



CELEBRATING 75 YEARS SINCE THE FIRST IOL



The origins and legacy of a visionary innovation.

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Seventy-five years ago, Sir Harold Ridley implanted the first IOL. This laid the groundwork for one of the most widely performed and successful surgeries in the world today.

THE ORIGINS OF THE IOL

The story of the first IOL can be traced back to World War II, when Ridley served as an ophthalmologist for the British Royal Air Force. While treating pilots with eye injuries, he observed that fragments of acrylic plastic (PMMA) from aircraft cockpits were well tolerated in the eye and did not incite inflammation. At that time, cataract surgery left patients aphakic, necessitating the use of thick, cumbersome glasses to compensate for the significant refractive power lost with the removal of the crystalline lens. The idea of replacing a cataractous lens with

an artificial implant was revolutionary—and controversial. No prosthetic implant had been used in any part of the body. Ridley envisioned an artificial lens made of PMMA, a substance we now take for granted but that was quite difficult to manufacture at the time.

FROM SKEPTICISM TO GLOBAL ACCEPTANCE

The development of the first IOL was fraught with challenges. Ridley faced technical obstacles and scathing criticism from his peers. He nevertheless collaborated with Rayner to design the first IOL. On November 29, 1949, at St. Thomas' Hospital in London, he performed the first IOL implantation in a 45-year-old woman with a traumatic cataract. The procedure resulted in a significant refractive surprise due to the incorrect calculation of lens power, performed in air rather than in aqueous

humor. The surgery nevertheless represented a major breakthrough.

These first IOLs were circular, had a bulkier optic, and lacked haptics, essentially copying the design of the natural crystalline lens (Figures 1–3). The capsulorhexis had not yet been conceived, so lens decentration and displacement, as well as corneal endothelial damage, were common. Ridley's persistent advocacy for IOLs spurred improvements, and widespread adoption occurred in the 1970s and 1980s. Ridley's pioneering work and the development of phacoemulsification by Charles D. Kelman, MD, revolutionized cataract surgery.

THE IMPACT OF IOLS ON MODERN CATARACT SURGERY

Cataract surgery is one of the most common and most successful surgical



Figure. A 1950 Ridley lens from Dunedin, New Zealand—one of the oldest, if not the oldest, IOLs in the world.

(Courtesy of Francisc March de Ribot, MD, PhD, MSc, MMed, FEBO, FRCS, FICO, DISSO, MBA)

▶ ORIGINS

procedures worldwide, with more than 30 million performed annually. Although modern IOLs are made from advanced materials, the core concept pioneered by Ridley remains largely unchanged.

Thanks to these advances in phaco techniques, biometry, and IOL design and calculations, modern cataract surgery can not only restore patients' sight but often provide them with visual quality they have never before experienced.

A HISTORIC CELEBRATION AT THE UKISCRS MEETING

Celebrating the 75th anniversary of such a monumental occasion in the eye world, this year's United Kingdom & Ireland Society of Cataract & Refractive Surgeons (UKISCRS) meeting was particularly special. I (B.L.) was honored to serve as a presenter at the meeting and attend the gala dinner, cohosted by the Ridley Eye Foundation and Rayner. Attendees were acutely aware of the profound impact of Ridley's groundbreaking work.

Among the highlights were a heartfelt speech from one of his sons, Nicholas Ridley, and the unique venue—the Tower of London—where attendees were treated to a private tour of the Crown Jewels. A memorable presentation on avoiding burnout by incoming UKISCRS President David Lockington, MB BCh BAO (Hons), FRCOphth, PhD, added an engaging personal touch. International experts held insightful discussions of advances in cataract surgery that were unimaginable 75 years ago. Steve A. Arshinoff, MD, FRCSC, shared his expertise on antibiotic options, Gerard Sutton, MBBS, MD, FRANZCO, explored developments in artificial corneal tissue, and I (B.L.) shared my perspectives on biometry through a creative interview format involving a reanimated Ridley.

FROM THE ARCHIVES

Revisit a pivotal moment in ophthalmology history in "Sir Harold Ridley: A Pioneer in the Quest to Eradicate Blindness Worldwide" by David J. Apple, MD, from the March 2004 issue of *CRST*. This article describes Sir Harold Ridley's groundbreaking invention of the IOL and its transformative influence on cataract surgery. Scan the QR code to read it now.



Holding the event on the anniversary of the first IOL implantation in the city where it occurred underscored how far the field has progressed. Pioneers such as Sir Harold Ridley risked their reputations to push the boundaries of possibility. The revolutionary invention of the IOL stands as one of the greatest contributions to 20th-century medicine. ■

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