

My Awakening to IOLs

The first 25 years.

BY ROBERT C. DREWS, MD, FACS, FRCOPHTH

I asked five ophthalmic friends to identify this month's author based on the following information (the name of the person in question omitted, obviously), and none succeeded. That failure indicates why I refer to Bob Drews as the silent giant.

Born in the Midwest and the son of a distinguished ophthalmologist, Bob received all of his degrees, including residency training and an NIH research fellowship, at Washington University in St. Louis. He then became a lieutenant commander at the US Naval Hospital, Great Lakes, before returning to the same university.

In addition to authoring more than 475 publications, Bob has served on the editorial committee of Ophthalmology and numerous ophthalmic peer-review panels. He has been a popular invited lecturer and visiting professor all over the world and has spoken on and taught advanced ophthalmic microsurgical techniques. Honored with 11 medals, Bob has delivered nine named lectures and received numerous other awards for his professional and civic activities, including Washington University in St. Louis' highest distinction, the Second Century Award. He's been a member of more than 30 national and international ophthalmic societies and served as president of most of them. He has also been on 30 boards of directors.

Whereas so many ophthalmologists are married to their second or third spouses, Bob can boast 55 years of marriage to the same gracious, supportive woman with whom he has four children and 10 grandchildren. Bob has always maintained the most dignified, unpretentious professional style of all my ophthalmic colleagues. He has consistently displayed wisdom and an impressive intellect throughout his life, and I am privileged to call this pioneer in modern cataract surgery my friend.

—Herve M. Byron, MD, Section Editor

I began assisting my father with cataract surgery in 1948. Some patients were overjoyed, especially those who had been essentially blind in both eyes before their cataracts were removed. Those with 20/20 corrected aphakic vision who were persistently unhappy were sometimes labeled *ungrateful*. After all, a requirement for surgery was a preoperative BCVA of 20/70 or less (usually 20/200 or less) in the patient's better eye!

Most miserable were the patients forced to have unilateral surgery because of a hypermature cataract (often with secondary uveitis and/or acute glaucoma) who still had functional phakic vision in their other eye. They were unable to use their eyes together until a cataract in their other eye warranted removal. By that time, they often had a new ophthalmologist. As a resident, I served as the second surgeon for a man whose first cataract surgery my father had performed. The patient's wife was angry with my

father for not fitting her husband with glasses to fuse the vision of both eyes, whereas she was delighted with me after the second cataract surgery.

"This social handicap cannot be cured, it must be endured," lamented Alan C. Woods, MD, one of the great leaders in ophthalmology at the time, of his own aphakia in 1952. In 1965, Frederick H. Theodore, MD, listed aphakia as a complication of cataract surgery. Henry Hirschman, MD, later labeled aphakia the *first* complication of cataract surgery!

BEFORE THE EXPLOSION

PMMA was first developed in laboratories in 1928 and marketed by Röhm in 1933. At that time, my uncle, P.S. Williams, PhD, a physicist, "suggested to [my father] the possibility of an acrylic lens implant to take the place of the crystalline lens. [My father] dismissed it as

the idea of one who did not know the limitations of surgical technique, and of tissue tolerance.”¹

My exposure to IOLs began when word spread that Harold Ridley had implanted a lens on November 29, 1949. In the fall of 1950, my father returned from the AAO meeting very excited about Mr. Ridley’s daring thinking and the procedure’s enormous optical advantages. Mr. Ridley had been invited to present his technique and results, and Derrick Vail, MD, had issued a severe warning against the brashness of introducing a foreign body into the eye. My father agreed that IOL surgery was not yet ready for imitation, but he exhorted me to watch the evolution of this procedure, because he was sure that the great problems it presented someday would be overcome and patients would no longer be optical cripples. My father predicted an explosion of IOLs in 20 years. It took 25.

The next decade did not include many presentations on IOLs at the meetings I attended. I read the developments reported in the literature avidly but skeptically. There were few cases, all with overly short follow-up. Also problematic was that reports of excellent results were succeeded by others, often by the same author, of new lenses that overcame the *bad* results of the prior design. I felt that most of the lenses were crude with designs that violated the eye, especially the cornea and the uvea. Sterilization involved strong antiseptics, and even the cleansing of the lenses before sterilization was often left to the surgeon.

An article² appeared by a young, unknown Dutch ophthalmologist on a technique for repairing a lacerated lacrimal canaliculus using his “pig-tail probe.” I had assisted my father as he sweated over these emergency repairs and searched for the torn ends. He immediately had Eric Storz make him such a probe, and it worked beautifully. My grateful father labeled Jan Worst, MD, a genius and told me to watch the work of this extraordinary man.

