

# museum

*Sharing our heritage*

## Jules Gonin and his cautery

- by Dr Jim Martin, Museum Curator

**It is well known that the treatment of retinal detachment before the work of Jules Gonin was universally unsuccessful.**

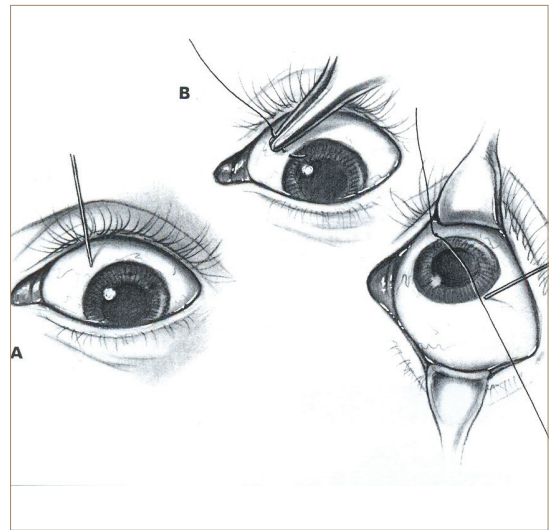
Gonin commenced his study of the aetiology of retinal detachment in 1904 and confirmed the work of Leber that detachment occurred following the development of a hole in the retina. Closure of the hole was essential for treatment to be successful and in 1919 he presented his first cases following treatment to the Swiss Ophthalmological Society. Further reports were presented to French ophthalmic reviews in 1921 and 1923 and to the French, German and Swiss Societies in 1925 and 1926.

Even though his work was widely reported on the continent of Europe, it was not until the International Congress of Ophthalmology in Amsterdam in 1929 that British ophthalmologists started to take notice. This, of course, is not an uncommon occurrence. How many times have major advances in medicine been treated with scepticism? The finding that the cause of gastric ulcer is due to bacteria and not due to stress is a recent example.

Such a situation was not lost to Gonin. Speaking at the Oxford Congress in 1930 he said how pleased he was to be present and remarked "It gives me great pleasure, especially because the British ophthalmologists were up to this time the ones who seemed to be the least aware of the work I have been doing for about twenty five years on that subject"!

To further make his point that British and also American surgeons did not know what was happening out of their own countries he quotes a letter he received in 1927 from Professor Haab of Zurich who was visiting America. When asked what treatment he used for retinal detachments a senior eye surgeon replied "I send them to the most disagreeable of my colleagues"! Obviously Gonin was not impressed.

Gonin's method of treatment relied on extreme accuracy in relating the position of the retinal hole to the surface of the sclera. This was achieved by making a careful drawing of the fundus with particular reference to the meridian along which the hole lay and also the distance, in disc diameters, from the posterior lip of the hole to the posterior part of the ora serrata. The operator then looks along this meridian with the indirect ophthalmoscope and, when he is satisfied that the meridian is correct, a mark is made at the limbus with Indian ink. At operation, a suture is passed through this point and then carried across the



*Diagram showing the placing of suture along the meridian on which the hole lies. Taken from C.P. Wilkinson and T.A Rice, Michaels Retinal Detachment 2nd edition 1997*

cornea in such a direction that the suture bisects the cornea. [see diagram]. A further mark is made where the suture crosses the opposite limbus. Continuing the suture around the wall of the eye along this line should give the exact meridian along which the hole lies. The distance of the hole from the limbus is marked along this line using an Amsler or Macky marker. A small radial incision was made through the sclera at this point with a Graefe knife. A small rotation of the knife point enabled subretinal fluid to be released.

The tip of a Paquelin thermocautery was heated to a white heat and then inserted through the incision to a depth of 3-4mm so that it touched the retina. The cautery was left in place for two seconds and then withdrawn. Both eyes were padded and the patient placed in bed in such a position that the vitreous pressed on the region of the hole. The reason for the extreme care in localising the hole was because Gonin did not inspect the fundus until seven days after the operation.

In 1930 Gonin had reported about 250 patients operated and claimed a 60 per cent cure rate in recent cases with a less rate in longer standing cases.

Gonin used the thermocautery in preference to the galvanocautery as he was of the opinion that the temperature was maintained for a longer time with the thermocautery.

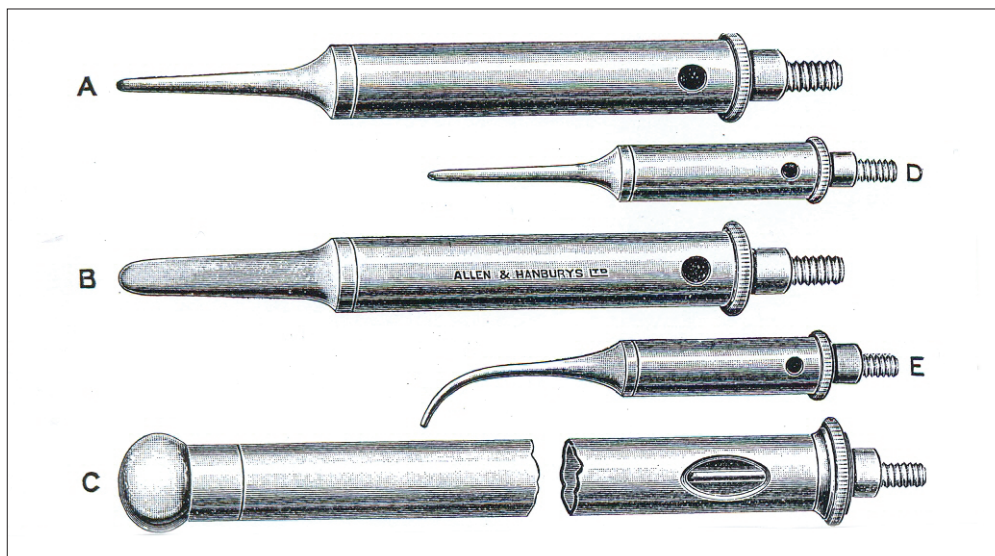
### The Thermocautery of Paquelin

In 1876 Claude Andre Paquelin [1836-1905] designed an apparatus so that a high temperature could be maintained in a cautery end. These ends were hollow and made of platinum and were mounted on a tubular insulated handle. A number of shapes and sizes were made, the one used for detachment surgery being fine and curved. Rubber tubing connected the handle to the top of a container in which was a small amount of

benzine. Further tubing connected to a small rubber double bellows enabled air to be pumped into the top of the container. The cautery end was heated to the required degree of heat over a flame and then benzine vapour was made to flow down to the cautery end by squeezing the bellows. The catalytic action of the platinum aided the benzine to ignite and maintain the temperature. [see illustrations].



*The Paquelin thermocautery*



*Various ends for the Paquelin cautery*