

RANZCO Museum

The art and craft of the master cutler

While on the cusp of robotic retinal microsurgery, it is worth recalling the origins of ophthalmic instrumentation.

Prior to Listerian antisepsis when obstetricians carried their uncleaned forceps in the pocket of their frockcoat, ophthalmologists used instruments handmade by master cutlers.

Often made as one-offs with eponymous names many ingenious designs emerged.

Blades and points made of steel required hospital employed technical staff to maintain their sharpness.

Handles were made of bone and ivory and occasionally tortoise shell. Listerian sterilisation in the late 19th century took the form of chemical antisepsis with carbolic soaking and spraying. Later steam and dry heat sterilisation removed the decorative

handles, replacing them with chrome steel. Manufacture was often a cottage industry particularly in Europe.

With the advent of the operating microscope in early 1960, miniaturisation was often a smaller version of the macro instrument which led to more functional ergonomic designs.

The 1970s led to new forms of metallurgy employing titanium and composite metals to maintain sharpness without being so brittle. Diamond and ruby blades appeared, their depth controlled by micrometer handles.

A decade later, disposable blades were followed by whole instruments discarded after one use. The tubing and aspiration containers used in phacoemulsification and vitrectomy were implicated in infectious outbreaks and were soon replaced as single use packs.

The 19th century surgeon required cleaning up so that long beards and hair were covered by masks and caps. Unwashed hands, although undesirable, usually did not touch the instrument tips. Soaking the blades in diluted carbolic or bichloride of mercury was a marked improvement. Many surgeons balked at wearing rubber gloves as early versions were thick. I recall assisting a senior surgeon in 1978 while a registrar—the surgeon, who was gloveless, stood while operating, peering through a pair of long loupes performing intracapsular cataract surgery with a mechanical erisophake!

The Museum is fortunate to have an extensive collection of early instruments.

Dr David Kaufman
Curator, RANZCO Museum



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1. John Weiss instrument box C1900 Kid drum for testing and ivory handled
2. Graefe knife and kid testing drum
3. Sutherland prototype diamond knife, 1970