I finished my residency under the direction of Bernard Becker in the Department of Ophthalmology at Washington University in St. Louis in 1959. After 2 years as an ophthalmologist at the US Naval Hospital, Great Lakes, I returned to practice with my father in 1961. He died 3 weeks later of severe heart disease at age 56.

In 1968, I attended the Congress of the Pan American Association of Ophthalmology in Mar del Plata, Argentina. By then, I was Secretary-Treasurer for North America. European ophthalmologists rarely attended then, except for a few big shots like Jules François, MD, PhD. I was surprised and delighted when a young Jan Worst introduced himself. He was impressed that I knew who he was and flattered when I told him of my father’s esteem for him. We became good friends, and he spent much of the meeting enthusiastically describing his work with Cornelius Binkhorst, MD, on lens implantation. I was skeptical but

intrigued. Their designs made sense to me, but I wanted to see longer-term results.

Finally, in May 1973, I attended another Barraquer Course in Barcelona, Spain. Joaquin Barraquer, MD, was strongly opposed to lens implantation after his own disasters in the late 1950s. Jan, however, had 5 more years’ worth of experience to share. A week later, I followed him to Groningen, the Netherlands. I spent 1 week observing and then performing surgery in the mornings and visiting with patients in the afternoons. I met a number of individuals who had had Worst Medallion lenses for more than 5 years. Their corneal endothelia looked impressively healthy.

“I filmed every case and studied these 16-mm movies to see what I could do better.”

More importantly, I saw all of the patients who had experienced IOL-related complications. I was impressed by this openness as well as by the benign nature of most of the problems. A few patients had late corneal dystrophies from a decentered IOL, a complication for which I later coined the term *intermittent corneal touch syndrome*. There were a few aphakic detachments, of course. The vast majority of the complications were tolerable, and even these patients were happy. Jan and I spent time discussing how I could avoid such problems. At night, we pored over the enormous amount of material he had on the subject. He was an excellent teacher, and I became a believer.

PREPARATION AND EXECUTION

When I returned to St. Louis, I began to perform every cataract operation as though I were going to implant an IOL. I rethought every step of the procedure. Although Jan didn’t insist on it, I felt that microsurgery was essential. I needed new instruments and a more rigorously controlled OR environment like Jan’s, including Hepa filtration of the air over the surgical field.

Finally, in September, I felt ready to begin. I had no difficulty importing my first IOLs from Holland (not true later). My first patient was an 86-year-old woman, who bravely underwent the procedure after detailed informed consent. The surgery went beautifully, and we were both overjoyed.

During the next 2 weeks, I implanted three more Medallion lenses. I found the pressure for surgical perfection to be extremely stressful, but the procedures went smoothly, as my results showed. Although I did not discuss my work with colleagues, word of it spread quickly,

and I was summoned to present the cases at Grand Rounds. I protested that my early results would cause a premature rush toward lens implantation. The authorities insisted. My colleagues were overwhelmed, and, within 3 months, half of the staff began implanting IOLs.

STRIVING FOR PERFECTION

My first successes notwithstanding, I told Jan that I was anxious to do everything as well as possible. To my astonishment and eternal gratitude, he flew to the US to assist me with my next three cases. My only disappointment was that he said absolutely nothing to me in the OR. After he left, I learned that the head nurse had informed Jan, "Dr. Drews does not allow any talking in the operating room!" For once, Jan had obeyed! Fortunately, we had a thorough discussion later.

I filmed every case and studied these 16-mm movies to see what I could do better. I quickly became busy teaching IOL implantation to colleagues. Most spent the evening before surgery in my basement rathskeller looking at teaching and case slides and at movies of surgery. We discussed lens implantation from every angle, including history, design, technique, and the avoidance of complications. The next day, they observed my surgery. In the late afternoon, we saw patients in my office who had received IOLs previously. Those colleagues who were willing saw the operated patients on the next day with me. Later, a few brought a patient or two of their own. I would arrange temporary privileges. After completing two of my own cases, I would assist them with theirs and then finish with another of my own.

CONCLUSION

The historic meeting of the Intraocular Implant Club in Paris commenced in 1974, the day after the International Congress of Ophthalmology adjourned. Papers on IOLs had been banned from the latter meeting, but the former was packed with attendees. Lens implantation exploded. The ultimate reward of those exciting times was grateful patients, but the comradeship of wonderful leaders in the field enriched my life.³ ■

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