

Origins of the first extracapsular cataract extraction: the legacy of Jacques Daviel

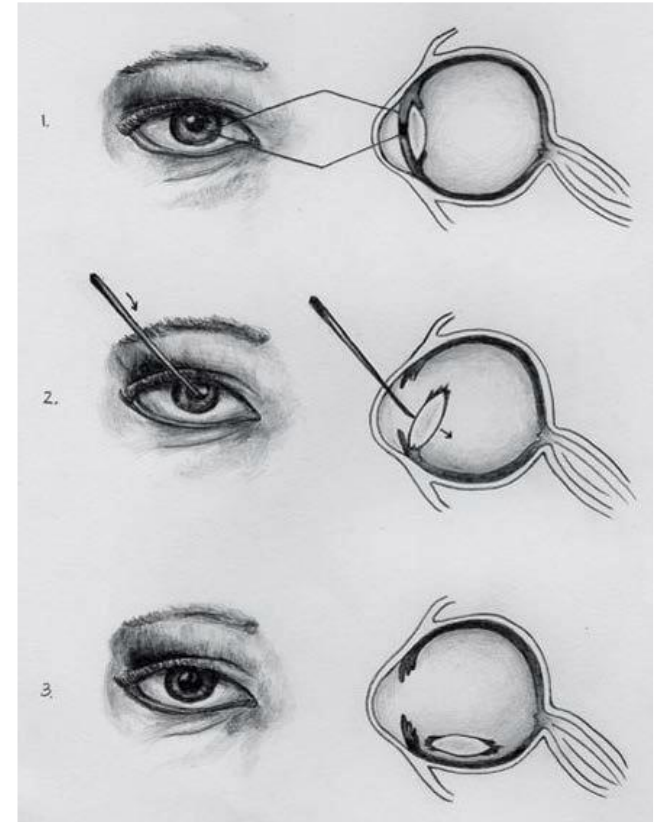
“Light After Darkness”

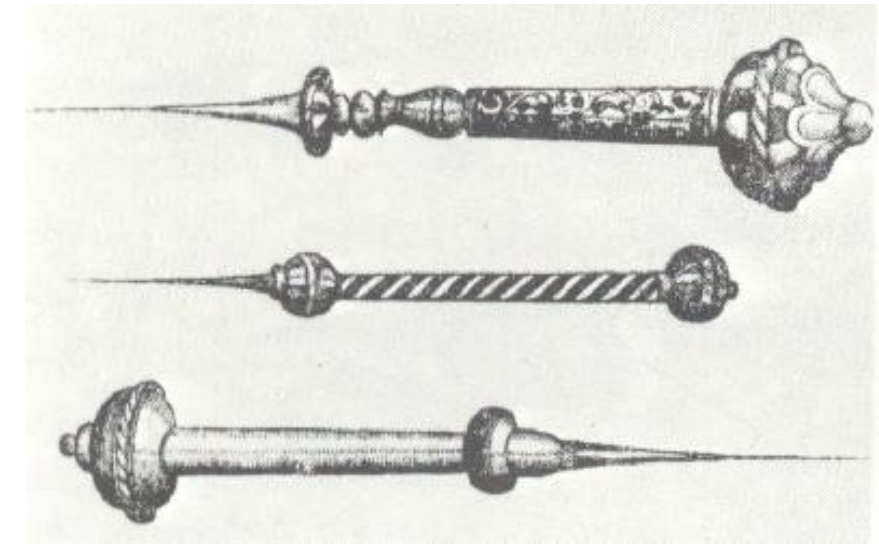
Philip Rothschild, Rahul Chakrabarti, David Kaufman



Early approaches to cataract treatment: couching

- Cataract couching was where a sharp instrument pushed the opaque lens posteriorly into the vitreous, thus eliminating the cataract from the visual axis.
- It was in practice as early as 2700 BCE and was a widely practiced procedure (across Central Asia, the Middle East, and Europe) until the advent of extracapsular cataract extraction in 1747 by Jacques Daviel.





