

David J. Apple, MD Laboratories for  
Research on Ophthalmic Devices  
Salt Lake City, Utah

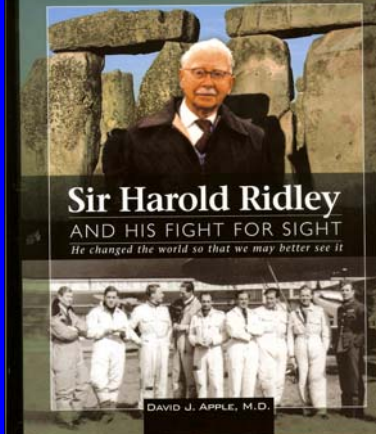


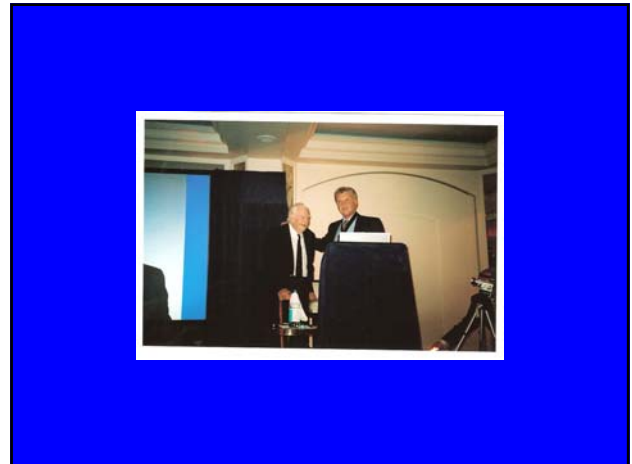
Storm Eye Institute, Cataract/Refractive Research Center



25 Years, D. Apple  
IOL Research  
Center

1980 to 2005





## The Invention of the IOL (1935-1951)

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**GORDON NEIL SPENCER CLEAVER**  
90135 FO Pilot British 601 Squadron

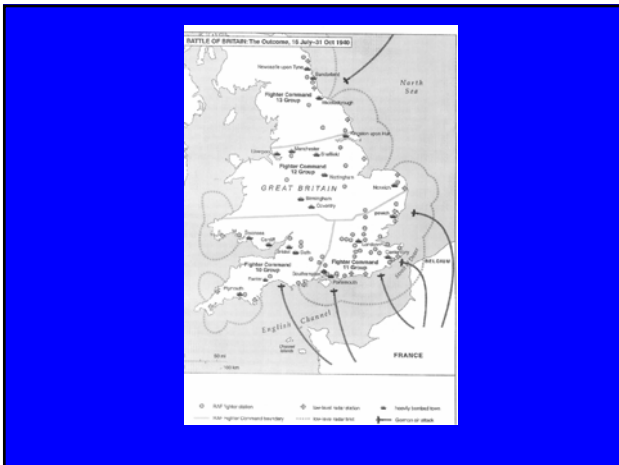
Cleaver, who was born in Stanmore, Middlesex, joined 601 Squadron, AuxAF in 1937 and was commissioned in April. He skied for Britain in the years before the war.

Mobilised on November 24 1939, Cleaver went to Merville with 'A' Flight on May 16 1940. On the 27th he destroyed a Bf 109 and claimed two other victories before the flight was withdrawn at the end of May.

Cleaver claimed a Ju 87 and a probable He 111 destroyed on July 11, a probable Bf 109 on the 26th, two Bf 110s on August 11 and another on the 13th. Two days later he was shot down in combat over Winchester. When his hood was shattered by a cannon shell Cleaver's eyes were filled with perspex splinters. He managed to return to Tangmere and was rushed to hospital, where his sight was saved but his operational flying days were over. Cleaver was awarded the DFC (13.9.40).

In 1941 he transferred to the Administrative Branch and was released from the RAF in late 1943, as a Squadron Leader.

PO (AuxAF) 8.4.37 FO (AuxAF) 8.10.38 FO 24.11.39  
FL 24.11.40 SL 1.3.42



## 1. Adlertag

13 – 14 AUGUST

**F**ROM REICHSMARSCHALL GOERING TO ALL UNITS OF AIR FLEETS 2, 3 AND 5. OPERATION EAGLE. WITHIN A SHORT PERIOD YOU WILL WIPE THE BRITISH AIR FORCE FROM THE SKY. HEIL HITLER.





