large bore instrument with coaxial infusion, cutting and suction introduced through the pars plana. The procedure could be viewed via an indirect ophthalmoscope before appropriate microscope technology was invented. John Scott in Cambridge, UK used this method of viewing for many years.

The major drawback of the early models was the rotating cutter which had a tendency to draw unwanted parts into the cutting port. The large bore could be com-

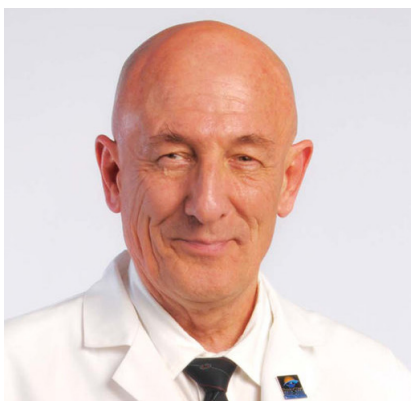
plicated by retinal dialysis. Subsequently, Dr Nicholas Douvas invented an oscillating mechanism in the roto-extractor which was incorporated in later models of the VISC with the addition of fibre optic illumination.

Dr Jim Cairns in Melbourne first used the VISC 8 on a patient with Eale's disease with a vitreous haemorrhage at the Royal Victorian Eye and Ear Hospital in 1974. This model incorporated a fibreoptic sleeve and visualised with an indirect ophthalmoscope. Subsequent models could be used for anterior and posterior segment surgery. The VISC in the RANZCO museum was used by Dr Harry Lew, who purchased it in 1980 and used it extensively for cataract surgery until it was superseded by phacoemulsification machines with vitrectomy capacity.

David Kaufman
Curator, RANZCO Museum



Prof Gerard Crock



Dr Jean-Marie Parel



Dr Robert Machemer