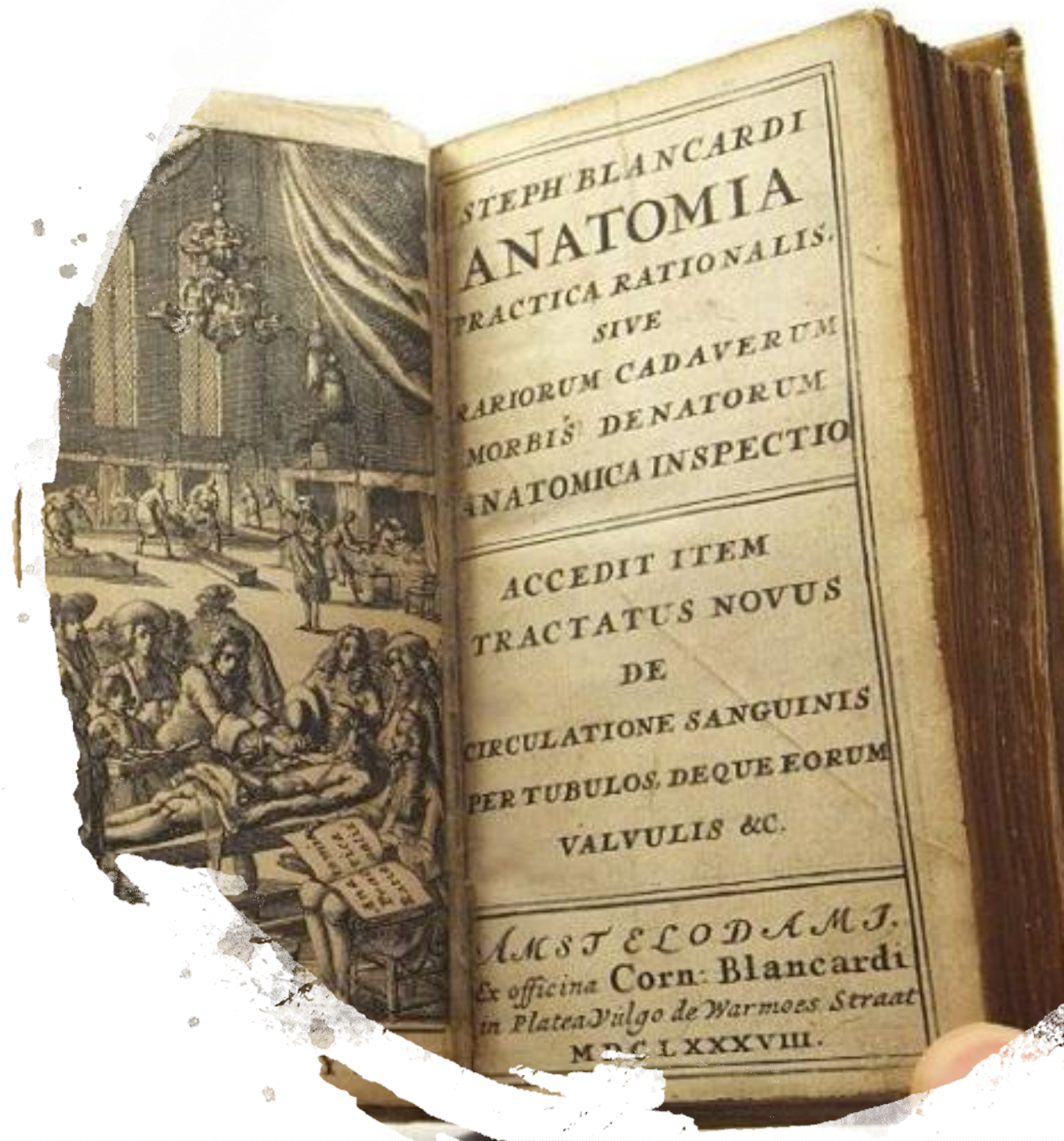
Issues with couching

- The patient would enjoy days of 'being cured' before the onset of complications, including:
 - Large lens shadow
 - Severe uveitis
 - Retinal detachment / VH
 - Endophthalmitis
 - Lens dropping into the AC.
- Long term VA post couching was quite poor, with research indicating there was:
 - a complete loss of sight for at least 60% of couched patients (VA <3/60); and,
 - Low longer-term patient satisfaction.



The development of a idea: extracapsular cataract extraction

- In 1688 Steven Blankaart, a Dutch physician and anatomist, proposed the concept of extracting the cataract rather than couching it.
 - He suggested that it would “avoid the unpleasant complication of a cataract rising again after it has been couched”
- This possibility was discussed again by Mery in 1707, and the concept was discussed widely at the time. Curiously, however, nobody during the next 38 years dared to perform it.



The development of a idea: extracapsular cataract extraction

- Prior to Daviel, a number of people performed extractions of previously couched cataracts that had dropped into the anterior chamber (E.g. St Yves in 1707, and then Petit in 1708, amongst others)
- However, Daviel was credited as the first to extract the cataract from its normal position




Daviel's early career

- Jacques Daviel was a French ophthalmologist who lived from 1696 – 1762
- He was born in La Barre
- Apprentice to his uncle as a surgeon
- An assistant surgeon with the Army at age 22. Heavily involved with treating patients during the Bubonic Plague epidemic of the early 1720's.