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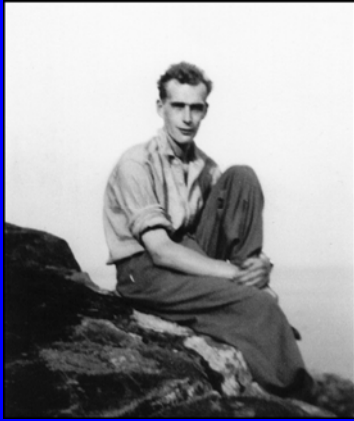
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## A Preclinical Study on an Invention That Had Not Yet Been Invented

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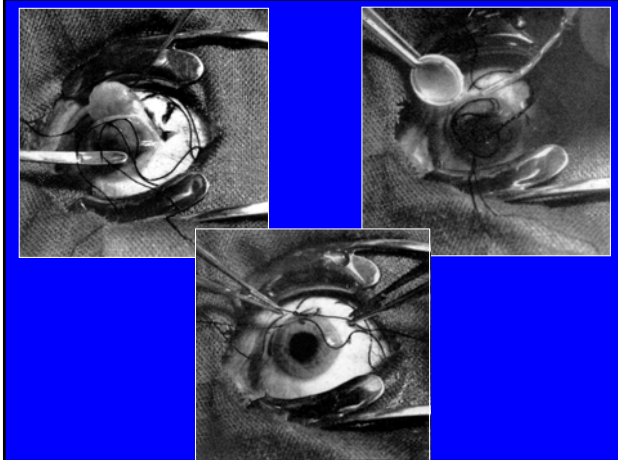


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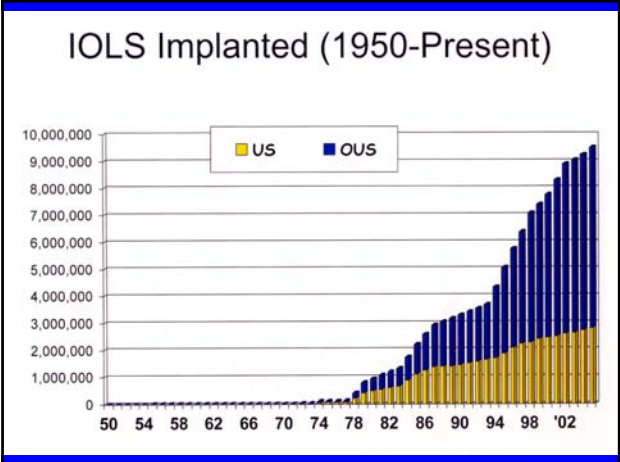
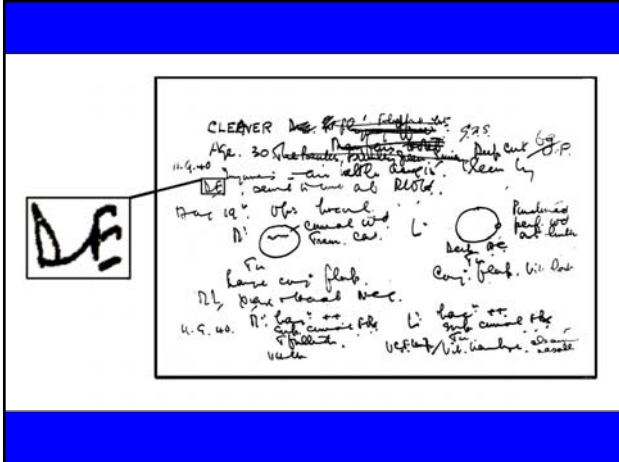
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## Duke-Elder







## 7 generations of Cataract-IOL Surgery

The Introduction of Quality IOLs and Complex "Specialized" Implantable Devices Usually Preceded the Quality of the Surgery.

Early Ridley IOL  
Early AC IOL  
Early Phakic IOLs  
Early Clear Lens Extraction  
Piggybacks  
"Modern "Specialized" IOLs

1949

For the first time the lens capsular bag became accessible for visual and therapeutic implantations



- 1) Classic IOLs
- 2) Refractive/Vision enhancing devices (Super Vision); **phakic IOLs**
  - a) Toric Lenses
  - b) Multifocal IOLs
  - c) Accommodative IOLs
  - d) IOLs to Correct wavefront aberrations (High order Zernike polynomials)
- 3) Low Vision IOLs, e.g., Galalien telescopic devices
- 4) Pediatric IOLs
- 5) Drug Delivery Systems
  - a) Anti PCO-IOLs
  - b) General intraocular therapy
- 6) "Intraocular" Plastic surgery (artificial colored implants)
- 7) Implant site for various retinal stimulators ("artificial eyes")