Daviel's initial cataract surgeries


From 1728 (age 32) he narrowed his focus to ophthalmology.



Daviel initially practiced the couching method of cataract surgery and performed it first around 1730



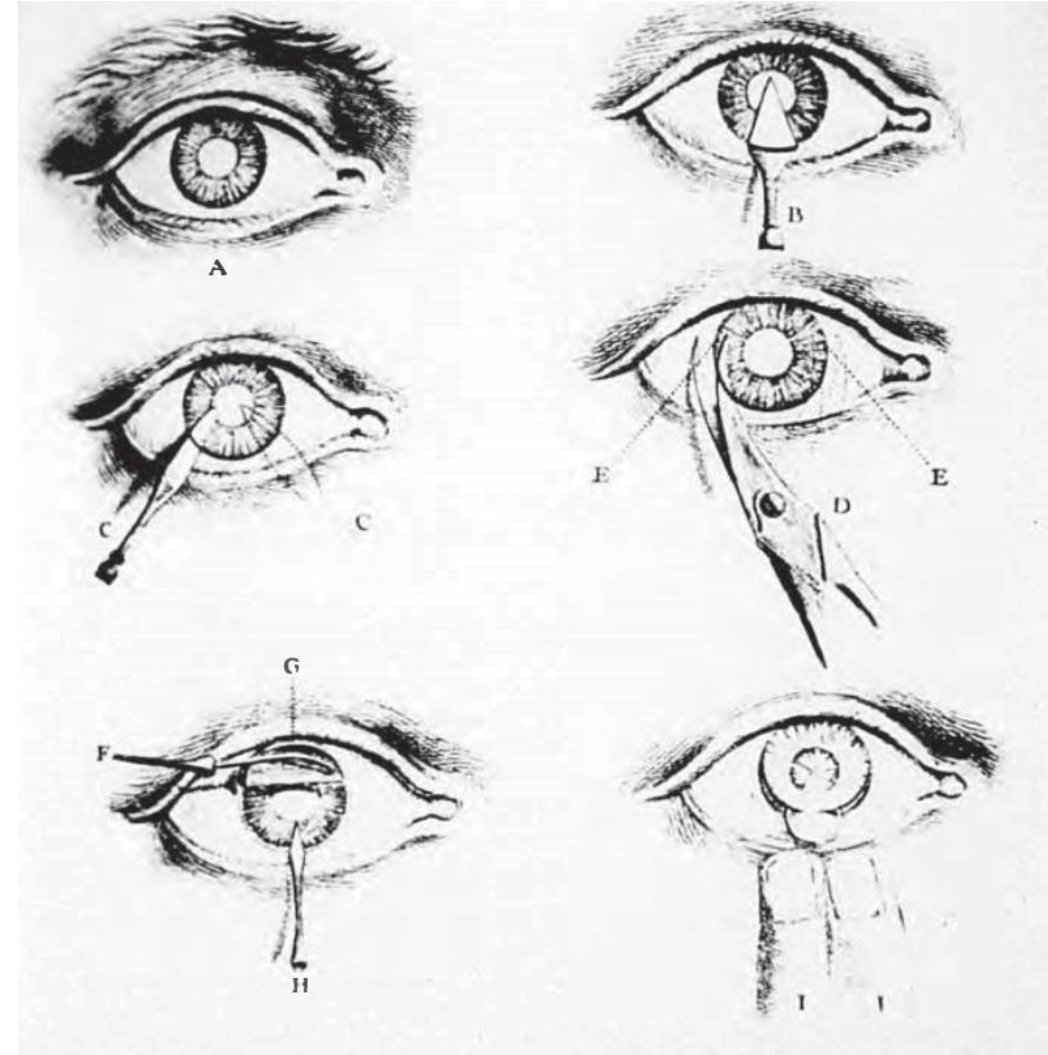
Daviel was concerned about complications caused by couching. Accordingly, he successfully experimented with extracapsular extraction on cadavers.



8th April 1747: Daviel's first extracapsular cataract extraction (from the posterior chamber)

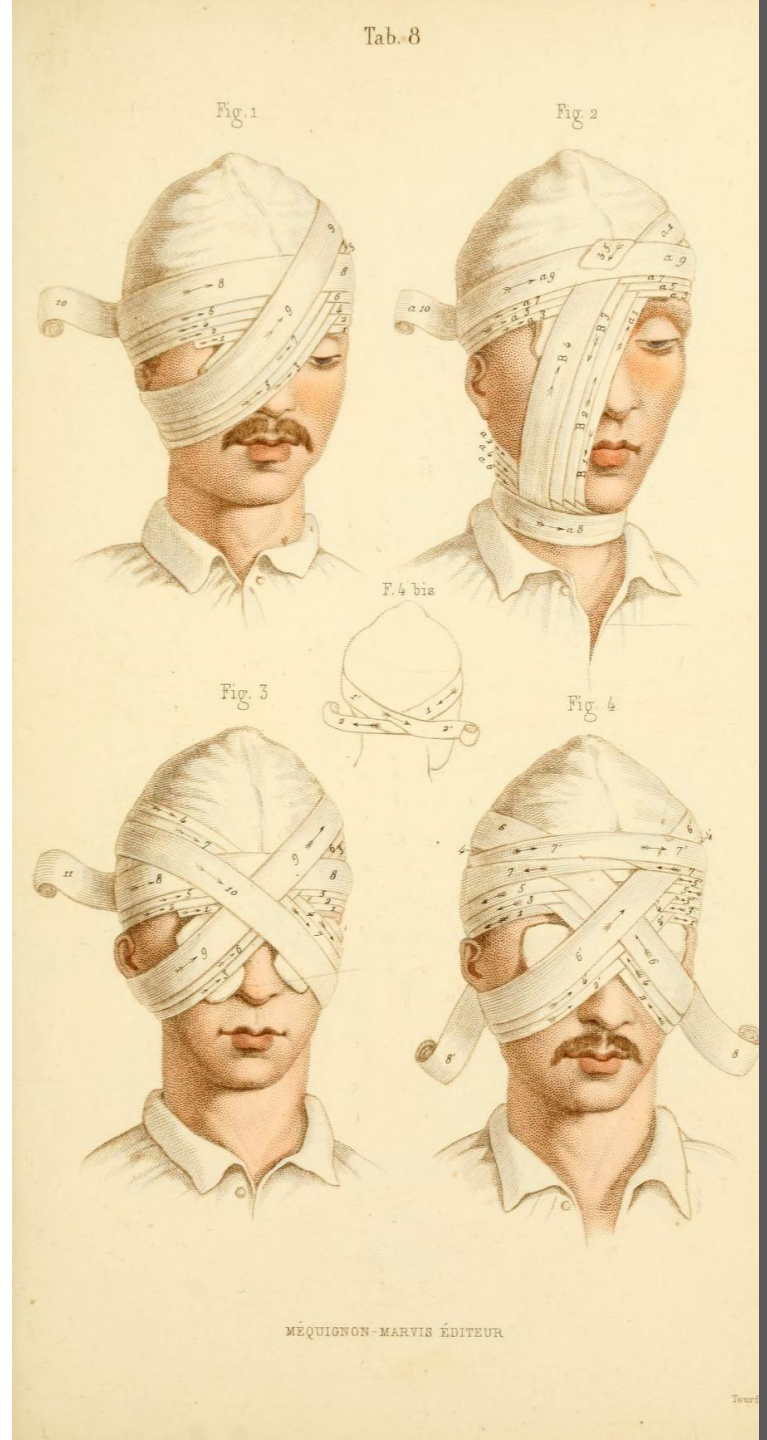
What was Jacques Daviel's approach to extraction?

1. Incision at the 6 o'clock mark of the limbus. Using curved scissors, cuts to this incision were made bilaterally extending to a point on each side "a little above the pupil"
2. Spatula to lift up the corneal flap, and then incision of the anterior capsule / upper part of the lens with a **blunt** needle
3. Cataract then extracted with a spatula, or curette (if broken prior to extraction)
4. Corneal flap then allowed to fall back into place
5. Eye was gently cleansed, covered with small compress, and bandaged



Outcomes of Daviel's extracapsular cataract extraction

- Initially much aqueous humour and some vitreous humour escaped the eye but this did not prevent patients from later recognising objects.
- Patients typically used strong refractive lenses post-op to good effect. Success rate initially allegedly ~30-70%.
- Concerns:
 - Uveitis from retained cortex
 - High incidence of PC tear



Daviel's legacy

- He was appointed as Louis XV's personal ophthalmologist on the first of 1st January 1749
- Published his new method in 1753 as a scientific paper with the French Royal Academy of Surgeons – “A new Method of Curing Cataract by Removing the Lens”
- Although initially he reportedly experienced a failure rate as high as 25%, by 1756 Daviel had performed 434 cataract extractions, with only 50 reported failures.
- He had a stroke in 1762 and died 6 months later. He is buried in the cemetery of the grand Saxony church just north of Geneva. In 1885 the ophthalmologists of Switzerland erected a marble headstone with the inscription: “Post Tenebras Lux” (Light After Darkness).



**ON A NEW METHOD TO CURE CATARACT
BY EXTRACTION OF THE LENS*†‡**

BY

JACQUES DAVIEL

TRANSLATED BY

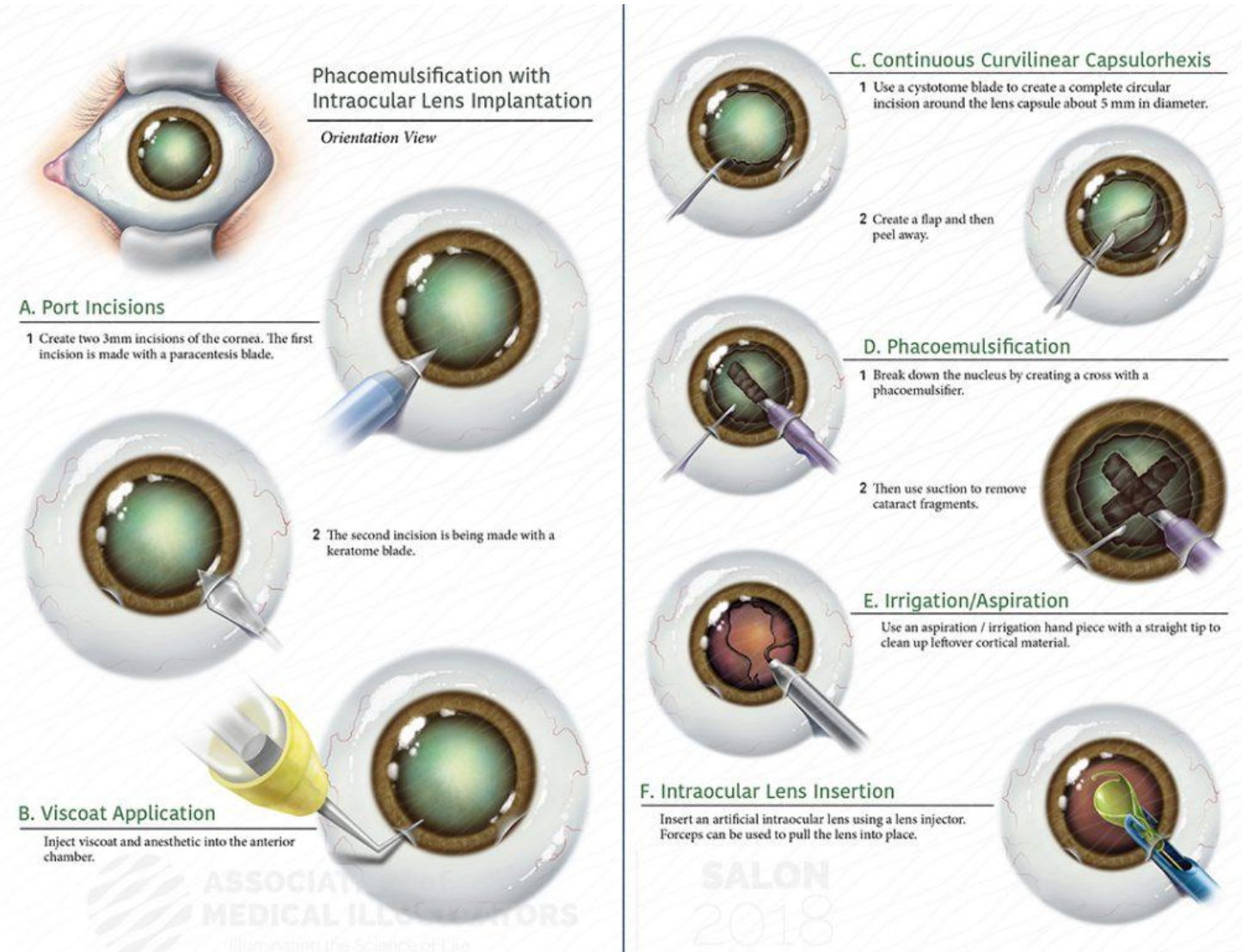
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Current day practice

- 1815: Cataract suctioned from eye through suction being applied to a tube
- 1949: First successful IOL implantation
- 1967: Phacoemulsification



Acknowledgement

- Dr David Kaufman

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